

# Canadian Railway and Marine World

December, 1914.

## The Handling of Snow and Care of Track in Winter.

The Canadian Northern management offered a prize recently to the roadmasters on its lines in Quebec and Ontario, for the best paper on the handling of snow and care of track in winter. The offer elicited a very satisfactory response, six papers being contributed. They were submitted to two judges, C. H. N. Connell, Engineer, Maintenance of Way, Montreal, and R. A. Baldwin, Engineer, Maintenance of Way, Toronto, who awarded the first prize to R. J. Monroe, Roadmaster, Joliette, Que. W. M. Jocklin, Track Inspector, Port Arthur, also submitted a paper which received very high commendation from the judges, but it could not be considered in the competition, which, as above stated, was confined to roadmasters. We are indebted to L. C. Fritch, Assistant to President, C.N.R., for copies of the two papers referred to, which are reproduced herewith.

### First Prize Paper by R. J. Monroe, Roadmaster, C.N.R., Joliette, Que.

In dealing with this subject I will endeavor to put in a concise form the methods, which, in my opinion, should be employed in order to obtain the most economical, safe and efficient results. Trackmen's work in winter consists practically of but two units, the clearing or removal of snow and the maintaining of track.

The handling of snow in the province of Quebec, due to its geographical location, is a difficult problem, requiring thorough organization and the co-operation of all those engaged in the operating department.

With the approach of winter a portion of the ballast should be removed from between the ties around all moveable parts of interlocking plants, switches, etc. This is essential in order to facilitate the removal of snow and ice from these parts during the winter. The ends of all crossing planks that remain intact during the winter should be tapered off, in order to minimize as much as possible the damage that would result from flangers catching them while in operation.

The roadmaster, after personally inspecting all snow plows and flangers assigned to him, and having them equipped and made ready for service in good season, should consult with the superintendent and arrange for the proper distribution and assignment of this equipment. An experienced and competent foreman, thoroughly familiar with the district to which he is assigned, should be placed in charge of each snow plow. He should also be familiar with adjoining districts, so as to be in a position to operate over same in case of emergency.

Each snow plow foreman should make several trips over the division every autumn, in order to become familiar with the location of sidings, interlocking plants, etc., which is essential in the successful operation of snow plows. He should also take particular notice of any changes that have been made since the previous winter, such as the installation of new side tracks, or the lengthening of old ones, etc.

At the beginning of the winter the track should be kept clear of snow as long as

possible, by the operation of wing flangers on freight or mixed trains, thus avoiding the extra expense of running plow extras. As the season advances and the snow becomes heavy and cuttings get filled, necessitating the operation of snow plow extras, the roadmaster and supervisor of track must keep in touch with the superintendent and chief dispatcher, keeping them well posted as to the condition of the road, and arrange for plow extras when required, and in this respect it is imperative that snow plow extras be run promptly when ordered, and that the best available power be supplied for them. Experience has taught us that failure to promptly operate snow plows during heavy snow storms has resulted in serious blockades, with the ensuing result of congestion of traffic and extra expense all round.

On the return trip of snow plow extras from their operation over the division, or immediately after snow storms, plow extras should be used in winging out and widening the bad cuttings and for plowing out all passing tracks and other through sidings. The prompt and proper handling of snow in passing tracks and sidings, by the use of snow plows, reduces the cost of hand labor, and in addition permits the more prompt handling of traffic after each snow storm, as trains can meet without delay, and cars can be promptly set out or picked up from business tracks.

In heavy cuttings, as well as in certain places in the open country, snow very often accumulates from continual drifting, and in this respect section foremen must thoroughly familiarize themselves with their sections. It is important that they watch closely all such places and give timely advice to the train dispatcher's office, as well as to the roadmaster and supervisor of track, as soon as snow accumulates in such places, so that trains, especially heavily loaded freight trains, may not be permitted to run into such places and become stalled, thereby seriously delaying traffic. They should keep the snow in all such cuttings well shovelled back, so that snow plows during snow storms may successfully operate through them with wings in full operation.

The handling of snow at the larger terminals forms a heavy item of the snow expense, and while no adequate means have been devised for doing this work, except by hand labor, still a great deal can be accomplished by the use of flangers. Foremen in charge of terminals must watch snow expenses very closely and not employ more men than is absolutely necessary. This is particularly so at the beginning of the winter, when the first falls can be handled with a small gang of men and with very little inconvenience to traffic, as the flange is generally clear of ice and hard snow and yard engines can operate with greater ease than later on in the season. Tracks and switches around locomotive houses, water tanks and shops demand very close attention on the part of section foremen. Ice quickly accumulates at such places and unless watched very closely, becomes a cause of derailments. Section foremen in charge of important terminals should keep in touch with the unemployed

labor, so as to be in a position to secure extra men on short notice.

Shimming is another problem which trackmen have to contend with. The extent to which track heaves varies according to the nature of the soil in the subgrade, the amount of ballast underneath the track and the drainage. With a liberal supply of ballast shimming can be reduced to a minimum. It is my experience that the results obtained from shimming do not depend so much on the number of shims applied each day, as the applying of them in the most needed places. When track heaves badly the section foreman should select the worst spots on his section and do the necessary shimming promptly, in order to keep the track in a safe condition for the passage of trains. Some foremen, especially the inexperienced, find it rather difficult to select the worst places and very often spend valuable time and material doing unnecessary work. In order to avoid this the supervisor of track, when travelling over the division, should keep a sharp lookout for rough track and note the extremely bad places on each section and promptly advise the foremen, giving them the exact location of each spot. By doing this regularly all unnecessary shimming will be avoided and the track will show a marked improvement each day.

Spread track, except on sharp curves, is invariably caused by defective surface and line. When track shows signs of spreading, trackmen should at once set to work to remove the actual cause, instead of driving a few extra spikes and leaving the track in bad line and surface, with the result that the track will again spread from the same cause in a day or two.

When leaving for work in the morning the section foreman should always have in mind the places to be shimmed on that day and see that he has the necessary material with him.

When shims exceed half an inch in thickness spikes should be pulled and driven through them. When shims exceed 1½ ins., sufficient long spikes and braces must be used to ensure safety. When shims exceed 3 ins., long shims must be used and an occasional one spiked to the ties.

The most critical time is in midwinter, when snow storms are frequent and of long duration. At such times trackmen find it very difficult to do any shimming and track will continue to heave badly. Bad spots will develop that will become dangerous within a very short time if not attended to. Supervisors of track must watch this even more closely in such weather and keep a sharp lookout for such bad spots and insist on having them attended to at once.

As soon as the snow has disappeared from around the rail, section foremen should go over their section and spike all short kinks into line and shim up all spots which are liable to cause spreading.

We now arrive at the season when the frost will show signs of coming out and shims will "show high." A great deal of rough track at this season can be attributed to two causes, the principal one is that of allowing shims to remain "high" for a certain length of time in order that they may be all taken out at one "pull-



ing." The other is the lack of doing the needful shimming around frogs, crossings, etc., where the frost is retained a longer period. Some foremen neglect this important matter with the expectation that the frost will disappear in a day or two, when in many cases it remains for weeks. As soon as shims "show high" they should be reduced or removed, as the circumstances demand, and the material used elsewhere, such as around public crossings and frogs, as mentioned above.

Where track heaves badly, such as in cuttings, the section foremen should examine it frequently by walking over it and sounding the ties, as the frost is liable to drop out suddenly, leaving a serious defect which is not noticeable on the surface of the rail. Such track as this cannot be inspected properly on a hand car.

All switch ties should now be filled up to insure a uniform departure of the frost and to prevent them getting slack.

One of the most important matters is a daily patrol of the entire section by a competent trackman. This is especially so during stormy weather. It is his duty to keep a sharp lookout for a spread track, broken rails, etc. A very important matter and one that must not be lost sight of by foremen and supervisors of track, is the accumulation of ice in rock cuttings, side hills, around cliffs, or at any other points where the track is liable to be flooded during soft and rainy weather.

#### Paper by W. M. Jocklin, Track Inspector, C.N.R., Port Arthur, Ont.

**Inspection of Track.**—There should be a well organized system of inspection on every railway. The entire section should be patrolled every day, and in severe, cold weather it is a good plan to patrol track oftener, especially where traffic is heavy. Inspections should be made in the morning where only one is made; if two inspections are made, one should be in the morning, and one in the evening. The inspections should be made in full daylight. If this work is performed early in the morning and late in the evening during the winter, it is not light enough to enable the section force to detect defects in the track; even broken rails and spread track may be overlooked in this way. The work of inspecting track should not be entrusted to laborers, except in ordinary weather, and then not to any great extent. When making inspection trips with a handcar, all tools for making track repairs should be carried. There should be the necessary danger and cautionary signals on hand cars at all times. When patrolling track on foot, the track walker should always carry a track wrench, spike maul, four torpedoes, and two red flags. In bad snow storms, heavy fogs, and at night, a red light should be carried in addition to the above signals. The section foreman should ride over his section at least once a week, on a locomotive, noting carefully bad spots in track, which will be readily felt while on the locomotive. He should then examine the track carefully where rough spots were observed, and get these places repaired as soon as possible. If this is properly done, it will greatly improve the riding of the track.

**Preparing Right of Way for Winter.**—Right of way through timbered sections should have the brush cleared each autumn for a distance of at least 12 ft. from rail, and every second year the entire right of way should be brushed. If this is done during August or September, and burnt as soon as sufficiently dry, it will be but a matter of a few years until the brush and undergrowth will be entirely killed out.

Vegetation should not be allowed to stand along the track during the winter, as it will cause snow to drift in on the track, and a great deal of unnecessary trouble and expense.

Right of way on open prairie sections should have the grass cut each autumn, for a distance of 10 ft. from the rail and a strip about 8 or 10 ft. wide should be cut along the extreme outer edge of the right of way. If this is done and burnt as soon as sufficiently dry, the remainder of the right of way may be burnt with a great deal less danger of fire.

**Preparing Track Switches and Roadbed for winter.**—To get the best results from track during the winter it should be gone over in the autumn, and any inequalities as small as a fourth of an inch must be taken out and all ties brought up to the rail, so as to give the rails an even bearing on all ties, and put the track in perfect line. All damaged rails should be changed out, worn frogs and switch points renewed, and all bolts properly tightened. The gauge of track must be looked after very closely, so as to make sure that there is no spread track whatever at the beginning of winter. All spikes should be driven down, so as to hold the rail firm to the ties. This will greatly lessen the guttering of ties, it is also a good preventive of spread track, as it will have a tendency to keep snow from getting between the base of rail and tie.

The ditches in cuts should be examined closely, to see that nothing has accumulated in them that would in any way block the flow of water in the spring when the snow is melting. The ends of culverts, where there is not a continuous flow of water, should be boarded up and a long stick driven down at each end, so as to enable the section men to find them at the first signs of a thaw in the spring, when the boards should be removed and the snow cleared from the ends, so as to allow a free passage for the water. I have found it a very good plan to open up ditches in cuts, especially those that have a considerable amount of snow in them.

In the autumn, before the ground is frozen, all track signs should be straightened and put in proper shape, making sure that all bridges, road and farm crossings and switches are protected by flanger signs. Ballast must be removed from between ties on turnouts just underneath switch points, guard rails and frogs, to a depth of at least 4 ins. If this is done, the switches can be cleared of snow and ice at a great deal less trouble and expense. An old shovel and broom, hung to a post set near the switch stand, will be very handy for train crews wishing to use the switch during snow storms. Interlocking plants should be thoroughly cleaned out as to dirt, which may have accumulated from any cause. All debris and vegetation which may have accumulated underneath pipe lines for interlocking plants, must be thoroughly cleaned out to a depth of 6 ins., so there will be no possible chance for snow to drift around the plant.

A small amount of salt may be used in switch points, frogs and guard rails to good advantage in severe weather and when there are frequent snow storms, but in no case should it be used on interlocking plants. If it is used on detector bars, pipe lines, and locks of the plant, it will rust them and shorten the life of the plant.

**Shimming of Track.**—There is no work connected with track repairs requiring more care and judgment than shimming. All mud ballasted track, and even track properly ballasted with gravel, will heave in spots from the action of the frost, and heaving spoils the surface of the track.

Inequalities as small as a fourth of an inch should be corrected by shimming the track. Shims should be made of hardwood, and those of half an inch thick and over must have holes bored to receive the spikes. The practice of placing shims, larger than half an inch thick, angling on tie, should not be allowed. All spikes should be drawn, holes plugged and ties edged off to a smooth and even surface, before placing the shim. It should then be placed underneath the base of rail, parallel with tie, and securely spiked.

Where shims exceed an inch thick, shimming spikes, 7 or 8 ins. long should be used. For 4 in. shims, a 3 in. plank and a 1 in. shim should be used, and for a 5 in. shim, 5 by 8 in. timber should be used. Wherever planks are used for shims, they must extend under both rails and be secured to tie with shim spikes. All shimmed track must be well braced, this is best taken care of by using a shim about 1½ in. thick, placing one end against the rail and spiking the other end to the tie. These braces should be used on every third tie, and under no circumstances should shims an inch thick be used on curves, without spread ties or rods being used to protect the gauge of the track. All shimmed track must be closely watched, especially high shimming. The snow should be cleaned away from the spikes on shimmed track at least once each week, and oftener if track is still heaving, in order to see that track is not spreading, that all braces are in proper shape, and that shims are not broken or crushed underneath the rail. If this rule is rigidly enforced, derailments caused by spread track and broken rails will be prevented. Too much care cannot be given to shimmed track. Where high shims have been used, it will be found necessary in the spring to replace them with smaller shims, as the frost leaves the ground (this is commonly called reducing shims), and this process will have to be followed up from time to time until the track has so settled as to make it possible to remove all shims. After shims have all been taken out, it is a good plan to take them to the car house, unless there is a very large amount of them, in which case they should be piled in neat piles at the emergency rail rests.

The heaving of track may be greatly lessened by having good drainage in cuts. The ditches in cuts should be so constructed as to carry the water off as fast as possible. Water should not be allowed to stand in cuts and along track, as it will soak into the roadbed, and not only make rough track, during the summer, but will cause it to heave a great deal worse during the winter. Poor drainage is the cause of a great deal of rough track, during both winter and summer. Another good remedy for bad heaving spots is to remove the clay from underneath the track to a depth of at least 4 or 5 ft. and fill in with good clean gravel. This work can be done by the section force and in no way endangers the safety of track. The best method of doing this is to have the gravel unloaded at the site where it is intended to be used, using one side of track for this, and the other side for the waste material that is taken from under the track. Both ends of the spot can be worked at the same time. After having placed a slow order on track, and putting out the proper cautionary signals, remove two or three ties from track and use them as a stringer running parallel with the track, bedding them in, so as not to disturb the surface of the track. Then proceed to remove the clay from under the track, taking a strip about 4 or 5 ft. long and the width of track. When this spot is dug out, fill in with gravel, take out the ties that were used as stringers.



placing them in their former positions, tamping them well. When this is done, repeat the process until the spot is completely dug out. Wherever this is done, there will be no more heaving and the company will be amply paid for the trouble and expense of removing the clay from the road-bed.

**Placing Snow Fence.**—As the greater portion of railways in the northern countries run in one general direction, which is east and west, and are exposed to severe and repeated snow storms, there should be some protection against drifting snow. This protection is best provided in the form of fences. Their efficiency will depend upon the strength, height, position and distance from the track. The fence should be placed at such a distance from the track that when drifted full the snow will not reach closer than 25 ft. from the track. The fence should be set up from track 12 ft. out for each foot in height of fence, thus if the fence is 10 ft. high it should be 120 ft. from the track, and so on, according to height of fence. As the general direction of the railways is east and west, the greater portion of the fence will be required on the north side of track, as the severest snow storms come from the north and west. It is a good plan to have the fence extend parallel with the track for the entire length of the cut, until nearing the ends of the cut, when the fence should be gradually drawn in, so as to be about 50 ft. from the track. This is to prevent snow from filling up the ends of the cut. I have found that snow walls properly built are of great value, and are often used in place of fences, where there is not too heavy drifting and the expense of permanent fences is not warranted. Snow fences should be set up in plenty of time, so as to avoid being caught with an early fall of snow, which may drift the cuts full and cause serious delays and unnecessary expense.

**Clearing Switches, Interlocking Plants and Road Crossings.**—During snow storms switches and interlocking plants must be kept cleared of snow, so as to be in working order at all times, especially interlockings, as it requires but very little snow to render them useless. There should be a sufficient amount of maintenance force on hand to keep them cleared of snow, either night or day, during storms, and as soon as the storm is over, the switches must be thoroughly cleaned out and station platforms and public road crossings cleaned off, and the flange way picked out. When clearing switches and interlocking plants of snow, it will be found a good plan to remove the snow from between the rails over the entire turnouts. If this is done it will prevent them from filling up with ice, and also keep the spikes clear, which will greatly aid the section force in holding track to gauge in turnouts.

**Preparing Track for Snow Plow.**—As soon as the condition of the track has been reported after a severe snow storm, the section foreman should take his force and put his section in shape for the snow plow. In cuts where the snow is drifted to a depth of 3 or 4 ft. the track in both ends of the cut should be cleared of snow and flanged out to where the snow has a depth of 2 ft. Snow is most apt to cause derailments where it is of slight depth and frozen to the rail, and this most frequently occurs at the ends of cuts, and by clearing the cuts in the above manner the danger of derailments is avoided.

**Snow Reports.**—Immediately after a heavy snow storm the section foreman should ascertain the condition of his track, noting which cuts are drifted full and which are clear. These facts should be

reported immediately to the roadmaster, in order that preparations may be made to clear the track. If the section is clear, it should be so reported.

**Snow and Its Effects and Handling Snow Plow to Open Line.**—All roads in the northern countries are obliged to contend with snow, and in the northwest especially. The keeping of the track clear constitutes one of the main items of cost of track maintenance. Snow must be contended with in many forms, the most common of which is drifted snow, but it is almost equally as difficult to contend with it when it fills the flanges of rails with ice, or when in melting and freezing it fills the track ditches, and flows over the track, covering the rails with ice and threatening derailment to the first passing train. The clearing of the track of snow belongs to the roadmaster's department, and is of vital importance to a railway. A man should be thoroughly competent and familiar with the best methods of "bucking" snow, before taking charge of an outfit to open up the track for traffic after a blockade. Before starting out on the road he should be thoroughly informed as to the condition of the amount of snow in cuts, especially the length and depth of the worst drifts. Locomotives in first class shape should be furnished for this work, and locomotive men that are familiar with the road should be furnished. The snow plow, if not a rotary, should be one of the best make and able to deliver the snow out of a 10 ft. cut. I have found that a snow plow that is independent of the locomotive, is best. It should have wings that can be let out or taken in as the conditions require. Snow plows differ a great deal as to make and design, but I would suggest one of the above mentioned style. A snow plow of this type should be carried directly ahead of the locomotive where heavy drifts are expected, and it is probable that one locomotive will not be able to handle the plow successfully. The second locomotive should follow close behind the first locomotive and plow, so as to be in readiness to assist when needed. No car or caboos should ever be placed between the two locomotives. When conditions of the above nature are known to exist, the second locomotive should carry a car of coal and a water car in the train. It is also a good plan to carry a bunk car of some kind, for sleeping quarters for laborers, especially when it is not known how long it may take to open the line. When the snow is reported hard, each drift should be carefully examined and its height and length noted. If the drift has not been faced by the section men (that is, shovelled out from the end of the drift to where its depth is about 2 ft.), it should be done before a run is made with the plow, for if this is not done it may cause derailment. Wherever the second locomotive is used in "bucking" snow, it should be uncoupled from the cars that it is handling. A run for a drift should never be made while locomotives are handling anything other than the snow plow. If it is not absolutely necessary to use both locomotives, it is a great deal safer and better to use but one. If snow is not too hard, a drift from 3 to 6 ft. deep and 600 to 800 ft. long can be cleared in one run. There is comparatively no danger in "bucking" soft deep snow at top speed.

The locomotives with a snow plow outfit should take fuel and water to their full capacity, at every point where it can be obtained, as unforeseen delays may be encountered. Each locomotive in the outfit should be equipped so as to be able to syphon water from the emergency tank that is carried. I have also found it a good plan

to have a steam hose attached to the locomotive, as it can be used to thaw the ice and snow from the machinery and the track rails. When "bucking" snow, the speed of the locomotive should always be regulated by the length and depth of the drifts. An experienced locomotive man will regulate the speed so as to leave very little work for the shovellers; therefore the necessity of an experienced locomotive man. The locomotive's whistle should always be sounded before entering a cut, so as to give warning to those who may be working there. When it is necessary to make the second run for a cut the whistle must be sounded and make sure that all hands are out, as it is almost impossible to climb out of a snow cut when first opened up.

When the snow is both deep and hard, the rotary plow should be brought into use, if one is available, if not the crust should be shovelled out before any attempt is made with the plow, as "bucking" deep, hard, crusty snow without having the crust broken is very severe work for a locomotive and is dangerous for trainmen. It is better to have a little delay and be on the safe side; however, it is not advisable to start clearing the track of snow during the storm, especially a heavy storm, but be in readiness to start at the first signs of the storm abating. Cuts, where road crossings are located in them, must be dug out and the flangeway cleaned out before making a run with the plow. If a pilot flanger is attached to some locomotive which is making daily runs over the line, it will be found a great help in keeping the rail clear and the flange open. A local passenger locomotive, or local freight locomotive, should answer this purpose, and the running of the snow plow should not be confined entirely to the opening of the line, but it should be run occasionally during open weather. When being used on these trips it is not necessary to have a special locomotive for this purpose, as I have quite frequently seen the plow attached to a local freight. The benefit derived from running a plow in this manner is that the wings of the plow can be opened, and any snow that is drifted in near the track levelled down, and the line thoroughly flanged out, which will greatly benefit the line and make the handling of traffic much easier, besides it will take much heavier snow to block traffic than if it was left piled up close to the track.

**The Intercolonial Ry. Efficiency Association** held its regular monthly meeting at Sydney, N.S., Nov. 1, when the recently inaugurated merit and demerit system was discussed and adjourned to the December meeting. It was announced that about 200 of the I.R.C. employes had gone to Europe with the Canadian contingent for war service, and that their pay would be continued, each man filling up a form indicating the person to whom his pay cheque was to be made payable.

**Railways in the United Kingdom** give names to their passenger locomotives, and since the war, several of these names have fallen into disfavor. To keep up with the popular taste, the London and North Western Ry. has changed the name of its locomotive Germanic, to Belgic, and the Great Western Ry. has changed its Knight of the Black Eagle, to Knight of Liege.

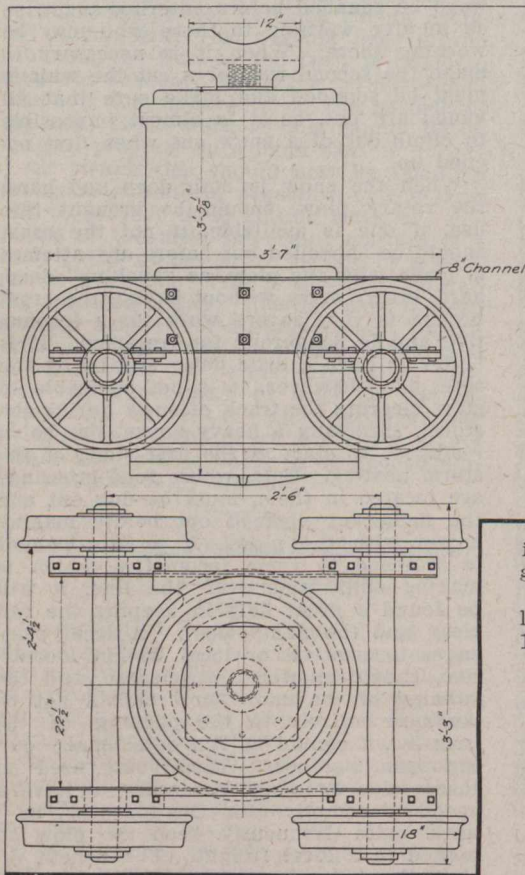
**With drop forge dies,** a very good practice after the impressions have been sunk and completed in the die block, and before the dies are tempered, is to try them by pouring a lead casting, which will form a lead proof, showing any slight changes that may be required.



# Railway Mechanical Methods and Devices.

## Drop Pit Jack on Canadian Northern Railway.

A 10 ton drop pit jack, of the design shown herewith, has been made standard for use on the C. N. R. Of light construction, it is



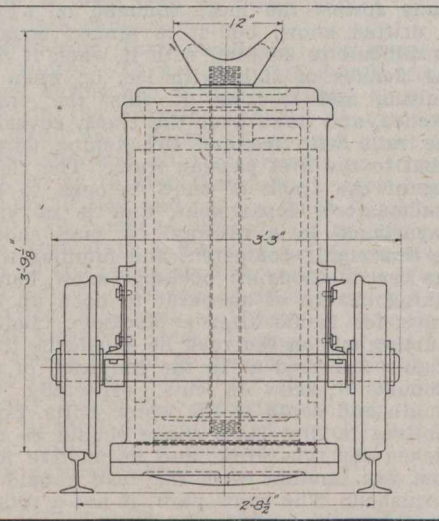
10 Ton Drop Pit Jack on Canadian Northern Railway.

to be used for the removing of driving wheels, tender truck wheels and car wheels, and general repair pit service. While small in size, the telescopic action of the cylinder gives it as great a range as the larger jacks commonly in use, and it can be employed in pits only 5 ft. 5½ ins. deep.

The outer jack cylinder is carried by two lugs on the side, on two 8 in. channels, 3 ft. 7 ins. long, one on each side, to the under side of which, near each end of the channels, are bolted bearings at 2½ ft. centres. The axles carried in these bearings are 4½ ins. diam., with a 3 in. wheel fit, and are 3 ft. 3 ins. long. The wheels are 18 ins. diam., and have a spread of 28½ ins., to suit the rail centres of 32½ ins.

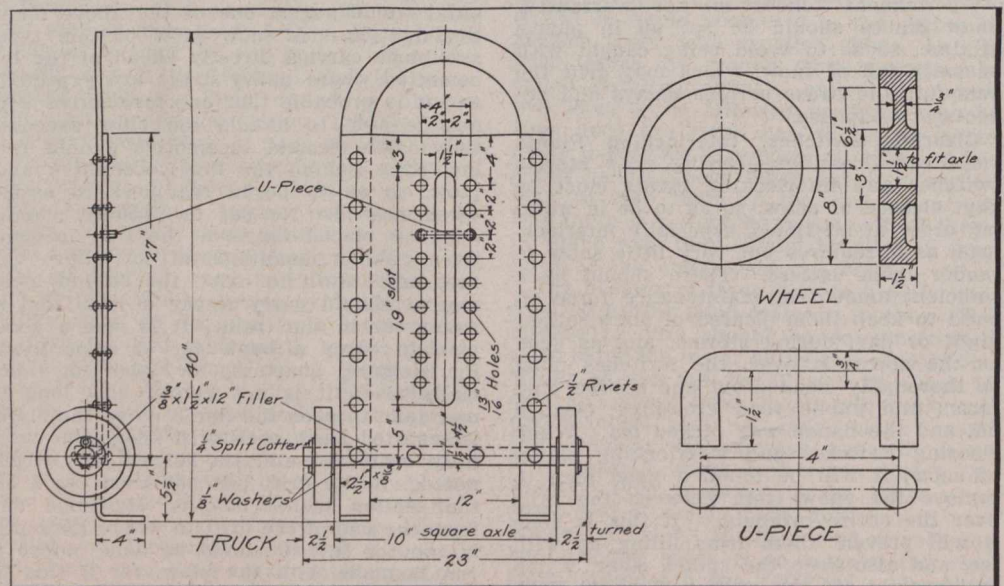
The jack proper consists of two telescoping cylinders, the inner one having a bore of 16 ins., and containing a piston of the same diameter, having three ½ in. packing rings. The inner cylinder, which, in a sense, is an outer piston, is 20 ins. diam., and is similarly fitted with packing rings. That a combined lift of 4 ft. is possible is due to the fact that the inner piston on reaching the top of its stroke, that is when it strikes the head of the inner cylinder, the latter, which as explained is also a piston, is carried upward until its flanged rim strikes against the stop collar of the outer cylinder. This makes it possible to operate in the 5 ft. 5½ in. pit, which is deemed to be a considerable advantage from the fact that it is more convenient for working, and much less danger-

ous. The top cover for the inner cylinder head is secured by twelve ⅞ in. studs, and the ring passing around the inner cylinder and fastened to the main cylinder is secured thereto by eight 1 in. studs, countersunk flush with the top face of the ring. The block on the upper end of the piston is 12



ins. square, with right angle retaining grooves.

It is proposed to supply the jack with 80 lb. air, which will exert a lifting pressure of 19,000 lbs. The supply is from a 1 in. pipe,



Cylinder Head Truck for Fitting Heads without a Crane.

fitted with a cut out valve and check valve. The exhaust is of similar size. A rubber hose connection is made on the far side of the cut out valve on the supply line. A ½ in. air release vent is fitted to the top cover of the inner cylinder, to enable the latter to fall back into its inactive position.

**Montreal Harbor Commissioners Ry.**—We are officially advised that the commissioners are not at present contemplating changing the operation of the lines on the Montreal Harbor property from steam to electricity.

The Canadian Northern Ry. moved into its new offices in the McLeod Block, McDougall Ave., Edmonton, Alberta, Nov. 2. The ticket, telegraph, express and freight offices are now located in the one building.

## Cylinder Head Truck on Canadian Northern Railway.

The C. N. R. mechanical department has developed a handy truck for handling front cylinder heads, and placing them in position on the cylinders, which is illustrated herewith. The main part of the frame consists of a U member, 40 ins. long, of 2½ by ⅝ in. bar iron, the ends of which are bent at right angles to form 4 in. shoulders. Across the face of this U form, there is a sheet of ⅝ in. plate, rivetted to the legs of the U, and with a 19 in. slot down the centre. Each side of the slot there is a row of 13-16 in. holes at 2 in. centres, in which may be inserted a U piece for a stop, this U piece being made of ¾ in. round iron. Near the base of the U frame, there is a 1½ in. square axle, the ends of which are turned for 1½ in. journals, with 8 in. wheels on the end, held in place by washers and cotter pins.

The cylinder head is placed on the truck with the lifting stud projecting through the central slot in the truck facing. On the end of the stud which projects through in this manner, there is secured a nut and washer, which holds the head securely on the truck. The head is adjusted in position, so that when the truck is swung up into its vertical position, the head will be practically in position to slip over the cylinder studs. The U piece mentioned is placed in the correct pair of 13-16 in. holes alongside the slot, and the head may be adjusted when the truck is in

its vertical position by using a crowbar in the slot, resting on this U piece. By moving the truck forward, the head may be slipped over the studs.

## Surface Plate for Lathe Work in Timiskaming and Northern Ontario Railway Shops.

The use of the horizontal boring mill in railway shops has become so general that a great many mechanics would find it difficult to otherwise handle a job that would ordinarily be performed on such a machine. It is almost universally employed for boring holes which parallel plane surfaces, these latter being usually finished in the planer,

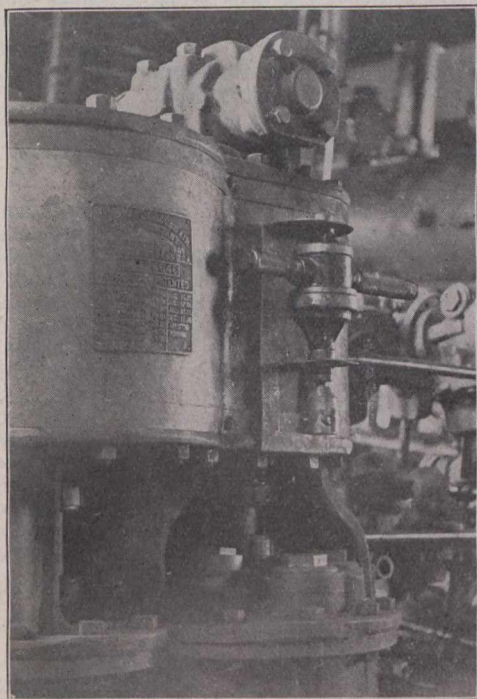


and then removed to the horizontal mill for boring.

In the T. and N. O. Ry. shops, at North Bay, Ont., a satisfactory substitute for the horizontal mill has been found by the use of a surface plate on a large engine lathe, the member to be bored being bolted thereto. An old slide valve cover plate, about 24 ins. square is used. In each corner of this cover plate there is a bolt hole, from the under side of which passes a long bolt, threaded through the greater part of the length, and with a nut on both sides of the plate. These four bolts may be secured in the T slots of a lathe carriage, and on this base the surface plate may be levelled in the position required with regard to the lathe centres. The work to be bored is bolted to this surface plate, and the tool is carried on a boring bar between the centres, the work moving with the carriage to secure the feed.

### Grinding in Air Pump Valves, Timiskaming and Northern Ontario Railway Shops.

Instead of grinding in the poppet valves used on locomotive air pumps, there has been developed by C. Batley in the T. and N. O. Ry. shops at North Bay, Ont., a method of handling this work by means of a small air motor to provide the power. These poppet valves have a small vertical displace-



Small Motor Mounted on Air Pump for Grinding in Poppet Valves.

ment on their seats, being stopped in their upper position by brass valve caps, which are screwed in the top of the cylinder casting. The device under consideration employs the threaded opening into which these plugs normally fit, an auxiliary plug performing the work.

This auxiliary plug is hollow, and contains a thin disc in this hollow space, normally kept in its bottom position by a coiled pump spring, this disc being kept from falling out by an inner collar. When this plug is screwed in to its seat, the coiled spring inside seats the valve firmly on its seat. Through the centre of the auxiliary plug, there is a small hole, through which a small spindle passes, being screwed into the seated valve.

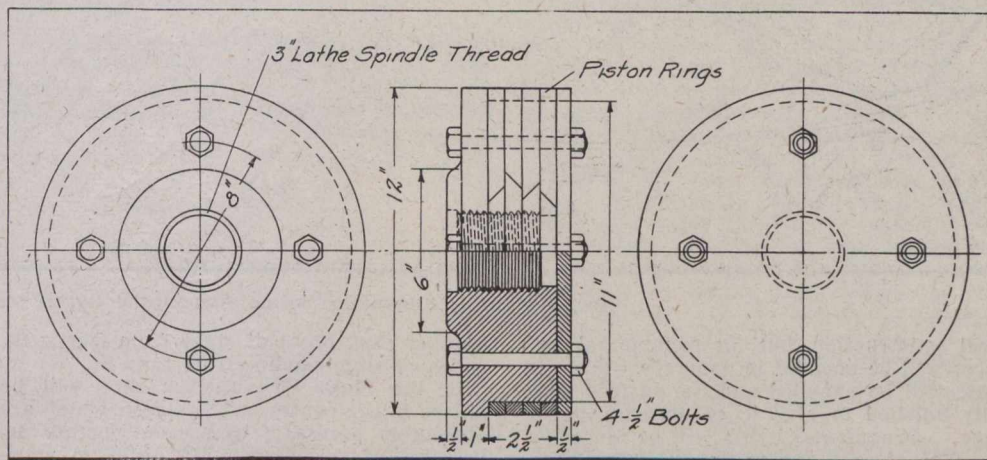
On the outer face of the steam cylinder, there is mounted in a sheet metal frame,

which is attached to the cylinder by the cylinder head bolts, a small air motor, which is maintained in a stationary position. Between the air motor chuck and the head of the valve spindle, which projects through the auxiliary head, there is a universal joint connection, by means of which the spindle can be revolved. The universal joint connecting link is extensible, so that any one of the three valves may be operated on from the one position of the air motor.

In operation the air motor is mounted as shown in the accompanying illustration. The regular valve plug is removed, and the

### Piston Ring Turning Jig, Canadian Pacific Railway North Bay Shops.

The piston rings that are cut from a stock sleeve and slotted, with a piece removed for springing purposes, require to be finally turned on the outside after springing, in order to insure a correct circular form. A jig has been developed in the C. P. R. shops at North Bay, Ont., for doing this work expeditiously. It consists of a solid head, that screws on the end of the headstock spindle of a lathe, on which the rings to be turned



Piston Valve Ring Turning Jig.

valve, with a grinding compound of glass dust and oil seated. Into the top of the valve, the auxiliary spindle is screwed, and over it the auxiliary valve head is slipped and screwed into position. The universal joint connection is applied, and the motor set in operation. The pump spring in the auxiliary head keeps the valve seated tight enough for the grinding in operation, which is continued just so long as is necessary. To apply more cutting compound, it is only necessary to unscrew the auxiliary plug, lifting the valve, and exposing the contact faces. The apparatus works admirably, we are informed.

are slipped, and clamped in position for machining, by means of a circular plate, secured on the end of the head by four  $\frac{1}{2}$  in. bolts.

The rings, as first turned and slit, are slipped over the body, and encircling their outer diameter, there is placed a circular band of steel, the ends of which can be drawn together by a clamping bolt. When this latter is clamped down as tightly as possible, the end plate is tightened up, securing the rings in place by end pressure, when the outer band may be removed, and the turning proceeded with. Rings may be quickly handled in this manner.

### Grade Crossings Elimination on Intercolonial Railway at Moncton.

Plans have been prepared for the elimination of a number of grade crossings on the Intercolonial Ry. in Moncton, N. B. The proposed work consists of a subway at Main St., overhead bridges at Victoria St., Church and St. George Sts., and a new bridge at Union St. At Queen and Lutz Sts. a pedestrian subway is to be built, with an entrance on the west side of the tracks at the corner of Queen and Lutz Sts., and at the east side of the tracks there will be an entrance from both Queen and Lutz Sts. Between Robinson and Main St. a sidewalk 6 ft. wide is to be built along the west side of the railway property. The railway will also make all necessary changes to the sewers and pipe lines with which the scheme will interfere. Where the grade of Main St. is changed the railway will put in a modern pavement, and where there are changes in the other streets macadam pavements will be built.

In order that this scheme may be carried out the railway will have to change the grades of its tracks between the station and a point about half a mile beyond Union St. The base of rail at Main St. will be raised 6 ft.; at the west side of Lutz St. there will be practically no change; at Victoria St. the tracks will be lowered 12 ft.; at St. George Street 18 ft., and at Union Street 9 ft.

The principal grade crossing to be elimin-

ated is that at Main St., and this is to consist of a subway the full width of the street. In order to do this the tracks will be raised 6 ft. above the present level of the street, and the street will be lowered  $11\frac{1}{2}$  ft. at the railway tracks, which is only  $4\frac{3}{4}$  ft. lower than Main St. at the corner of Lutz St., and only  $2\frac{1}{2}$  ft. lower than Main St. at the corner of Robinson St. To lower Main St. as proposed at the tracks it will be necessary to start the depression of Main St. on the west side of the tracks at Bonacord St. and on the east side of the tracks opposite McBeath's grocery store, that is Main St. will retain its present levels at Bonacord St. and at McBeath's grocery store.

As Archibald St. is opposite the proposed subway on Main St. it will be necessary to depress this street in order to get an entrance to Main St., and it is the intention of the railway to widen the street about 30 ft. at Main St., and to gradually narrow this extra width in until about opposite the north boundary of the H. S. Armstrong property, where the street will retain its present width and levels, the depression of the street starting at this point. The sidewalk on the east side of the street will be maintained at its present level, with an easy flight of stairs to Main St., and a sidewalk will also be built on this side of the new



street level, thus having two sidewalks, one on the higher level and one on the lower level and the space between these two walks will be terraced and sodded.

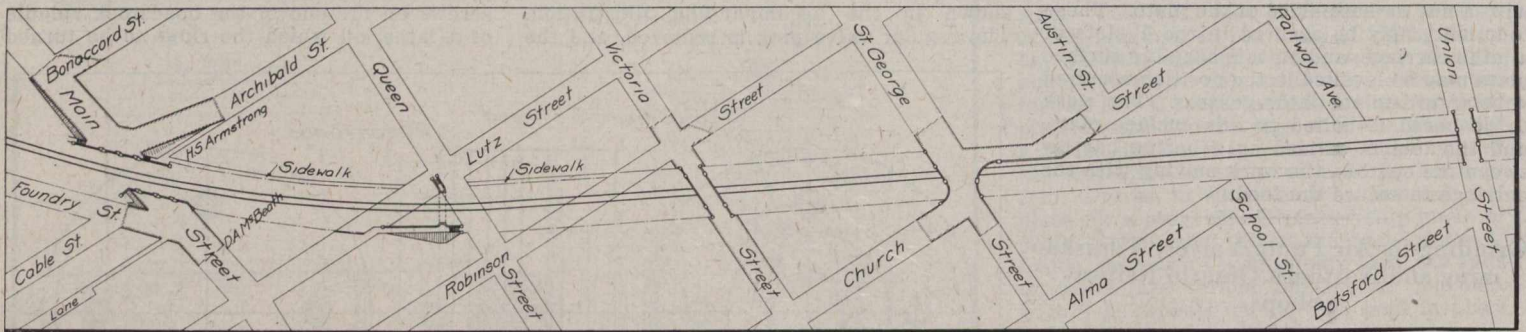
Foundry St. will only be depressed very slightly, as the depression will only start at the east side of Cable St. At the subway there will be an entrance from Main St. to the station grounds by means of an easy flight of stairs.

The subway proper will consist of solid

to the original surface of Union St., this practically making a level roadway at this place.

The pedestrian subway at Queen and Lutz Sts., which the railway will build, will be 10 ft. wide and 8 ft. high, will be of original construction and will be lighted with ornamental lights. The entrance to the subway on the west side of the tracks will be by an easy flight of steps, and the entrance on the east side of the tracks will be by

Canada and elsewhere have a similar arrangement to the one on Main St., and in many cases it is considered more or less of an advantage as it divides the traffic in opposite directions. The railway proposes to make all these crossings of the most modern construction and ornamental design so that when the scheme is finished it will be a big improvement to the appearance of that part of the city. The proposed improvements will cost in the neighborhood of \$500,-



Grade Crossings Elimination on the Intercolonial Ry. at Moncton, N.B.

steel construction, but for ornamental purposes will be encased in concrete. The concrete will be panelled and the surface specially finished to give it an artistic appearance. Ornamental lights will be placed on the face of each end of the subway, and on the ceiling above the sidewalks, so that the subway will be brilliantly lighted by night.

Where Victoria St. crosses the tracks there is a slight grade downwards towards Church St., and in order to put an overhead bridge at this place it will be necessary to raise the road level 11 ft. The approach to the east end of the bridge will start about 70 ft. west of Church St., and the approach to the west end of the bridge will start about 40 ft. west of Robinson St. This bridge will also be of solid steel construction encased in concrete, panelled and finished similar to the Main St. subway.

At present Church and St. George Sts. cross the present tracks at a level considerably lower than the original surface of the streets. This depression in the streets will be taken out and the new level will be practically the same as the original street level. At this place the proposed bridge is to be the full width of St. George St., and will be built so that St. George St. from the east will gradually curve round into Church St.

another easy flight of steps from Queen St. and by a slight incline from Lutz St.

In the Main St. subway there will be pillars in the centre of the street, which are absolutely necessary to prevent further depression of this street. In order to make one single span across Main St. it would be necessary to depress the street at least 4 ft. more than it is at present contemplated. Many of the subways in the larger cities in

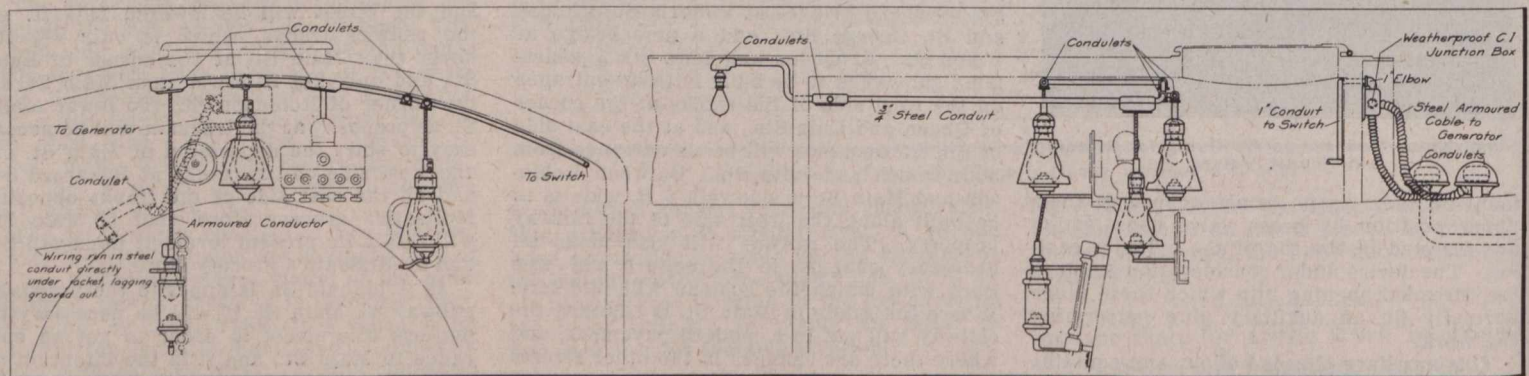
000, and should add greatly to the comfort and safety of the citizens by eliminating the danger of level crossings, and also the blocking of streets. It is the intention to start only the Main St. subway this year, and the contract for it has been given to Soper and McDougall, Ottawa.

We are indebted to C. B. Brown, Chief Engineer, Canadian Government Railways, for the foregoing information.

### Locomotive Headlight Installations on Canadian Northern Railway.

The C. N. R. Mechanical Department standardized its locomotive electrical installations recently, so that the manner of installing, and the nature of the wiring, as well as all the parts entering into the installation, have been reduced to a standard form, applying to all road locomotives on the system. The generator is of the Pyle-National E type, located immediately in front of the cab, crosswise of the boiler, with the generator on the left hand side, with a 2 in. exhaust pipe bent at an angle of 45°, just long enough to clear the top of the cab so as to permit the steam to trail backwards over the cab. The supporting shelf is 1 1/2 in. white oak 17 by 18 ins., carried on two 1/2 by 2 in.

and seat, and so located as to be conveniently accessible from the engineman's position. If the valve is necessarily inaccessible, an extension rod on the valve handle is used. The steam pipe is of copper, installed without pockets, and arranged to drain towards the boiler. Only ball or taper joint unions, with no gaskets, are used. The drain from the turbine is of 3/8 in. pipe, contains no valve, and is free from bends, extending below the running board and close to the draught opening of the ashpan, the pipe below the running board being as nearly perpendicular as possible. Preparatory to operating the unit, the top cap over the governor steam valve is removed, and the pipes



Cab Electric Light Installations on C.N.R. Locomotives.

This bridge will also be of solid steel construction, encased in concrete, with the same style and finish as the Main St. subway. The present bridge at Union St. will be removed, and a new bridge of similar design to that of Victoria and St. George Sts. will be put in. The street level over the tracks at this place will be brought down

wrought iron forged supports, at 12 3/4 in. centres. On the left side there is a 1/2 in. grab iron. The generator is secure to this stand by four 1/2 in. bolts, carrying fibre washers and bushing to thoroughly insulate the generator. Steam for operating the unit is to be as dry as possible, supplied through a 1/2 in. steam valve with metal disc

blown free from dirt and scale. A diagrammatic plan of the wiring is given herewith. The main leads and arc lamp circuits are of no. 8 B. and S. stranded slow burning weatherproof triple braid wire, black outside, the three wires in one cable, and all other wiring is similar, but no. 14 stranded. The headlight will contain an arc light and

te  
th  
to  
th  
sh  
th  
do



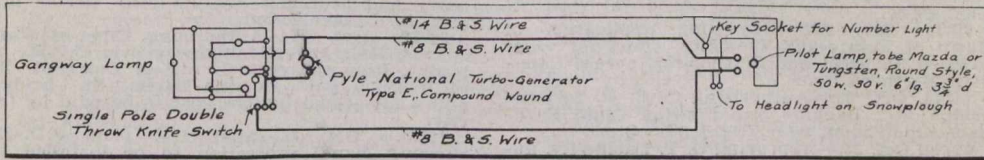
a pilot lamp, the latter either mazda or tungsten, 50 watts, 30 volts, 6 ins. long overall and  $3\frac{3}{4}$  ins. diam. The wiring and lights in the cab are also shown in an accompanying illustration, which shows an 8 c.p. steam gauge lamp, 8 c.p. air gauge lamp, 8 c.p.

the arc lamp, and in the upper position, the pilot lamp.

All the wiring both inside and outside the cab, with the exception of the short connections between the generator and the junction box on the front of the cab, which is in

into the main parabolic mirror, when the arc is not operating.

The headlight also has a snow plough connection, provided on all locomotives, as it has been found serviceable for many special minor purposes in wrecks, such as lighting clusters of lamps for auxiliary outfits, and making an inspection in the yard after dark.



Diagrammatic Wiring on C.N.R. Locomotives.

lubricator lamp, 8 c.p. water gauge lamp and 8 c.p. deck lamp in gangway, all either tungsten or mazda lamps.

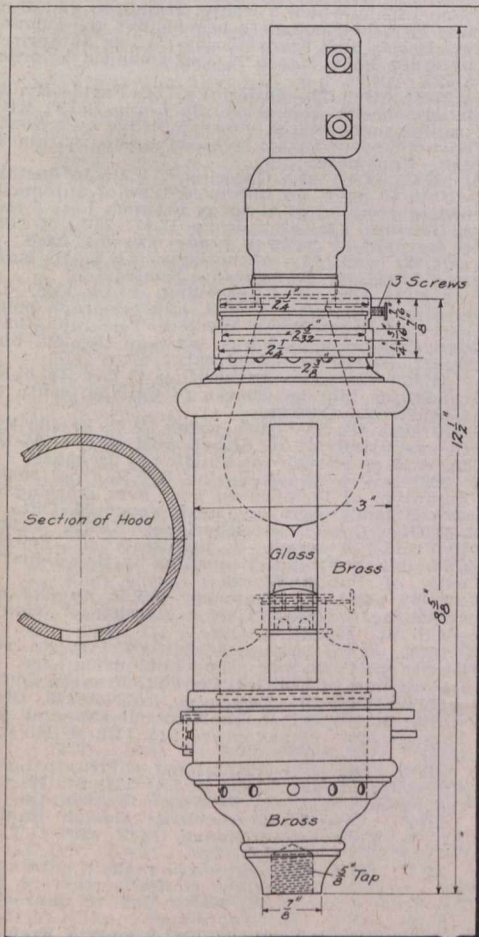
All the wiring to the cab and deck lamps is protected by 10 amp. fuses and blocks. The leads from the generator pass through a triple to a double plug cut out, and are protected by two 40 amp. 250 v. refillable cartidges, with the fuses all placed on a 60 amp. cut out block. The positive wires are tested by ringing with a magneto or some bell arrangement, and not by running the generator. The arc lamp lead is tapped for the pilot lamp at a point just within the case, and not inserted in the binding post within the arc lead. All wire splices are soldered and covered with friction tape, all socket and receptacle cover screws are soldered in place, and all wire connections in the sockets are soldered, making it impossible for screws to back out. All wires are soldered to switch

flexible armoured steel conduit, is carried in steel conduit, with bushings where the wire passes in and out of the conduit or through metal. The gauge lamps are connected

Checking a Landslide in a Railway Cut.

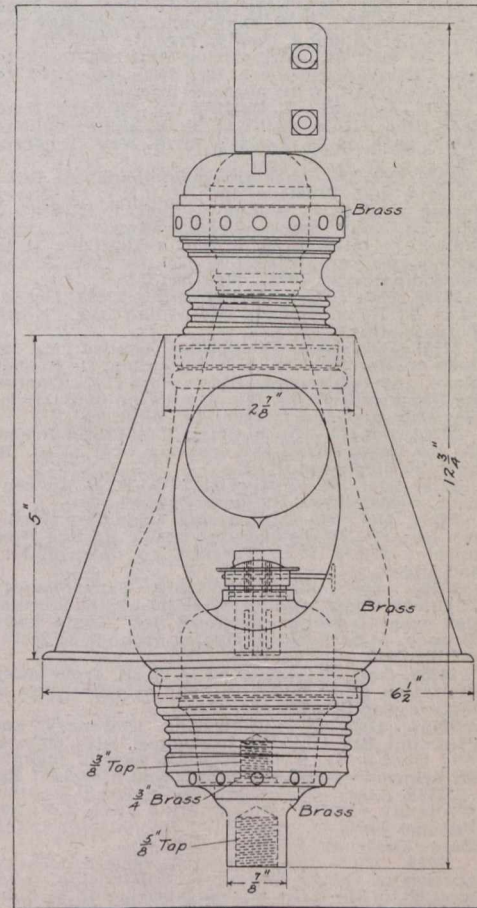
Checking a landslide in a railway cut by breaking up the slope with massive blocks of concrete built in trenches running up the slope was practised with success on the Ebant & Nesslau Ry. in Switzerland. A sidehill cut had been made through an ancient landslip, the material consisting of clay and loam mixed with boulders and tree trunks, underlaid by a bed of marl. A longitudinal crack, about 200 ft. long, appeared in the slope of the cut, and similar cracks developed in the ground above the edge of the slope, while 33 ft. from this was a main road. A retaining wall was proposed, but it was evident that this would be overturned or carried away before the concrete could set. As an emergency measure, massive concrete blocks were built in the slope, the excavations being carried into the hard material over which the loose mass was sliding, so that the blocks could not move down the slope.

Four blocks, 33 ft. apart, were built, but as the slide continued to squeeze out between them two additional intermediate blocks were built. The slope then stood, but the pressure was so great as to partly raise the blocks, revolving them on their lower ends so that they tended to approach a steeper slope. One block moved outward 32 in. at the top, its foot remaining stationary. The trouble was due to water in the soil, but there was no time to put in any drainage system, and some immediate action was necessary, in view of the main road above the cut, and the possibility of starting a slide of the whole slope of the mountain above the cut.



Lamp for Water Glass.

terminal posts. All armoured wire enters the sockets through a standard pipe bushing, to which it is soldered to prevent loosening the socket connections. There is a 40 amp. single pole double throw knife switch above the engineman's position, just over the window casing, operating, in its lower position,



Lamp for Steam Gauge, Lubricator and Brake and Signal Gauge.

with the overhead leads by armoured wire, which enters the lamp socket through a standard pipe bushing, to which it is well soldered. Crouse-Hinds condulets are used at these points.

The fixtures employed are illustrated herewith, all but the water gauge having wide openings in front, while for the water gauge there is only a vertical slot. In addition to the electric bulb in each, they combine an oil well auxiliary. The lamp socket at the top is of special design, made especially for the C. N. R., but it is claimed that it warrants the additional expense from the fact that it absolutely secures it to the cable.

The headlight has unique features. It has an auxiliary reflector for incandescent lamps, for use in yards and terminals where it would be inadvisable to use the arc lamp. This auxiliary reflector consists of a mirrored surface,  $3\frac{1}{2}$  by 10 ins., set at an angle of about 60 degrees from the horizontal, with the incandescent lamp in front, which reflects the light from the auxiliary mirror,

C.P.R.'s Paris office not closed. — A. Catoni, Agent, C.P.R., Paris, France, has not closed the office there and removed to London, Eng., for the present, as stated in Canadian Railway and Marine World for October, on the authority of a London press dispatch. We are officially advised that the office has not been closed at all, and that, except for a visit of report to London which Mr. Catoni made towards the end of September, he has not been absent from Paris. As stated in Canadian Railway and Marine World for September, the office has been of great service to Canadians, people from the United States and British residents and visitors in France during the war, and as the Dominion Express Co.'s representative Mr. Catoni has been of great service to many who found themselves absolutely without funds.

The practice of assigning a special expert mechanic to laying out all the work to be done in a machine shop, has been found especially advantageous from many standpoints, the principal ones being the dexterity with which he handles the work, the saving in the time of the machines and the centralization of all jigs and templates.

Supplying fans with ball bearings has been suggested as a means of averting trouble from fans throwing oil from flooded bearings, with resulting damage to clothes, carpets, etc.

Many railways have found it desirable to change the driving tires of locomotives for re-turning, instead of dropping the wheels, and turning the tires on the original centres.



## 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.

22716. Oct. 17.—Approving location of C. P. R. station at Luxor, mileage 54.3 Kootenay Central Branch, B. C.

22717. Oct. 16.—Relieving C. P. R. from speed limitation of 20 miles an hour over its Virden-MacAuley Branch, Man., from mileage 0 to 14.

22718. Oct. 16.—Ordering Canadian Northern Ry. to move commercial spur at Barwick, Ont., 45 ft. closer passing track, and extend same over highway crossing just east of station building to point near turnout of switch, grade at least 14 ft. driveway entire length of commercial track, south side; erect signboards 250 ft. from crossing, showing no cars must be left standing on commercial track outside that point; work to be completed by July 15, 1915.

22719. Oct. 16.—Approving location of Lake Erie and Northern Ry. (C.P.R.) station in Glenmorris, Ont.

22720. Oct. 13.—Approving agreement between Bell Telephone Co. and Sparta Rural Telephone Co. of Sept. 23.

22721. Oct. 16.—Authorizing C. P. R. to open for traffic certain portions of additional track on its Lake Superior Division, Ont.

22722. Oct. 19.—Amending order 22661, Oct. 2, re interlocking plant at crossing of G. T. R. by Ottawa and New York Ry. by substituting Ottawa and New York Ry. for Ontario and Western Ry.

22723. Oct. 17.—Suspending, pending investigation by Board, rates in C. P. R. Tariff, C. R. C. E. 2872 on coal in carloads.

22724. Oct. 19.—Authorizing C. P. R. to construct its Lacombe Easterly Branch across certain highways between mileage 143.61 and 149.15 from Lacombe, Alta.

22725. Oct. 19.—Authorizing Cambellford, Lake Ontario and Western Ry. (C. P. R.) and Oshawa Ry. to operate over crossing at Prospect St., Oshawa, Ont., without first stopping trains and cars.

22726. Oct. 17.—Authorizing C. P. R. to build for Town of Russell, Man., a highway crossing at Augusts St., and close 2 highway crossings; and approving re-location of C. P. R. station there.

22727. Oct. 16.—Authorizing C. P. R. to build across road allowance at mileage 63.7 Bredenburg Subdivision, Man.

22728. Oct. 17.—Authorizing Canadian Northern Ry. to open for traffic portion of railway from Avonlea to Gravelburg, Sask., until July 15, 1915; speed of trains limited to 15 miles an hour.

22729. Oct. 17.—Approving G. T. R. plan showing block signal on westbound main line between Junction Cut and Dundas, Ont., as required by order 22672, Oct. 6.

22730. Oct. 19.—Approving location of Gleggery and Stormont Ry. (C.P.R.) stations and grounds at Bridge End, mileage 5.28, and Glen Gordon, mileage 12.78, Lancaster Tp., Ont.

22731. Oct. 20.—Authorizing Canadian Northern Ry. to build a spur for Alberta Block Coal Co., through south half Sec. 10 and north half Sec. 3-29-20, w.4.m., Alta.

22732. Oct. 19.—Declaring that Niagara, St. Catharines and Toronto Ry. Co. is senior to Erie and Ontario Ry. for all tracks when built at crossing in Lot 32, Con. 5, Gainsboro Tp., Ont.

22733. 22734. Oct. 20, 21.—Approving location of G. T. Pacific Ry. stations at Burns Lake, mileage 316.8, and at Savory, mileage 345.5 Prince Rupert East, B. C.

22735. Oct. 20.—Approving change in location of G. T. R. siding for Lord and Burnham Co., St. Catharines, Ont.

22736. Oct. 20.—Relieving C. P. R. from speed restriction of 10 miles an hour on trains over crossing of Nipissing St., Sturgeon Falls, Ont.

22737. 22738. Oct. 20, 21.—Authorizing C. P. R. to build spurs for Moose Jaw Sand and Gravel Co., Moose Jaw, Sask., and for Empire Water Works Supply Co. of Canada, Winnipeg.

22739. Oct. 20.—Authorizing Canadian Northern Ry. to open for traffic its North Battleford northwesterly line from Edam, to Turtleford, mileage 36 to 57, speed of trains limited to 15 miles an hour.

22740. Oct. 20.—Authorizing Canadian Northern Ry. to build spur for Rosedeer Coal Co.,

Rosedeer, Alta.

22741. Oct. 21.—Authorizing Fertile Valley rural municipality no. 285, Sask., to build highway crossing over Canadian Northern Ry. on surveyed road north of Sec. 3, Tp. 29, R. 29, w. 3.m., Sask.

22742. Oct. 22.—Dismissing application of Town of Pointe-aux-Trembles, Que., for order to open up Fifth and Sixth Aves. across Canadian Northern Ry.

22743. Oct. 23.—Authorizing C. P. R. to build bridge 43.1, Lachine Canal swing span, Farnham subdivision, near Highlands, Que.

22744. Oct. 23.—Approving G. T. Pacific Ry. application for approval of locations of certain stations in Cariboo District, B. C.

22745. Oct. 24.—Ordering Michigan Central Rd. and G. T. R. to publish tariff of joint rate of 50c a ton, on sand from St. David's Sand Co., St. Catharines, Ont., to Merritt; rate to be effective not later than Nov. 9, cars to be loaded to full carrying capacity, subject to minimum weight of 60,000 lbs.

22746. Oct. 23.—Extending to Dec. 13, time within which C. P. R. shall complete subway between Lots 5 and 6, Con. 5, Toronto Tp., Ont.

22747. Oct. 24.—Authorizing Imperial Bank to pay Canadian Northern Ry. \$400, deposited to Board's credit, with accrued interest.

22748. Oct. 21.—Extending for 30 days from date time within which G. T. R. shall complete cattle pass on H. Lewis's farm, near Burford, Ont.

22749. Oct. 20.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.) to divert forced road in n. ½ Lot 11, Con. 7, Richmond Tp., to carry same across railway at right angles, at mileage 55.87; and authorizing it to take lands forming part of Lot 11, Con. 7, and rescinding order 19481, May 30, 1913.

22750. Oct. 22.—Amending order 22699, Oct. 9, re C. P. R. crossing of McLennan Ave., North Toronto, Ont.

22751. Oct. 23.—Dismissing applications to open up Mercier Ave., Lebrun, Azilda, De Rocheblave, and Contrecoeur Sts., across C. N. Quebec Ry.; and authorizing the opening up of Baldwin, Des Ormeaux and Hector Sts., Montreal.

22752. Oct. 23.—Authorizing Van Buren Bridge Co. to build temporary crossing over C. P. R. near St. Leonards, N. B.

22753. Oct. 23.—Authorizing C. P. R. to connect with Oshawa Ry. near Oshawa, Ont.

22754. Oct. 26.—Authorizing Canadian Northern Ontario Ry. to open for traffic its line from mileage 273.97 from Toronto, to Capreol Jct., 3.03 miles.

22755. Oct. 24.—Authorizing Saskatchewan Highway Commissioners to build highway crossing over Canadian Northern Ry. Goose Lake Branch, at east end of station grounds at Netherhill, Sask.

22756. Oct. 24.—Relieving G. T. R. from speed limitation of 10 miles an hour over crossing of highway at Strathmore, Que.

22757. Oct. 26.—Authorizing Gleggery and Stormont Ry. (C.P.R.) to connect with Ontario and Quebec Ry. (C.P.R.) 700 ft. east of mileage 37, being mileage 0, Gleggery and Stormont Ry.

22758. Oct. 24.—Approving revised location Kootenay Central Ry. (C.P.R.) from Lot 288, mileage 96.16, to n.w. ¼ Lot 353, mileage 109.41, East Kootenay District, B. C.

22759. Oct. 26.—Approving revised location portion of C.P.R. Thompson Subdivision, mileage 30 to 33, B. C.; and authorizing it to build additional track, at grade, across two highways.

22760. Oct. 26.—Ordering that crossing of Kingston Road by Canadian Northern Ontario Ry. in Lot 33, Con. 1, Sidney Tp., be protected by gates operated by day and night watchmen; cost to be paid half each by C. N. O.R. and Campbellford, Lake Ontario and Western Ry. (C.P.R.); pending installation, all train movements to be flagged over crossing.

22761. Oct. 27.—Extending to Dec. 31, 1915, time within which Canadian Northern Ontario Ry. shall complete transfer track with G.T.R. in Port Hope, Ont.

22762. Oct. 23.—Authorizing G. T. Pacific Branch Lines Co. to take additional lands required for station grounds in n.w. ¼, Sec. 4-17-26, w. 2 m., Moose Jaw District, Sask.

22763. Oct. 26.—Extending to Dec. 31 time within which G.T.R. shall complete subway at crossing of Thompson Road, Bertie Tp., Ont.

22764. Oct. 23.—Dismissing application of Town of Victoriaville, Que., for extension of Albert St. across G.T.R.

22765. Oct. 26.—Authorizing C.P.R. to use bridges 98.1, 119.2, 94.0.

22766. Oct. 16.—Authorizing C.P.R. to build bridge 20.42 over Pays Plat River, near Pays Plat, Nipigon Subdivision, Ont.

22767. Oct. 27.—Approving locations of G. T. Pacific Ry. stations at mileage 1225.7, 1248.5, 1212.5, 1255.4, 1208.2, 1269.6, Cariboo District, B. C.

22768. Oct. 23.—Authorizing G. T. Pacific Ry. to build spur for N. M. Paterson & Co., Fort William, Ont.

22769. Oct. 27.—Approving locations of eight

G. T. Pacific Ry. stations in British Columbia.  
22770. Oct. 27.—Relieving C. N. Ontario Ry. from speed restriction between Perth Road Pit and Chaffey's Locks, Toronto-Ottawa Line, with exception of portion between mileage 174 and 175.25, and 181 to 181.25 from Toronto, where speed shall be limited to 15 miles an hour.

22771. Oct. 26.—Approving location of Gleggery and Stormont Ry. (C.P.R.) station and yard in Cornwall, Ont.

22772. Oct. 27.—Authorizing City of Vancouver, B.C., to build highway over C.P.R., by bridge, from the easterly end of Dunsmuir St. to junction with Georgia-Harris St. bridge, now under construction; cost to be paid by the city.

22773. Oct. 6.—Approving plan S.D.-233 showing signal protection to be installed by G.T.R. between Richmond St. and St. Henri Station, Montreal.

22774. Oct. 27.—Approving G.T.R. clearances, etc., over sidings of Canada Forge Co., Welland, Ont.

22775. Oct. 28.—Approving G.T.R. location and details of its new station at Waterville, Que.

22776. Oct. 28.—Authorizing C.P.R. to build siding for Wavagamack Pulp and Paper Co., Three Rivers, Que.

22777. Oct. 27.—Approving agreement between Bell Telephone Co. and South Ham Telephone Co.

22778. Oct. 28.—Approving C.P.R. re-location of station at Eganville, Ont.

22779. Oct. 28.—Approving, until further ordered by Board, Esquimalt and Nanaimo Ry. Standard Freight Mileage Tariff, C.R.C. 268.

22780. Oct. 29.—Authorizing G.T. Pacific Ry. to enter T. Gowan's lands, Ingelow, Man., for building fire guard.

22781. Oct. 28.—Authorizing Kettle Valley Ry. to build across highway near station 108+40, west of Penticon, B.C.

22782. Oct. 29.—Authorizing Erie and Ontario Ry. to operate, temporarily, for construction purposes only, over G.T.R. crossing at Dunnville, Ont., between 7 a.m. and 6 p.m.; all trains to stop before crossing and to be flagged over.

22783. Oct. 29.—Extending, to May 1, 1915, time within which Toronto, Hamilton and Buffalo Ry. shall complete branch line for Dominion Power and Transmission Co., as authorized by order 21558, March 26, and amended by order 21591, Apr. 4.

22784. Oct. 30.—Ordering G. T. Pacific Ry. to build a 10-car spur at Old St. Louis, Sask., with trailing point switch toward bridge over South Saskatchewan River; to be completed within 30 days from date.

22785. Oct. 29.—Ordering C.P.R. to install, within 60 days, an improved type of automatic bell at crossing of highway between Lots 5 and 6, Toronto Tp., at mileage 12.61; 20% of cost to be paid by railway grade crossing fund.

22786. Oct. 28.—Authorizing C.P.R. to build two spurs for J. Aybram, Montreal.

22787. Oct. 28.—Approving, until Dec. 31, clearances between G.T.R. and telegraph poles carrying Great North Western Telegraph Co.'s wires and railway wires, between Guy St. and St. Henri station, Montreal.

22788. Oct. 28.—Authorizing G.T.R. to build siding for Library Bureau of Canada, south of Isabella St., Ottawa.

22789. Oct. 30.—Authorizing G. T. Pacific Ry. to enter lands of H. Siebel, west ½ Sec. 25-18-19, w. 2 m., Sask., for building a fireguard.

22790. Oct. 29.—Relieving G.T.R. from speed limitation of 10 miles an hour over crossing of second public highway, near Neustadt, Ont.

22791. Oct. 29.—Authorizing Kettle Valley Ry. to build across 7 highways in British Columbia, subject to inspection by B.C. Department of Public Works.

22792. Oct. 29.—Ordering G.T.R. to flag all switching movements over crossing of Wentworth St., Hamilton, Ont.

22793. Oct. 30.—Authorizing C.P.R. to re-locate existing spur and extension for I. Desormeau, in Lot 313, Cote St. Francis, Que.

22794. Oct. 30.—Extending, to Nov. 30, time within which C.P.R. shall install gates at St. Thomas and Bonaventure Sts., Three Rivers, Que.

22795. Oct. 28.—Authorizing C.P.R. to build siding for H. de Chires, in Lot 136, St. Martin concession, St. Felix de Valois Parish, Que.

22796. Oct. 30.—Authorizing Guelph Radial Ry. to connect interchange track with G.T.R. on Suffolk St., Guelph, Ont.

22797. Oct. 31.—Authorizing C. N. Ontario Ry. to open for freight traffic portion of its line from Cassells St., North Bay, to Capreol.

22798. Oct. 31.—Approving, until further ordered, Great Northern Ry. Standard Freight Mileage Tariff, C.R.C. no. V-36, on Victoria and Sidney Ry.

22799. Nov. 2.—Amending order 22520, Sept. 9, re installation of automatic bell by G.T.R. at crossing one mile west of Peterborough, Ont.

22800. Oct. 31.—Authorizing Algoma Bridge and Hudson Bay Ry. to build overhead bridge for street railway and highway across its tracks between Cathcart St. and Wilde Ave., Tagona, Ont.; and rescinding order 16778, June 11, 1912.



22801. Oct. 31.—Authorizing Edmonton, Dunvegan and British Columbia Ry. and Canadian Northern Ry. to operate over crossing in Sec. 33-55-25, w. 4 m., south of Morinville, Alta., without first stopping trains.

22802. Nov. 3.—Establishing collection and delivery limits of Dominion Ex. Co. in Kentville, N.S.

22803. Nov. 2.—Authorizing Erie and Ontario Ry. to operate construction trains, temporarily, between 7 a.m. and 6 p.m. over crossing of Michigan Central Rd. near Attercliffe, Ont.

22804. Nov. 2.—Dismissing application of City of Calgary, Alta., for order directing C.P.R. to pay cost of building pavement at subway at Ninth Ave.

22805. Nov. 2.—Authorizing Lake Erie and Northern Ry. to build bridge across mill pond, mileage 0.13, Galt, Ont.

22806. Nov. 3.—Approving location and details of Erie and Ontario Ry. station, Dunnville, Ont.

22807. Nov. 2.—Authorizing C.P.R. to build extension to siding for Toronto Carpet Manufacturing Co. at Parkdale, Ont.

22808. Nov. 3.—Dismissing application of cities of Vancouver and North Vancouver, B.C., against change of plans of North Vancouver Ferry pedestrian subway by C.P.R.; and applying for order directing C.P.R. to pay cost of such alteration.

22809. Nov. 2.—Authorizing Canadian Northern Ry. to build spur for Star Coal Mines, Ltd., in 1/2 Sec. 28-28-19, w. 4 m., Alta., and certifying correction showing C.N.R. as owner of right of way from station 2+40 to 28+12, instead of C.P.R.

22810. Nov. 4.—Ordering that stations to be erected by G.T. Pacific Ry. at Foreman and Aleza Lake, B.C., approved by order 22744, Oct. 23, be according to G.T.P.R. standard structural plan 1.

22811. Nov. 4.—Approving C.P.R. plan 44108, March 31, 1913, showing standard reinforced concrete trestle for double track.

22812. Nov. 3.—Authorizing C.P.R. to rebuild bridge 41.2 at Shields, B.C.

22813. Nov. 4.—Authorizing C.P.R. to use bridges 37.9 and 88.6, Toronto Subdivision, and 61.51, 81.5 and 25.94, Woodstock and Tobique Subdivisions, N.B.

22814. Nov. 3.—Authorizing C.P.R. to open for traffic certain portions of its second track on Cartier, Chapeau and Nipigon Subdivisions, Lake Superior Division, Ont.

22815. Nov. 3.—Approving C.P.R. clearances at crossing of pipe and wooden conveyor across siding into Melcher's distillery, mileage 1.79, Berthier Subdivision, Que.

22816. Nov. 4.—Authorizing C.P.R. to open for traffic its line from Gimli to Riverton, Man., mileage 0 to 26.

22817. Nov. 4.—Ordering Esquimalt and Nanaimo Ry. to install gates at crossing of Victoria and Campbell River trunk road, south of Duncan Station, B.C.; gates to be operated by day and night watchmen; cost of building, maintaining and operating to be paid, half by City of Duncan, B.C., and half by E. & N. Ry.

22818. Oct. 30.—Authorizing G.T.R. to build siding for Ford Motor Co. of Canada, Sandwich East Tp., Ont., and rearrange tracks.

22819. Nov. 4.—Ordering that transfer track for interchange of traffic between G.T.R. and C.P.R. at Listowel, Ont., be built near Reserve St.; work to be done by C.P.R., Town of Listowel to pay one third cost of installing, balance divided equally between the two companies.

22820. Nov. 2.—Authorizing Kettle Valley Ry. to carry traffic over its line from Hydraulic Summit to Penticton, mileage 75.6 to 133.7 west of Midway, speed of trains limited to 10 miles an hour within town limits.

22821. Nov. 2.—Approving Bell Telephone Co. agreement with Chapeau Rural Telephone Co., Sept. 11.

22822. Nov. 5.—Relieving C.P.R. from speed limitation of 10 miles an hour over crossing at mileage 175, Kenora Subdivision, Ont.

22823. Nov. 5.—Approving location and layout of Lake Erie and Northern Ry. station at Paris, Ont.

22824. Nov. 4.—Authorizing G.T. Pacific Ry. to build its Lake Superior Branch across Fort William Electric Ry., on Empire Ave., at Sprague St., installation and operation of half-interlocking plant to be paid by G.T.P.R.

22825. Nov. 5.—Approving revised location of C.P.R. Swift Current Northwesterly Branch, from mileage 111.95 to 122.58, Sask.

22826. Nov. 4.—Authorizing Sudbury-Copper Cliff Suburban Electric Ry. to build across C.P.R. at Elm St., Sudbury, Ont., to cross Y on Elm St., immediately south of main line; to cross spur to Sudbury Construction and Machine Co., and Sudbury Brewing Co. on Lorne St.; and to cross C.P.R. Stobie Branch north of main line crossing Elm St.; and apportioning cost of protection to be provided.

22827. Nov. 4.—Authorizing G.T. Pacific Branch Lines Co. to enter lands of N. Smith, Stoney Beach, Sask., between mileage 26.1 and 26.3, for building fireguard.

22828. Nov. 6.—Authorizing G.T. Pacific Branch Lines Co. to build across 25 highways on its Yorkton Branch, Sask., between mileage 0.5 and 23.6.

22829. Nov. 6.—Authorizing G.T.R. to build extension to siding for P. Del Sole, Lot 105, St. Bruno Parish, Que.

22830. Nov. 6.—Authorizing C.P.R. to build double track at grade across road allowance between Secs. 29 and 30-17-5, w. 3 m., mileage 54.36, from Moose Jaw, Sask.

22831. Nov. 6.—Authorizing C.P.R. to build spur for Yakh Lumber Co., Cranbrook, B.C., from Kootenay Central Ry., mileage 36.1 from Colvalli, at Wasa.

22832. Sept. 21.—Authorizing C.P.R. to build double track and road diversion between Secs. 22 and 23-18-13, w. 2 m., at mileage 51.41 from Broadview, Sask.

22833. Nov. 6.—Approving location of Lake Erie and Northern Ry. station at Galt, Ont.

22834. Nov. 7.—Establishing collection and delivery limits of Dominion Ex. Co. in Red Deer, Alta.

22835. Nov. 7.—Authorizing C.P.R. to build spurs for T. D. Robinson & Sons, and Dominion Lumber and Fuel Co., Winnipeg, and authorizing Winnipeg Electric Ry. to build across first named spur on Selkirk Ave. W. E. Ry. to pay cost of operating and maintaining protective appliances; C.P.R. to pay cost of building diamond and extra cost of extending interlocking plant; and rescinding order 21287, Jan. 29.

22836, 22837. Nov. 9, 7.—Ordering that stations to be built by G.T. Pacific Ry. at Savory, Burns Lake, Dewey, Newlands, Longworth, Giscome, Lindup, and Shelley, B.C., be in accordance with G.T.P.R. standard structural plan 1.

22838. Nov. 9.—Authorizing Erie and Ontario Ry. to build, at grade, across Broad St. East, Dunneville, Ont.

22839. Nov. 10.—Authorizing Town of White-wood, Sask., to close Balfour St., and open up Lalonde St. across C.P.R.

22840. Nov. 5.—Authorizing Alberta Public Works Department to build highway over C.P.R. east of Sec. 7-8-4, w. 5 m. and close old crossing.

22841. Nov. 10.—Authorizing C.P.R. to build spur for McCormick Manufacturing Co., London Tp., Ont.

22842. Nov. 10.—Authorizing C.N. Ontario Ry. to build across and divert highway at mileage 255.4, Field Tp., Nipissing District.

22843. Nov. 10.—Ordering that City of Fort William, Ont., and owners of industries served by spur authorized by orders 17869 and 18908, Oct. 24, 1912, and Mar. 20, 1913, pay pro rata to C.P.R. \$2,103.91 additional; C.P.R. to refund to them half tolls charged by it for traffic over said spur, until said amount has been repaid to industry owners.

22844. Nov. 9.—Amending order 22559, Sept. 17, re St. John and Quebec Ry. crossing of C.P.R. spur at Fredericton, N.B.

22845. Nov. 7.—Ordering Dominion Atlantic Ry. to build farm crossing for Mrs. A. E. Copeland, Deep Brook, N.S., at her expense.

22846. Nov. 11.—Authorizing Brantford Municipal Ry. Commission to rebuild bridge carrying Grand Valley Ry. across G.T.R., near Blue Lake, Ont., applicant to raise bridge to its original height should G.T.R. decide to raise its grade at the bridge.

22847. Nov. 10.—Authorizing G.T. Pacific Ry. to divert road in n. e. 1/4 Sec. 8 and s. e. 1/4 Sec. 17-44-5, w. 4 m., Alta.

22848. Nov. 9.—Amending order 22672, Oct. 6, re G.T.R. spur connecting with westbound main track in West Flamboro Tp., Ont.

22849. Nov. 9.—Authorizing Van Buren Bridge Co. to build across C.P.R., Edmundston Branch, near St. Leonard, N.B., applicant to provide interlocking plant.

22850. Nov. 10.—Authorizing G.T. Pacific Ry. amended location of spur in Sec. 7-53-23, w. 4 m., Alta.; and rescinding order 17827, Sept. 24, 1912, in same connection.

22851. Nov. 11.—Suspending order 22211, July 14, re railway crossing on Spruce Ave., Edmonton, Alta.

22852. Nov. 10.—Authorizing Erie and Northern Ry. for construction purposes only for three months to operate over crossing, near Diltz, Ont., of G.T.R. and Wabash Rd., E. & O. Ry. to give G.T.R. 12 hours advance notice when it desires to use crossing, so G.T.R. may appoint a watchman, at E. & O. R.'s expense, to protect train movements.

22853. Nov. 9.—Authorizing City of London, Ont., to build highway crossing over G.T.R. at Ashland Ave.

22854. Nov. 9.—Extending to June, 1915, time within which St. John Ry. shall instal half interlocking plant required by order 21914, June 1, 1914, at crossing of C.P.R. on Main St., St. John, N.B.

22855. Nov. 12.—Apportioning cost of grade separation at North Toronto, exclusive of Yonge St., as follows:—10% of separation of grades at Avenue Rd. to be paid by Toronto Ry.; 20% of cost of subways at Davenport and Spadina Roads, and Howland Ave., not exceeding \$5,000 in any one case, to be paid out of railway grade crossing fund; after deducting contributions from these two services, 25% of remainder to be paid by City of Toronto; city's contribution to be for all highways at which grade separation is effected, except Yonge St.,

from east of Summerhill Ave. to where grade runs out west of Dovercourt Road; balance of cost to be paid by C.P.R.

22856. Nov. 12.—Authorizing C.P.R. to operate bridges 11.9, 7.6, and 66.6, Brandon, Emerson and Souris Subdivisions, Man.

22857. Nov. 12.—Approving location of G.T. Pacific Ry. stations, at Rose Lake, Forestdale, Decker Lake, Walcott, Quick and Priestly, B.C.

22858. Nov. 12.—Authorizing Maine Central Rd. to build branch in Clifton Tp., Que.

22859. Nov. 12.—Approving location of G.T. Pacific Ry. station at Palling, B.C.

22860. Nov. 10.—Approving agreement between Bell Telephone Co. and Thessalon Tp., Ont., Oct. 20.

22861. Nov. 12.—Ordering that application for recommendation to Governor in Council for sanction of amalgamation agreement between Toronto, Hamilton and Buffalo Ry. and Erie and Ontario Ry. be made to the Board on Dec. 15.

22862. Nov. 11.—Authorizing G.T.R. to build siding, from Lot 23, Con. 7, Crowland Tp., Ont., connecting with Michigan Central Rd. siding south of Dover St., Welland.

22863. Nov. 13.—Approving clearances between south track of C.P.R. Island St. team yard, Montreal, and fence alongside.

**Canadian Northern Railway Earnings, Etc.**

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

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$1,594,300	\$1,163,800	\$420,500	x \$83,800
Aug.	1,367,700	1,123,000	244,700	x 163,900
Sept.	2,109,000	1,519, 00	590,700	x 65,800
Oct.	1,895,300	1,332,100	563,200	x440,900
	\$6,967,200	\$5,138,100	\$1,829,100	x\$622,900
Decr.	\$1,468,400	\$ 845,600	\$ 622,800	.....

x Decrease.

The mileage under operation during the above periods was 4,670 in 1914, against 4,432 in the previous year.

**Canadian Pacific Railway, Earnings, Etc.**

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

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$10,481,971.72	\$6,703,525.89	\$3,778,445.83	x\$338,347.85
Aug	8,917,764.33	6,554,606.68	3,373,157.70	x 597,981.54
Sept.	10,754,189.67	6,857,091.28	4,367,048.39	x 48,530.30
	\$31,153,875.77	\$19,645,223.85	\$11,508,651.92	x\$984,859.19
Dec.	\$ 4,430,728.55	\$ 3,445,869.36	\$ 984,859.19	.....

x Decrease.

Approximate earnings for October, \$9,152,000, against \$14,357,000 for Oct., 1913.

**Grand Trunk Railway Earnings, Etc.**

Gross earnings, working expenses, net earnings, etc., compared with those for 1913, from July 1, 1914:—

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$4,724,000	\$3,668,200	\$1,055,800	.....
Aug.	4,853,600	3,564,100	1,259,500	x\$61,800
	\$9,577,600	\$7,232,300	\$2,345,300	.....

x Decrease.

Approximate earnings for September, \$4,671,559, and for October, \$4,407,438, against \$4,870,641 for Sept., and \$5,051,101 for Oct., 1913.

Mileage under operation at Oct. 31, 4,533, as at Oct. 31, 1913.

**Grand Trunk Pacific Railway Earnings.**

The approximate earnings of the Prairie Section and Lake Superior Branch, 1,104 miles, for October were \$605,560, against \$994,303 for Sept., 1913. Aggregate earnings for four months ended Oct. 31, \$2,224,757, against \$2,732,674 for the same period 1913.

A wireless telephone system is being installed by the Union Pacific Rd. for communication with its overland trains. There will be stations at Grand Island and North Platte, Neb., Cheyenne and Green River, Wyo., and Ogden, Utah. High towers and heavy sending equipment (5 and 10 kw.) will be used to overcome communication difficulties in the Rocky Mountains.



## Blue Flag Holder, Canadian Pacific Railway.

The Canadian Pacific Car Department is using a blue flag holder that appears to meet all requirements. The accompanying illustrations show the appearance and general construction. The sizes of materials used are as follows:—Spring clamp for gripping rail head (fig. 4) is made of one piece of  $\frac{5}{8}$  in. half round. The foot piece used for forcing the clamp over the rail is  $1\frac{1}{2}$  by  $\frac{1}{8}$  in. by  $4\frac{1}{2}$  ins. The mast is made of  $1\frac{1}{4}$  in. o.d. seamless tubing 1-16 in. thick, 32 ins. long. This is cylindrical for 9 ins. from the lower end, and above this point one side is pressed in so that the cross section is crescent shape, thus forming a recess that permits the flag, when

a lantern over the bar (fig. 3), the folds of the flag serving to prevent lantern from creeping off.

One of the most important advantages of this arrangement is the fact that it makes possible the enforcement of rules requiring that the flag be located a specified distance away from the car that it is protecting. This is important, as flags displayed against a dark object, like a car painted black, are not conspicuous as they would be if placed some distance in front of same.

The Board of Railway Commissioners' circular respecting the use of flags for protection of car repairers was published in Canadian Railway and Marine World for



Fig. 1.—Blue Flag on Rail in Front of Passenger Car. (Car not undergoing Repairs.)

wrapped around the cross bar, to be folded so that it is very compact and convenient to carry. The flag is secured to the cross bar by means of a light strip of metal and 4 small stove bolts, and the lower edge of the flag is weighted with a piece of steel bar, thus ensuring the full area always being in view, regardless of wind conditions. This is an important feature, as the ordinary flag attached to a perpendicular mast hangs limp when the wind is not blowing, and if attached to a stick that is horizontal the flag may not be very conspicuous if the wind is blowing strongly from the observer's direction.

At night it is equally as useful as in the day time, the only change required being to wrap the flag around the cross bar and hang

May, 1913, and the blue flag stand used at the Canadian Northern Ry. Winnipeg shops was described in the Dec., 1913, issue, pg. 559.

**Cartridge case manufacture at Angus Shops.**—We are officially advised that the report in a Toronto financial paper that the C.P.R. had received a large order to make brass cartridge shells at its Angus shops, Montreal, is incorrect, and that no such order has been placed.

**Canadian Steel Foundries Ltd.**—M. E. Duncan, Vice President Canadian Car and Foundry Co., has been elected a director of Canadian Steel Foundries, Ltd., one of the Canadian Car and Foundry Co.'s subsidiaries, succeeding the late J. R. Wilson.

## Railway Mileage in Alberta.

The Department of Railways for Alberta issued a statement regarding railway building in the province, Nov. 14, in which it was stated that at the end of the year there will be a total of 4,250 miles of railway in operation in the province, as against 2,100 in 1911. Of this mileage 950.10 miles have been or will be put in operation during this year. Most of this mileage has been built this year, but it is uncertain whether it will all be in operation by Dec. 31. The mileage built by the several companies is as follows:—

Alberta and Great Waterways Ry.		Miles	Miles
To North Lac La Biche .....		140.0	
<b>Central Canada Ry.</b>			
McLennan to 20 miles from Peace River .....		30.0	
<b>Canadian Northern Ry.</b>			
Edmonton-Onoway, Onoway-Pembina .....		63.0	
Edmonton-Camrose .....		47.0	
Warden Jct.-Nordegg .....		178.0	
		<hr/>	288.0
<b>Canadian Pacific Ry.</b>			
Coronation towards Sedgewick ..		25.0	
Red Deer to Rocky Mountain House ..		64.5	
Mountain to boundary ..		32.0	
Stirling easterly from Foremost ..		25.7	
Suffield branch extension ..		26.6	
Gleichen to Shepard ..		40.8	
Empress to Bassano ..		118.5	
		<hr/>	333.1
<b>Edmonton, Dunvegan &amp; B.C. Ry.</b>			
Smith to Big Smoky River ..		159.0	
		<hr/>	950.1
Total .....			950.1

## New Books, Etc.

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

**THE CONVENTIONAL SIGNS FOR USE ON RAILWAY** profiles, right of way and track maps and structural plans; 27 pgs., 6 by 9 ins., paper. American Railway Engineering Association, 900 South Michigan Ave., Chicago, Ill. Single copies, 25c.; 10 to 25 copies, 20c. each; 25 to 100 copies, 15c. each.

These are the standard symbols recommended by the association for use on maps, profiles, etc., and they have been adopted by the Interstate Commerce Commission in its specifications for maps and profiles.

**AMERICAN RAILWAY ENGINEERING ASSOCIATION BULLETIN**, no. 170—188 pgs., 6 by 9 ins., paper. American Railway Engineering Association, 900 South Michigan Ave., Chicago, Ill.

This bulletin contains the report of committee on rail, including influence of carbon on the properties of rails, formula for deflection of rails in drop test, study of a rail with internal fissures, rail failure statistics for 1913, by M. H. Wickhorst, Engineer of Tests, Rail Committee; also comparative service tests of 100 lb. sections P.S. and A. R.A.A. on the Pennsylvania lines west of Pittsburg, by W. C. Cushing, Chief Engineer, Maintenance of Way, Southwest System.

**C.P.R. Home Guard.**—A C.P.R. company of the Montreal home guard is to be formed, to consist of about 250 men, the arms and equipment to be supplied by the railway company. Half of the company will be enrolled from the offices and employes at Angus shops and the other half from the Windsor and Place Viger stations. All departments of the service will be embraced in the composition of this company. At a later date miniature rifle ranges will be established at Angus and Windsor station, where members of the company will be afforded an opportunity to practise marksmanship.



**Rogers Pass Tunnel, Canadian Pacific Railway.**

The accompanying diagram shows the

peared in Canadian Railway and Marine World for June, 1914, will be five miles long, and will pass under Mount Macdonald, practically paralleling the present line. The summit elevation of the new line will be

the main tunnel portal, it was then 5,854 feet in from the main tunnel portal. The timbering through the soft ground, 1,218 feet, had been completed, and the steam shovel, worked by compressed air, had pro-

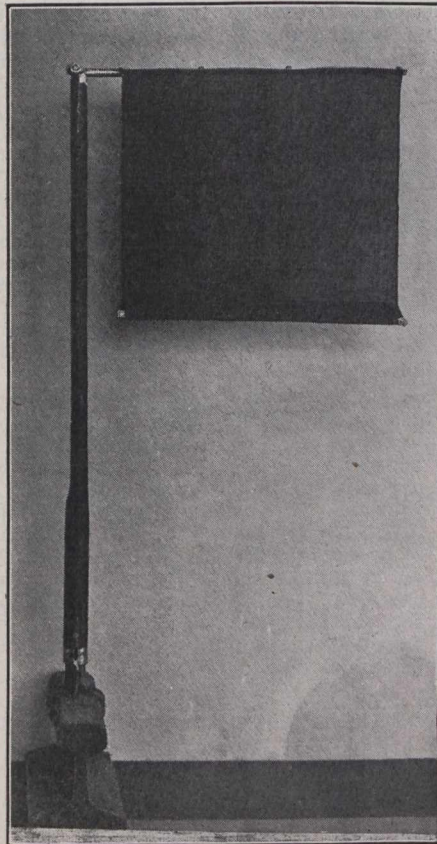


Fig. 2.—Arrangement of Blue Flag in Daytime.

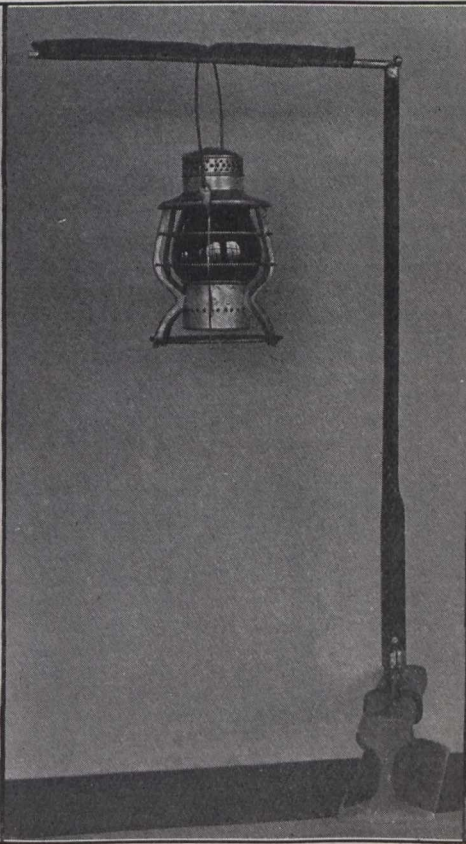


Fig. 3.—Arrangement of Flag with Blue Lantern at Night.

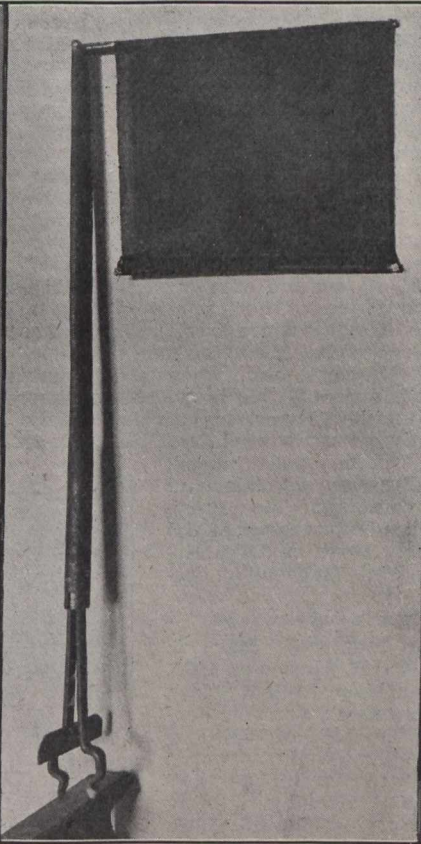


Fig. 4.—Spring Clamp With-drawn from Mast Ready to Apply.

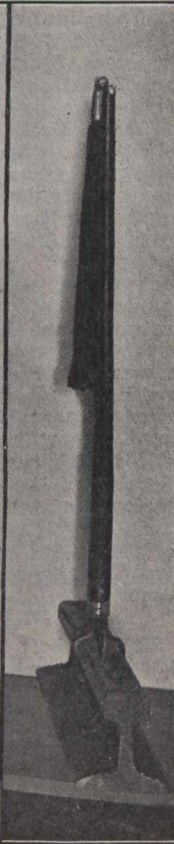
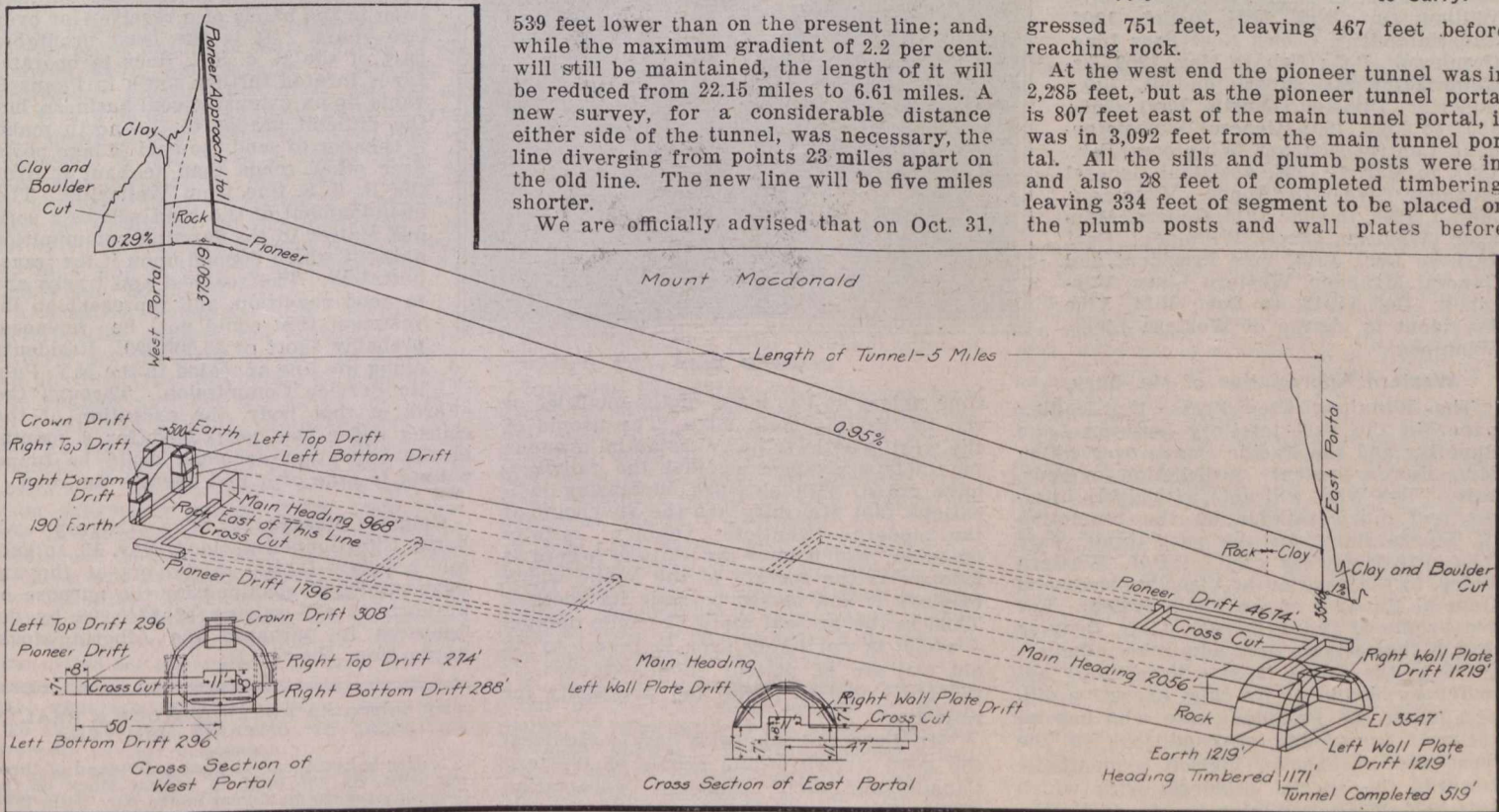


Fig. 5.—Flag Folded Ready to Carry.



Rogers Pass Tunnel, Canadian Pacific Railway. Progress Diagram, Oct. 9, 1914.

progress made on the Rogers Pass tunnel, in the Selkirk Mountains, up to Oct. 9, 1914. The tunnel, of which a full description ap-

peared in Canadian Railway and Marine World for June, 1914, will be five miles long, and will pass under Mount Macdonald, practically paralleling the present line. The summit elevation of the new line will be

reaching the point of excavation in the solid rock section. There was 1,375 feet of main heading completed at the west end.



## George Bury's Promotion on the Canadian Pacific Railway.

George Bury, now Vice President, C.P.R., in charge of the company's interests from Port Arthur, Ont., to Vancouver Island, will, on Jan. 1, succeed the senior Vice President, D. McNicoll, at Montreal. The President, Sir Thos. G. Shaughnessy, made the official announcement, Nov. 19, as follows:—

"David McNicoll, Vice President of the C.P.R. Co., who has been connected with the company and one of its acquired lines, the Toronto Grey and Bruce Ry., for upward of 40 years, has signified his desire to be relieved from the very arduous duties of the position he has so long held, for such a long period of rest and recuperation as his present condition of health makes desirable, and he has, therefore, resigned, to take effect Jan. 1 next. He will remain on the board of directors, and, when his health permits, it is expected that he will be asked to accept another important post in connection with the company's affairs. He retires with the esteem, and indeed, affection of the directors, officials, and employes of the company. Vice President George Bury, now in charge of the company's interests west of Lake Superior, will be Mr. McNicoll's successor."

### Mr. Bury's Career.

He was born at Montreal, Mar. 6, 1866, and entered C.P.R. service on 1883, since when he has been, to 1887, clerk in Purchasing Department, and in General Manager's office; 1887 to 1889, secretary to Vice President, and afterwards to President; 1889 to March, 1890, acting Superintendent, Sleeping, Dining and Parlor Car Service; March, 1890, to Sept., 1899, successively, Assistant Superintendent, Chalk River, Ont., and superintendent, North Bay, Ont.; Sept., 1899, to Feb., 1901, Superintendent, Fort William, Ont.; Feb., 1901, to Feb., 1902, Superintendent, Crows Nest Pass Line, Cranbrook, B.C.; Feb. to May, 1902, Assistant General Superintendent, Lake Superior Division, North Bay, Ont.; 1905 to Feb., 1907, General Superintendent, Central Division, Winnipeg; Feb., 1907, to Mar. 1, 1908, Assistant General Manager, Western Lines, Winnipeg; Mar. 1, 1908, to Oct., 1911, General Manager, Western Lines, Winnipeg; Oct., 1911, to Dec., 1913, Vice President and General Manager, Western Lines, Winnipeg; Dec., 1912, to Dec., 1914, Vice President in charge of Western Lines, Winnipeg.

### Western Appreciation of Mr. Bury.

The Winnipeg Free Press, the leading paper in the vast territory between Lake Superior and the Pacific Coast, over which Mr. Bury's present jurisdiction extends, says: "The West will note with lively interest and much satisfaction the promotion of George Bury, for the past three years Vice President for the C.P.R. Western Lines, to the position of Vice President and General Manager of the whole system. For the people of the west regard Mr. Bury as one of themselves; and, admirably administered as the C.P.R. is, it will certainly not suffer by having as its chief executive officer, under the President, one who has an intimate knowledge of conditions in the west and has shown himself sympathetic towards the special problems with which this half of the Dominion has to deal. Mr. Bury has won this high position on his merits. He has climbed the ladder rung by rung. Beginning as a stenographer in the general offices, he rose step by step

through the offices of divisional superintendent, general superintendent, general manager of western lines, and western vice president to his new and onerous position, which, however, is not likely to mark the bounds of his career. In all of these capacities, Mr. Bury has made good. His high reputation has been justly earned and is thoroughly deserved.

"Until within a few years, Mr. Bury's remarkable talents were applied almost entirely to the technical business of operating a railway efficiently and economically; but in the position which he has lately held in Winnipeg he has had to deal with the still more exacting problems arising from the adjusting of the relations between the railway and the public. There have been some classic examples of great railway operators making shipwreck of their careers by their inability to deal with the public. No man can be a great railway administrator in Canada at the present



George Bury.

time unless he has many of the qualities of the successful public man. The people of the west, who have had substantial grounds for their grievances against the railways, have noted, with pleasure, increasing indications that Mr. Bury has the viewpoint of the modern twentieth century railway manager, which puts the railway where it belongs as the servant of the public which employs it and makes possible its success. This, in the present state of public opinion—which is not likely ever to revert to its old attitude of patient submissiveness—is the only road to peace and prosperity for railways.

"Mr. Bury will take with him to Montreal the good wishes of the people of Western Canada, and their confident expectation that in this great field in which his energies and abilities will find ample room to play he will repeat, on a larger scale; the notable successes which have made his career to date so remarkable."

## Grand Trunk Railway Betterments, Construction, Etc.

**Track Elevation in Montreal.**—A report on track elevation in the city was, on Nov. 19, stated to be ready for presentation to the city council. The estimated cost of the work, based on G.T.R. plans, is \$8,211,000. It is made up of the revised estimate of \$5,903,745 with the addition of the following percentages:—For general expenses and contingencies, 5%; for interest on cost of construction for two years, 6%; consequential damages, \$500,000; commission for financing, 3%. The engineering questions involved are now under study by G. R. Macleod, city engineer on railways and bridges. He is engaged chiefly in checking the estimates and determining how far expenditure has been entailed by changes asked by the city.

**Port Huron, Mich., Shops.**—The residents of Port Huron, Mich., Nov. 21, concluded a canvass in the city to raise \$100,000 as a bonus to the company to rebuild the car shops which were burned about a year ago. The company invited the city to give a bonus of \$100,000, promising to spend \$75,000 for land, and \$250,000 on the first section of the buildings. The company does not propose to build on the old site, but has chosen that now occupied by the Port Huron Engine and Threshing Co. (Nov., pg. 508.)

## Abandonment of a Railway in New York State.

The N.Y. Supreme Court issued an order some little time since to the receiver of the Buffalo and Susquehanna Ry. to cease operating trains and take up the track from Buffalo southeast to Wellsville, N.Y., 90 miles. The line has been in the hands of a receiver for over two years. It is the least profitable part of the B. & S.R. lines to operate. Lines located further south in Pennsylvania do an extensive coal business, but the difficult grades to the north make it cheaper to send the coal to lake ports over other roads than to haul it over the B. & S. line from Wellsville. The abandonment of the road will be a serious matter to the farming communities along it which depend upon it for transportation. The roadbed and tracks are in good condition, and represent an investment that could not be replaced, probably short of \$2,000,000. Residents along the line appealed to the N.Y. Public Service Commission. Through the efforts of that body, the execution of the court's order was postponed for a month, in the hope that someone could be found willing to take over and operate the road.

**Calgary Stockyards.**—The Calgary, Alberta, City Council decided, Nov. 13, to submit a bylaw to the ratepayers at the annual municipal elections for the purpose of authorizing the raising of \$240,000 by debentures to purchase the Alberta stockyards from the C.P.R.

## THE VICTORIA ROLLING STOCK & REALTY CO., OF ONTARIO, LIMITED.

Notice is hereby given that a dividend of three per cent. on the paid-up capital stock of the Company for the half-year ended Nov. 30th, 1914, has been declared payable Dec. 1st, 1914, to the shareholders on record as of the 30th of Nov., 1914.

By order of the Board.

G. T. CHISHOLM, Secretary.

Toronto, Nov. 20th, 1914.



## Power House Equipment for Leonard Shops, Quebec, National Transcontinental Railway.

Tenders were received up to Dec. 1 for the power equipment for the N.T.R. Leonard shops power house, Quebec. There were four separate specifications, viz.: water tube boilers and chain grate stokers, feed water heater, engines or turbines, and generators, switchboard and wiring.

There are to be five 500 b.h.p. high pressure (200 lb.) water tube boilers, arranged in 2½ batteries, fed with chain grate mechanical stokers. Each stoker will be capable of burning sufficient semi bituminous slack coal or crushed run of mine coal to develop 150% of the rated capacity for 2 hours, and 165% for shorter periods. The combined efficiency of each stoker and boiler will be at least 70%. The fifth boiler will be arranged so that the stoker will satisfactorily burn either coal or refuse from the mill or carpenter shop, from which the refuse will be brought to the furnace by an exhaust system. The economy of each boiler at its normal rated capacity will not be less than an equivalent evaporation of 8½ lbs. of water from and at 212 degrees Fahr. per lb. of run of mine bituminous coal, containing approximately 12,000 b.t.u., with due allowance for moisture in the coal and ash. The steam must not contain more than 2% moisture 5 ft. from the main stop valve. The boilers will carry a guarantee that when properly operated they will be smokeless at least 95% of the time. Each boiler will have a superheater that under normal working conditions will give a superheat of at least 100 degrees Fahr. It will be so arranged as to be capable of being flooded when getting up steam. All exposed parts of the boiler will be protected by a 4 in. layer of non conducting material, in the form of blocks of plastic cement. Each boiler will be equipped with a full set of gauges and tools. There will be a feed water heater of sufficient capacity to heat 80,000 lbs. of water per hour from 60 to 210 degrees Fahr., and capable of standing a hydrostatic pressure test of 15 lbs. per sq. in. It will be of the sectional built up type, with doors through which the trays may be removed. It will have a baffle plate oil separator, a balanced feed valve operated by a copper float to maintain a constant level of water, an automatic overflow relief valve to relieve the water when it rises too high, and a filter so arranged that the sludge may be blown off.

Alternative proposals were invited for reciprocating engines and horizontal steam turbines for the main power, the latter of the bleeding type, to operate at 3,600 r.p.m. The engines specified are to be two vertical 3 cylinder, 3 crank, compound non condensing forced lubrication, to develop continuously 750 h.p. at full normal load at 360 r.p.m. with 200 lbs. steam at the throttle, when exhausting against 5 lbs. back pressure in the exhaust pipe. They are to be capable of carrying a 25% overload. Each of these will be direct connected to a 500 k.w., 360 r.p.m., 3 phase, 60 cycle, 600 volt, engine type, revolving field, a.c. generator. The alternative specification for the turbine called for a generator to meet the different requirements of the higher speed. Each generator will have, direct connected, a 20 kw., 250 volt, 360 r.p.m., d.c. compound interpole exciter generator.

There will also be a compound engine similar to the above, but of the 2 crank, 2 cylinder type, to develop 150 h.p. at 450 r.p.m., with a reserve overload capacity of 25%. This engine will drive a combination unit consisting of a 75 k.w. a.c., and a 75 k.w. d.c., generator mounted on the same shaft. The a.c. generator will have the

same characteristics as the 500 k.w. machines, while the d.c. generator will be a 250 volt, compound interpole machine. This combination unit is intended for early installation, as soon as there is sufficient boiler capacity, in order that it may provide power for testing the cranes and erecting the machine tools in the shops, as well as lighting the plant during construction.

There are to be two motor generator sets, each consisting of a 400 k.v.a., 720 r.p.m., 3 phase, 60 cycle, 600 volt, synchronous motor, direct connected to a 150 k.w., 250 volt, compound, interpole, d.c. generator, each unit to have a small variable speed (slip ring), 600 volt, 3 phase, starting motor, mounted on the extended shaft, and capable of being started from the switchboard. There will be an additional motor generator set, consisting of a 150 k.v.a., 720 r.p.m., 3 phase, 60 cycle, 600 volt, self starting, synchronous motor, direct connected to a 75 k.w., 250 volt, compound, interpole, d.c. generator.

The switchboards will consist of 17 panels; 4 for the 500 k.w. generator, one of which will blank, but drilled for future installations; an a.c. totality panel; 1½ for lighting; 4½ for a.c. feeders; a swinging bracket; an outside power panel; 1½ for d.c. feeders; a d.c. totality panel; a panel for the d.c. generators; and 2½ for the synchronous motors.

**Railway Mechanical Conventions.**—At a meeting of the joint committee of the American Railway Master Mechanics' Association and the Master Car Builders' Association, at New York, recently, it was decided that the 1915 meetings will be held at Atlantic City, N.J., those of the former June 9 to 11, and of the latter June 14 to 16. Invitations were received in addition to Atlantic City, from Washington, D.C., Chicago, Ill., and San Francisco, Cal. Several of the committee favored San Francisco, but it was concluded that few of the members would be able to undertake the long journey, and that the attendance would suffer.

**Railway Route Maps Approved.**—The Minister of Railways on Oct. 28 approved railway route maps as follows:

High River, Saskatchewan and Hudson Bay Ry., from Tp. 18, R. 1 w. 4 m., near Red Deer Forks, to Pas, Man., about 470 miles;

Western Lominion Ry., from Pincher, via Pincher Creek, to a point within 5 miles of Cardston, Alta., about 45 miles.

**Dominion Foundation Co., Ltd.**, has been incorporated under the Dominion Companies Act, with an authorized capital of \$50,000 and head office at Montreal, the incorporators being M. J. Butler, M. Can. Soc. C.E., Hugh Doheny, Hugh Quinlan, Angus W. Robertson and M. J. O'Brien.

**C.P.R. Land Sales.**—The sales for October in Manitoba, Saskatchewan, and Alberta were 18,935 acres, about 4,000 more than in September. The number of sales was 92, and of these 42 were to parties outside Canada, 40 of whom have settled in Alberta.

E. E. Trask, who is stated to be interested in the dry dock project at Owen Sound, is reported to have stated that the necessary capital to finance the scheme had been arranged for, sufficiently at least to warrant that contracts be let. He does not think that much will be done this year, but contracts should be placed within two months. The plans have been approved by the Public Works Department at Ottawa, and a Government subsidy was practically assured.

## Dominion Government Grain Elevator at Vancouver, B.C.

The Dominion Government received tenders to Nov. 30, for the construction of a reinforced concrete elevator at Vancouver, to complete the chain of Government terminal and interior elevators between Port Arthur and the Pacific coast.

The site has been selected on Stewart St., between Salisbury Drive and Commercial St., and the proposed plant will consist of storage house, work house, sacking plant, transformer house, conveyor galleries and track shed. The storage house will be 232 by 71 ft., with 52 circular and 32 interspace bins, with capacity for about 950,000 bush. The work house will be 126 by 62 ft., with 32 circular, 21 interspace and 15 outer space bins, with capacity for about 300,000 bush., and with passenger elevator tower 12 by 16 ft. The sacking and transformer house will be 62 by 25 ft. The track shed will be 52 by 150 ft., and there will be seven parallel tracks on the wharf, and five tracks between the wharf and the C. P. R., a total of nearly two miles. Receiving hoppers, with a capacity of 2,000 bush., will be placed at each of three car ways in the track shed, and there will be hoppers at each of the three receiving legs, making nine in all. Two sets of automatic sacking scales will be installed, each scale with a hopper capacity of from two to six bush., and capable of weighing 1,500 bush. an hour. Grain will be conveyed to vessels by two-belt galleries one on either side of the wharf. The driving machinery will consist of 40 three phase 60-cycle a.c. motors, with an aggregate horse power of 1,520.

It is stated that work will be commenced almost immediately, and be completed by Nov., 1915.



## The Commissioners of the Transcontinental Railway.

### NOTICE TO CONTRACTORS.

#### Tenders for Travelling Cranes.

SEALED TENDERS, addressed to the undersigned, and marked on the envelope "Tender for Travelling Cranes," will be received at the office of The Commissioners of the Transcontinental Railway, at Ottawa, Ont., until 12 o'clock noon of the 4th day of January, 1915, for the furnishing and erection complete, in accordance with the sketches and specifications of the Commissioners, of one or more, or all of the Travelling Cranes, as listed in the specifications, which are to be erected in the Locomotive and Car Shops Plant of the National Transcontinental Railway, at Quebec, P.Q.

Sketches may be seen and form of tender and specifications obtained at the office of Mr. W. J. Press, Mechanical Engineer, Ottawa, Ont.

Persons tendering are hereby notified that tenders must be made on the forms supplied by the Commissioners and that each tender must be signed and sealed by all the parties to the tender, and witnessed, and be accompanied by an accepted cheque on a Chartered Bank of the Dominion of Canada, payable to the order of The Commissioners of the Transcontinental Railway, for a sum equal to ten per cent (10%) of the amount of the tender.

The cheque forwarded by the party whose tender is accepted will be deposited to the credit of the Receiver General of Canada as security for the due and faithful performance of the contract according to its terms. Cheques forwarded by the parties whose tenders are rejected, will be returned within ten days after the signing of the contract.

The right is reserved to reject any or all tenders.

By order,

P. E. RYAN,

Secretary.

The Commissioners of the Transcontinental Railway.

Dated at Ottawa, November 18th, 1914.

Newspapers inserting this advertisement without authority from the Commissioners, will not be paid for it.—70749.



## Mainly About Railway People.

CHARLES KISLINGBURY, Divisional Superintendent at Bristol, Eng., of the Great Western Ry., has retired.

BRAYTON IVES, who was President of the Northern Pacific Ry. from 1893 to 1896, died recently at Ossining, N.Y.

E. B. TILT, Engineer of Tests, C.P.R., read a paper on characteristics of materials before the Canadian Railway Club in Montreal, Nov. 10.

F. H. PHIPPEN, General Counsel, Canadian Northern Ry., Toronto, was operated on in New York, N.Y., Nov. 25, for gall stones.

HON. FRANK COCHRANE, M.P., Minister of Railways and Canals, left Ottawa, Nov. 24, for an inspection trip over the Intercolonial Ry.

HARRY DEAN, division freight agent, Pere Marquette Rd., Detroit, Mich., died there, Nov. 22, after 18 years service with the company.

F. J. HOLMAN, for over 40 years in G.T.R. service, during the latter half as foreman of the Bridge and Building Department at Stratford, Ont., has been superannuated.

A. H. NICHOL, Land Agent, C.P.R., died at Bowen Island, B.C., recently, from the effects of a gunshot wound, accidentally self-inflicted while on a shooting trip.

W. T. WEBSTER, who was appointed General Freight Agent, Chicago, Indianapolis and Louisville, Ry., Chicago, Ill., recently, was, in the early 90's, in the G.T.R. Freight Department.

A. S. GOODEVE, a member of the Board of Railway Commissioners, lectured before the Canadian Club at Liskeard, Ont., recently, on New Canada, an epoch in Canadian history.

SCOTT GRIFFIN, heretofore European Railway and Steamship Manager, Canadian Northern Ry., London, Eng., has returned with his wife and family to Toronto, where they will live in future.

ROBT. HOBSON, Vice President and General Manager, Steel Co. of Canada, and BASIL MAGOR, Vice President, National Steel Car Co., both of Hamilton, Ont., were in England in November.

Herbert Holt, son of H. S. HOLT, director C.P.R., Montreal, who since graduating from the Royal Military College has been with the 3rd Dragoon Guards in Egypt, is now with his regiment in France.

H. GRAY, formerly Assistant Manager Land Department, C.P.R., London, Eng., sailed from England recently for Kumasi, West Africa, where he has secured a position with a mercantile firm.

G. McLAREN BROWN, European Manager, C.P.R., London, Eng., was a member of the Lord Mayor and Sheriffs' committee for the arrangement of details for the Lord Mayor's procession and banquet there, Nov. 9.

H. R. CHARLTON, General Advertising Agent, G.T.R. and G.T. Pacific Ry., Montreal, who retired recently from the Presidency of the Montreal Press and Advertising Club, has been elected an honorary President.

William Williams, father of LADY DONALD MANN, died at St. Catharines, Ont., Oct. 28, aged 88, and was buried at Winnipeg, where he lived for some 50 years until removing to St. Catharines about ten years ago.

LT. COL. G. R. STARKE, Secretary-Treasurer, Dominion Transport Co., Ltd., Montreal, has been appointed Commissioner of the Boy Scouts for the Province of Que-

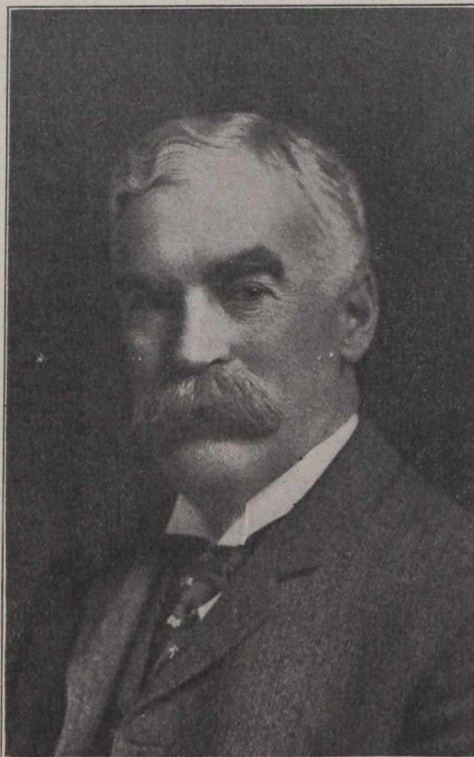
bec, succeeding the late Lt. Col. J. H. Burland.

F. E. BRADBURY, of Boston, Mass., who was accidentally killed in Chicago, Ill., Nov. 4, was concerned in the acquirement of the Canadian Northern Ry. right of way over the proposed route between Toronto, Hamilton and Niagara Falls.

A. F. STEWART, Chief Engineer, Mackenzie, Mann & Co., Ltd., Toronto, and Chairman, Canadian Society Civil Engineers, Toronto branch, gave an illustrated address before the branch on bridges destroyed during the South African war.

LT. COL. G. S. RENNIE, M.D., Surgeon in Chief, Toronto, Hamilton and Buffalo Ry., and Dominion Power and Transmission Co., Hamilton, Ont., will be in command of one of the field artillery batteries which is being mobilized in Toronto for overseas service.

A. J. TAYLOR, Canadian Freight and Passenger Agent, Chicago, Milwaukee and St.



W. H. Biggar, K.C.,  
Vice President and General Counsel, Grand  
Trunk Railway and Grand Trunk Pacific  
Railway.

Paul Ry., Toronto, who has been on leave of absence for some time, owing to ill-health, has gone to California for the winter, accompanied by his wife and daughter.

J. VIPOND DAVIES, Vice President of Jacobs & Davies, Inc., consulting engineers, Montreal and New York, has been awarded the Telford gold medal of the Institution of Civil Engineers, London, Eng., for his paper on the extensions of the Hudson River tunnels of the Hudson & Manhattan Rd.

The London and North Western Ry., (Eng.) directors have made the following appointments: Superintendent of the Line, L. W. Horne; Assistant Superintendent of the Line, W. M. Turnbull; Indoor Assistant to Superintendent of the Line, E. C. Grindley.

W. P. HINTON, Assistant Passenger Traffic Manager, G.T.R. and G.T.P.R., has been appointed Chairman Executive Committee, Eastern Canadian Passenger Asso-

ciation, vice, H. G. Elliott, formerly General Passenger Agent, G.T.R., who has been superannuated.

R. J. FLAHERTY, who has been exploring in the Labrador, Ungava and Hudson Bay districts for two or three years past, for a syndicate headed by Sir Wm. Mackenzie, was married in New York, Nov. 12, to Miss F. J. Hubbard. He is a son of R. H. Flaherty, mining engineer, Mackenzie, Mann & Co., Ltd., Toronto.

DONALD McDERMID, who died in Toronto Nov. 1, age 70, after a long illness, was for a number of years a railway contractor and had contracts on western portions of the C.P.R. main transcontinental line in the eighties. One of his daughters is the widow of the late J. H. Graham, at one time Paymaster, and subsequently Local Treasurer, C.P.R., Winnipeg.

MAJOR J. K. BERTRAM, of Dundas, Ont., who has been appointed adjutant in the second Canadian overseas force, is a nephew of Henry Bertram, and of Col. Alexander Bertram, of the John Bertram & Sons Co., and a son of Dr. T. A. Bertram, the crack rifle shot. He is a graduate of the Royal Military College, Kingston, Ont., and is a medical student at McGill University, Montreal.

THOMAS HENRY, formerly Traffic Manager, Richelieu and Ontario Navigation Co., and now Passenger Traffic Manager, Canada Steamship Lines, Ltd., Montreal, and J. M. LYONS, ex-General Passenger Agent, Canadian Government Railways, and now Eastern Traffic Agent, Reid Newfoundland Co., Moncton, N.B., have been elected honorary members, American Association of Passenger Traffic Officers.

DUNCAN MACPHERSON, M.Can.Soc. C.E., who retired recently from the position of Assistant to the Chairman, National Transcontinental Ry. Commission, on account of the work being practically completed, except the adjusting of the final estimates and finishing up the repair shops at Quebec, is still residing in Ottawa and taking a short rest, after 33 years of continuous railway service, after which he will do consulting work for a time and perhaps take up military duties of some kind.

ELDRED DALSTON TOYE, whose appointment as Storekeeper, Ontario Grand Division, Canadian Northern Ry., Toronto, was announced in our last issue, was born at Dalston, Ont., Apr. 27, 1891, and entered railway service in July, 1909, since when he has been to May, 1910, storeman, C.N. Ontario Ry., Parry Sound; May, 1910, to Nov., 1911, assistant, Stores Department, same road, Toronto; Nov., 1911 to July, 1914, chief clerk, same department, Toronto; July to Oct. 23, 1914, Storekeeper, same road, Toronto.

GUY CALTHROP has been appointed General Manager, London and North Western Ry. of England, succeeding Sir Robt. Turnbull, formerly Superintendent of the Line, who has been General Manager since Sir Frank Ree's sudden death in February last. Mr. Calthrop, who is still in the early forties, entered the L. & N.W.R.'s traffic department in 1886. In 1902 he was appointed General Superintendent of the Caledonian Ry., and in 1908 became its General Manager. He left England in 1910, on his appointment as General Manager of the Buenos Ayres and Pacific Ry.

H. G. ELLIOTT, whose retirement from the position of General Passenger Agent, G.T.R., Montreal, was announced in our last issue, was born Aug. 22, 1860, and entered railway service in 1882, as city ticket agent, Central Vermont Ry., Montreal; he entered G.T.R. service in May, 1897, and held positions in the Traffic Department at various points until May, 1900, when he was ap-



pointed Assistant General Passenger and Ticket Agent. He was subsequently First Assistant General Passenger Agent at Montreal, and was until Mar., 1911, in a similar position at Chicago, Ill., when he was appointed General Passenger Agent at Montreal.

THOMAS EEDSON, formerly Freight Accountant and Freight Claim Agent, Michigan Central Rd., Detroit, Mich., who died there, Nov. 1, was born at Niagara Falls, Ont., Jan. 4, 1842, and entered railway service in 1872, in the Treasurer's office, Canada Southern Ry. during construction, and continued with that company as cashier from the commencement of its operation until its amalgamation with the Michigan Central Rd., Jan. 1, 1883, since when he was consecutively, to Sept., 1883, clerk at St. Thomas, Ont.; Sept., 1883, to Jan., 1884, clerk, Auditor's office, Detroit, Mich.; Jan. 1, 1884, to Oct. 1, 1886, Chief Travelling Auditor; from Oct. 1, 1886, Freight Accountant and Freight Claim Auditor, all with Michigan Central Rd.

KEITH ROSS CAMERON, who died in Toronto, Nov. 5, aged 42, of pneumonia, was in railway service for a number of years. He started as a boy in the Northern Ry.'s service in Toronto, in the office of Jas. Webster, now President and Manager Carquet and Gulf Shore Ry., Bathurst, N.B., being transferred to Allandale, Ont., as operator, when the Northern was taken over by the Grand Trunk. Subsequently he was an operator on the Duluth South Shore and Atlantic Ry., at Marquette, Mich., and then went to the Lake Erie and Detroit River Ry., serving first as dispatcher, and then as trainmaster at Ridgetown, Ont. After the L.E. & D.R. was taken over by the Pere Marquette, he was in the Canadian Freight Association's office in Toronto, from 1910 to 1912, under T. Marshall, and latterly was in real estate business.

LORNE CAMERON THOMSON, whose appointment as General Storekeeper, Eastern Lines, Canadian Northern Ry., Toronto, was announced in our last issue, was born at Kingston, Ont., Nov. 25, 1882, and entered railway service May 1, 1897, since when he has been, to Nov., 1900, in General Storekeeper's office, C.P.R., Montreal; Nov., 1900, to Feb., 1901, storekeeper, C.P.R., Quebec. Que.; Feb., 1901, to May, 1902, storekeeper, C.P.R., Brownville Jct., Me.; May, 1902, to June, 1904, Divisional Storekeeper, C.P.R., McAdam Jct., N.B.; June, 1904, to Aug., 1905, Divisional Storekeeper, C.P.R., Farnham, Que.; Aug. to Oct., 1905, storekeeper, Section A, Angus Shops, C.P.R., Montreal; Oct., 1905, to Mar., 1907, chief clerk to General Storekeeper, C.P.R., Montreal; Mar., 1907, to Dec., 1911, storekeeper, Canadian Northern Ontario Ry., Parry Sound, Ont.; Dec., 1911, to June, 1914, storekeeper, C.N. Ontario Ry., Toronto; June to Nov., 1914, Division Storekeeper, Ontario Grand Division, Canadian Northern Ry., Toronto.

In connection with the inauguration recently of through passenger service on the Grand Trunk Pacific Ry., it is interesting to note the experience H. McCALL, Superintendent at Edson, Alta., has had in connection with its operation. He was associated with the first mixed and passenger services on the line from Portage la Prairie, Man., westwards, in their various stages from Portage la Prairie Edmonton, Alta., and thence westward to Edson, Alta. From Edson and Jasper, B.C., he has handled all traffic east and west for the past three years, and in September supervised the operation on his division of the first through express trains between Edmonton and Prince Rupert, B.C., and accompanied the same through his division. In addition to supervising the operation of the line west of

Edmonton to Prince George, B.C., he had charge of track laying on about 450 miles of the Mountain Section. He has been in the company's service over 9 years, living most of the time on his car.

JAMES NEIL MURPHY, whose appointment as Trainmaster, C.P.R., Souris, Man., was announced in our last issue, was born at Mooretown, Ont., May 10, 1879, and entered railway service in July, 1897, since when he has been, to June, 1898, operator, Manitoba and Northwestern Ry., Winnipeg; June 20, to Sept. 3, 1898, operator, C.P.R., Winnipeg; Sept. 3, 1898, to Dec. 15, 1899, ticket clerk, C.P.R., Brandon, Man.; Dec. 15, 1899, to Mar. 11, 1900, operator, Columbia and Western Ry., Smelter Jct., B.C.; Mar. 11, to Oct. 15, 1900, Division Engineer's clerk, C.P.R., Smelter Jct., B.C.; Oct. 15, 1900, to Feb. 2, 1901, storekeeper, Trail Smelter, Trail, B.C.; Feb. 2, 1901, to May 1, 1902, Division Engineer's clerk, C.P.R., Trail, B.C.; May 1, 1902, to Jan. 7, 1905, accountant, Construction Department, C.P.R., Winnipeg; Jan. 7 to May 21, 1905, clerk, C.P.R., Kenora, Ont.; May 21 to July 19, 1905, dispatcher, C.P.R., Lipton, Sask.; July 19 to Oct. 11, 1905, clerk, C.P.R., Kenora, Ont.; Oct. 11, 1905, to Feb. 1, 1909, chief clerk, C.P.R., Kenora, Ont.; Apr. 7, 1909, to Apr. 27, 1910, instrumentman, C.P.R., Alberta Division; Apr. 27, 1910, to Sept. 16, 1914, Resident Engineer, C.P.R., Alberta Division.

D. McNICOLL, Vice President, C.P.R., Montreal, whose retirement is announced, effective Jan. 1, was born at Arbroath, Scotland, Apr. 7, 1852, and entered railway service Aug. 20, 1866, since when he has been, to 1873, clerk, Goods Manager's office, North British Ry., in Scotland; 1873 to 1874, similar position with the Midland Ry., in England; 1874, billing clerk, Northern Ry., Collingwood, Ont.; 1874 to 1881, chief clerk, General Manager's office, Toronto, Grey and Bruce Ry.; 1882 to 1883, General Freight and Passenger Agent, Eastern and Ontario Divisions, C.P.R.; 1889 to Jan., 1896, General Passenger Agent, all lines and steamships, C.P.R.; Jan., 1896, to Apr., 1899, Passenger Traffic Manager, C.P.R., Montreal; Apr., 1899, to Apr., 1900, Assistant General Manager, C.P.R., Montreal; Apr., 1900, to Dec., 1903, Second Vice President and General Manager, C.P.R., Montreal; Dec., 1903, to date, Vice President (Senior), C.P.R., Montreal. He was elected a director of the company in 1904, and was also appointed a member of the Executive Committee in 1906. It is announced that he will retain the two latter positions. He is also a director of Molson's Bank. While in Toronto, Nov. 24, Mr. McNicoll is reported to have stated that he has been granted a year leave of absence by the President, and he intends spending this in travelling, chiefly in the south.

### Railway Rolling Stock Notes.

The C.P.R., between Oct. 15 and Nov. 15, ordered 23 steel flat cars and 265 steel frame box cars from its Angus shops, Montreal.

The Quebec Central Ry. is reported to have ordered 2 American (4-4-0) locomotives, to be built in its own shops at Sherbrooke, Que.

The C.P.R., between Oct. 15 and Nov. 15, received the following rolling stock from its Angus shops:—8 steel first class cars, 88 steel frame box cars, 2 refrigerator cars, 2 single track flangers, 3 double track flangers and 1 class D4 locomotive.

The Canadian Northern Ry., Sept. 12 to Nov. 12, received the following additions to rolling stock: 11 colonist cars from Canadian Car and Foundry Co., 10 colonist cars

from Crossen Car Co., 3 baggage cars from Preston Car and Coach Co., and one consolidation locomotive from Canadian Alis Chalmers, Ltd.

The G.T.R. has received 12 first class cars from Canadian Car and Foundry Co., 2 baggage cars from National Steel Car Co., 5 mail cars from Pressed Steel Car Co., and 2 suburban locomotives from Montreal Locomotive Works.

The 8 steel sleeping cars which the Intercolonial Ry. has ordered from the National Steel Car Co. will have steel underframes and exteriors, with steel bunks and partitions, and be in 10 sections with drawing room at each end. The bodies will be 73½ ft. long, 10 ft. wide over eaves, and 14 ft. 2 ins. high from rail to top of roof. The bodies will be mounted on 6 wheel trucks. The price of these cars is \$28,250 each.

We are officially advised that the Intercolonial Ry. has ordered rolling stock as follows:—6 first class cars from Canadian Car and Foundry Co.; 8 all steel sleeping cars from National Steel Car Co.; 4 steel frame, interior wood finish, sleeping cars from Preston Car and Coach Co. It is also stated that 200 standard steel flat cars, 80,000 capacity, have been ordered from the Nova Scotia Car Works, and 250 freight cars, 50 tons capacity, from the Eastern Car Co.

Following are chief details of the 6 steel frame first class cars which the Intercolonial Ry. has ordered from Canadian Car and Foundry Co., to be built at its Amherst, N.S., works:

Length over end sills	74 ft.
Width over side sills	9 ft. 9½ ins.
Underframe	Steel fish belly type.
Draft gear	Tandem.
Vestibule	Steel construction, steel trap doors and steel frame steps.
Air brakes	Westinghouse LN—1812.
Heating	Gold Car Heating Co.
Lighting	30 volt.
Trucks	Simplex all steel 6-wheel, 80,000 lbs. capacity.
Weight complete	141,000 lbs.

The New Ladysmith Lumber Co., Nanaimo, B.C., ordered a 2-4-2 saddle tank locomotive recently from Canadian Locomotive Co., delivery being made in November. Following are the chief details:

Weight on drivers	40,000 lbs.
Weight, total	55,000 lbs.
Wheel base, rigid	5 ft.
Wheel base, total	18 ft. 6 ins.
Heating surface, firebox	43 sq. ft.
Heating surface, tubes	360 sq. ft.
Heating surface, total	403 sq. ft.
Driving wheels, diar.	40 ins.
Driving wheel centres	Cast iron
Cylinders, diar. and stroke	12 by 16 ins.
Boiler, type	Radial stayed
Boiler pressure	165 lbs.
No. and diar. of tubes	100—1¾ ins.
Length of tubes	7 ft. 11 ins.
Injectors	Ontario
Safety valves	Locomotive pop
Brakes	Westinghouse automatic
Packing	Metallic
Tank capacity	750 imp. galls.
Coal capacity	2,000 lbs.

Following are the chief details of the 4 baggage and 2 postal cars which the Intercolonial Ry. has built in its Moncton Shops, and which have been mentioned in a previous issue:—

	Baggage Steel.	Postal Steel.
Underframes		
Length over end sills	60 ft. 10% ins.	65 ft. 10% ins.
Length over buffer face plate	64 ft. 8% ins.	69 ft. 8% ins.
Length inside	60 ft. 0% ins.	65 ft. 0% ins.
Width over side sills	9 ft. 9 ins.	9 ft. 9 ins.
Width inside	8 ft. 10¾ ins.	8 ft. 10% ins.
Height of rail to top of roof	14 ft. 2 ins.	14 ft. 2 ins.
Trucks, type	4-wheel	6-wheel
Trucks, design	Simplex	Simplex
Trucks, material	Steel	Steel
Truck wheel base	8 ft.	11 ft.
Trucks, centre to centre	44 ft. 10 ins.	49 ft. 10 ins.
Lighting	Gas	Gas
Heating	Straight steam	Straight steam
Journal boxes	McCord	McCord
Brake beams	Simplex	Simplex



## 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.

**Canada Steamship Lines.**—THOMAS HENRY has been appointed Passenger Traffic Manager. Office, Montreal. The position of Operating Superintendent of Passenger Steamers, heretofore held by him, has been abolished. Pursers, stewards and the company's hotels will hereafter be under the Passenger Traffic Manager's jurisdiction.

**Canadian Government Railways.**—R. A. KLOCK, heretofore General Tie and Timber Agent, Moncton, N.B., has been assigned to other duties there.

H. B. FLEMING, Superintendent, National Transcontinental Ry., between Moncton and Edmundston, N.B., under operation by the Canadian Government Railways, has had his jurisdiction extended to cover the N.T.R. between Moncton, N.B. and St. Jean Chrysostome, Que., which is on the St. Charles Branch, I.R.C., 12.9 miles west of St. Charles Jct., and 4 miles east of Chaudiere Jct., and is the junction point with the N.T.R.

HOWARD A. RYAN has been appointed Assistant Superintendent, National Transcontinental Ry., between Edmundston, N.B., and St. Jean Chrysostome, Que., in charge of station service, train service and track. Office, Monk, Que.

**Canadian Northern Ry.**—WM. PHILLIPS, heretofore European Traffic Manager, has been appointed European Railway and Steamship Manager, vice Scott Griffin, who has returned to Canada. He will also continue to perform the duties of European Traffic Manager. Office, London, Eng.

H. B. AKIN, heretofore in the Stores Department, C.P.R., Moose Jaw, Sask., has been appointed Division Storekeeper, Quebec Grand Division, C.N.R. Office, Joliette.

F. E. HARTSHORN has been appointed Trainmaster, Quebec Division, Quebec Grand Division, vice J. Fagan, transferred at his own request to the train service. Office, Joliette.

J. A. PATTERSON, who was City Ticket Agent at Niagara Falls, N.Y., during the summer, has been appointed City Ticket and Express Agent at Belleville, Ont.

F. H. DUNKLEY, heretofore machinist, has been appointed gang foreman, Winnipeg Shops, vice W. Webster, resigned.

**Canadian Pacific Ry.**—J. A. MOORE, heretofore Car Foreman, White River, Ont., has been appointed Car Foreman, Muskoka, Ont., vice E. E. Potter, on leave of absence for military duty.

JOHN FLYNN, heretofore carpenter, London, Ont., has been appointed Car Foreman, White River, Ont., vice J. A. Moore, transferred.

D. D. COSSAR, heretofore Locomotive Foreman, Moose Jaw, Sask., has been appointed Locomotive Foreman, Winnipeg.

G. ARMSTRONG, heretofore Bridge and Building Master, Regina, Sask., has been appointed Bridge and Building Foreman there.

T. S. BERTRAM, heretofore Locomotive Foreman, Revelstoke, B.C., has been appointed Locomotive Foreman, Moose Jaw, Sask., vice D. D. Cossar, transferred.

W. H. WORTMAN, heretofore Shop Foreman, Vancouver, B.C., has been appointed General Foreman Ogden Shops, Calgary, Alta., vice A. Sturrock, transferred. The position of shop foreman at Vancouver will not be filled.

W. E. CLINE, heretofore Chief Dispatcher, Cranbrook, B.C., has been appointed Chief Dispatcher, Edmonton, Alta., vice C. W. Fisher, transferred.

C. W. FISHER, heretofore Chief Dispatcher, Edmonton, Alta., has been appointed Chief Dispatcher, Lethbridge, Alta., vice W. J. Manley.

J. S. CARTER, formerly General Agent, Atlantic Steamships, Winnipeg, has been appointed District Passenger Agent, Nelson, B.C.

A STURROCK, heretofore General Foreman, Ogden Shops, Calgary, Alta., has been appointed District Master Mechanic, Cranbrook, B.C., vice A. Mallinson.

W. J. PENTLAND has been appointed City Passenger Agent, St. Louis, Mo., vice T. J. Barnes, resigned.

**Erie Rd.**—S. J. SHARP has been appointed Canadian Passenger Agent. Office, Toronto.

**Grand Trunk Pacific Ry.**—L. C. PEARSON has been appointed station agent at Prince George, B.C.

**Grand Trunk Ry.**—We are officially advised that no appointment of Signal Engineer has been made to fill the vacancy caused by the departure of Lieut. R. F. MORKILL for active service in Europe.

The following station agents have been appointed:—Newtonville, Ont., F. G. Greenfield; Omemece Jct., Ont., V. H. Fisher; Markham, Ont., H. S. Snider; Tavistock, Ont., G. F. Holley; Suspension Bridge, N.Y., H. G. Smith; outside agents:—Montreal, Windsor Hotel, L. W. Lindsay; Berlin, Ont., A. E. Pernfuss; Wallaceburg, Ont., McDougall and Martin. The station at Humberstone, Ont., has been closed.

**Montreal Warehousing Co., Ltd.**—A. T. LANE is acting Manager and Secretary, no permanent appointment having yet been made of a successor to the late G. H. Hanna.

**National Transcontinental Ry.**—See Canadian Government Railways.

**Toronto, Hamilton and Buffalo Ry.**—T. McClymont has been appointed Foreman Boiler Maker, Hamilton, Ont., vice F. Fell, acting Foreman.

**White Pass and Yukon Ry.**—A Seattle, Wash., press dispatch of Nov. 2, says O. L. DICKESON has announced his intention of resigning as president of the W.P. & Y.R. and the Yukon Navigation Co., and that he will probably relinquish his duties about Feb. 1.

### Burrard Inlet Tunnel and Bridge Company's Proposed Bridge.

The report of R. Modjeski, consulting engineer, Chicago, on the plans and tenders referred to him, was considered by the directors, Nov. 13. The report covers 31 pages of typewritten matter, and thoroughly analyses the three plans submitted to Mr. Modjeski, which were the alternative plans put in competition with the design for the bridge over the Second Narrows at Burrard Inlet prepared by Sir Wolfe Barry, which was found to be too expensive.

The report in its opening statement says:—"Probably on account of the lack of time that the bidders had in preparing alternate designs all three of the plans are mostly sketches lacking in sufficient detail and are not in proper order to serve as contract plans. There has been an evident tendency on the part of the bidders to conform as much as possible with the official plans, which in a measure accounts for some inconsistencies and for the bidders hesitating to meet the local conditions frankly. The three tenders are placed in the following order of merit:—Canadian Bridge Co. and Missouri Bridge Co., \$1,846,000; Dominion Bridge Co., \$1,916,000; C. A. P. Tur-

ner and the Western Foundations Co., \$1,744,881.

The report suggests that neither of the tenders be accepted, but that the tenderers be given an opportunity to revise their plans and estimates in the light of his criticism. Perhaps a better way, however, it is suggested, would be for the Board to have a new and complete set of plans prepared and invite new bids thereon. In this connection the report contains the following suggestions:—"Your official design should embody the various points in this report, the principal ones being:—A substantial substructure with pneumatic foundations similar to the design of the Missouri Bridge and Iron Co. A deeper draw span similar to the one shown on accompanying diagram to avoid deflection, designed as a continuous structure. A single long fixed span, similar to the design furnished by Mr. Turner, on condition that a change in the crown grant for portions of the bed of the Narrows may be secured. An approach viaduct of girders supported on reinforced concrete base similar to the design prepared by Mr. Turner."

In a drawing attached to the report Mr. Modjeski shows an arrangement of the electric railway tracks and highway floor for the main bridge different from what appears on the plans submitted by the bidders. The tracks are shown near the east truss, leaving an unobstructed 18 ft. roadway in the centre. An advantage of this plan, it is claimed, is that the floor beams will be somewhat lighter and therefore more economical, while the two trusses will be nearly alike. The electric railway tracks could either cross over to the centre of the highway approach as soon as they leave the main bridge or remain on one side until the end of the approach is reached.

The directors decided to send a copy of the report to the Provincial Government, and to the Department of Railways at Ottawa, before taking it up for further consideration. (See Railway Developments, pg. 544 this issue.)

### Suit Over Rogers Pass Tunnel Contract.

Particulars have been filed in the British Columbia courts in connection with the action J. A. McIlwee & Sons, Denver, Col., against Foley, Welch & Stewart, in which \$539,756 is claimed. Foley, Welch & Stewart are contractors, to whom the C.P.R. let the contract for boring the tunnel, with connecting lines, at Rogers Pass, B.C., at an estimated cost of about \$10,000,000. It is set out in the particulars that the plaintiffs entered into a contract for the boring of a five mile tunnel, the defendants to provide tools, mules, equipment, air for ventilation and for drilling purposes, and to make monthly advances on account of work done. The plaintiffs undertook to drive 900 ft. a month, and were to receive a bonus of \$1,000 for every foot of tunnel driven beyond the 900 ft. a month, the total bonus to be earned not to exceed \$250,000. Work was started April 2, and so much was done that early in September \$215,076 had been earned on bonus account. The plaintiffs allege that the defendants then began to hinder them in their work, and that, after considerable friction, the general contractors annulled the sub contract Sept. 24. The claim is made up as follows: Bonus earned, \$215,076; bonus which they were prevented from earning, \$34,924; loss of profit on contract for pioneer tunnel, \$125,325; loss of profit on contract for centre tracking, \$164,036.

In painting steel cars, whenever possible, every sheet on the roof should be sand blasted and primed with red lead immediately after.



## Canadian Pacific Railway Construction, Betterments, Etc.

**Algonquin Hotel.**—We are officially advised that plans for the main wing of the new Algonquin Hotel, St. Andrews, N.B., have been prepared by Barrot, Blackader and Webster, under the direction of D. H. Mapes, Superintendent of Building Construction, C.P.R. The plan follows the old lines, a main building with two wings. The building stands on a site of 20,000 sq. ft., and will be constructed almost entirely of reinforced concrete—terra cotta partitions being utilized in the interior. In order to give an artistic appearance to the front of the main building a quantity of lumber, embedded in concrete will be employed. The roof will be of red slate. The building will consist of four stories and two basements. The building is intended to be plain and simple both inside and out, but is to be equipped with all modern appointments. The staircases and stairwalls are to be absolutely fireproof and are to be provided with swing doors opening on to fire corridors, so that in case of fire the occupants of each separate section can gain access to these staircases, and be able to get out without going through the fire. The building is being erected by P. Lyall and Sons Construction Co., Montreal.

**Eastern Division.**—In connection with the new station facilities at the Palais, Quebec, two large freight sheds are under construction north of the present freight sheds and close to the bank of the St. Charles River. The shed for incoming freight is 600 by 50 ft., and that for outgoing 400 by 30 ft. The concrete foundations of the incoming freight shed were completed Nov. 1, and the steel superstructure is in course of erection, while the concrete foundations for the outgoing shed were expected to be finished Nov. 30. The two sheds are expected to be ready for business May 1, 1915. The present freight sheds and the existing passenger station will then be demolished, and a new union passenger station erected on the site for joint use with the National Transcontinental Ry. The plans for this building are in course of preparation. The tracks in the yard are to be rearranged to meet the new conditions.

The Board of Railway Commissioners has authorized the rebuilding of the Lachine swing span, 43.1, Farnham Subdivision, Highlands, Que.

**Ontario Division.**—The south spans of the new double track bridge across the Humber River between Lambton and Islington, were being placed in position Nov. 20. It is expected that the work will be entirely completed and the double track fully in operation early in December.

**Second Track, Main Transcontinental Line.**—The Board of Railway Commissioners has authorized the operation of trains over further sections of the second track under construction on the Cartier, Chapleau and Nipigon Subdivisions.

In a recent interview George Bury, Vice President, is reported to have said that about half the main line mileage between Fort William, Ont., and Vancouver is double track. During this year about 350 miles of second track have been completed, viz., west of Brandon, Man., 40 miles; in the vicinity of rBoadview, Man., 30 miles; between Indian Head and Moose Jaw, Sask., 84 miles; in the vicinity of Swift Current, Sask., 56 miles; west of Revelstoke, B.C., 25 miles; in the Kamloops district, 34 miles; east of Vancouver, 80 miles. Total, 349 miles.

**Manitoba Division.**—The extension of the branch line heretofore terminating at Gimli was opened for traffic to Icelandic River, 25.4 miles, Nov. 9. The name Icelandic

River has given place to Riverton, the change being announced at the public celebration which took place.

**Saskatchewan Division.**—A large number of men have been employed in Moose Jaw, and sent out to some grading work, north of Elbow. This is probably grading on station yards and sidings.

On the Weyburn-Lethbridge line, which was opened for traffic to Gowanlock, Oct. 7, the train service has been extended 7 miles to Altawan, a station on the Saskatchewan-Alberta boundary.

**Alberta Division.**—The Board of Railway Commissioners has approved of revised location plans for the Swift Current north-westerly branch from mileage 111.25 to 122.53, the section ending at sec. 15, tp. 23, r. 2, west 4th meridian.

In connection with construction on the Weyburn-Lethbridge line in Alberta, the line is being operated easterly from Sterling, the junction point with the old Alberta Ry. and Irrigation Co.'s line, to Foremost. Grading easterly from Foremost was reported, Nov. 4, to have been completed for 25 miles, and G. H. Webster's contracting outfit has laid up for the season. The distance from the end of grade to the Alberta-Saskatchewan boundary is 42 miles. No contract has been let for grading this.

The question of the laying of a transfer track between the C.P.R. and the Grand Trunk Pacific Ry. in Calgary is under consideration by the Board of Trade and representations have been made to the two companies.

**Pacific Division.**—The Board of Railway Commissioners has approved revised location plans on the main transcontinental line, mileage 30 to 33, on the Thompson Subdivision, and to lay a second track across two highways in that mileage. This is a re-location of a portion of the line which is necessary in connection with the second track construction now in progress.

Revised location plans have been approved by the Board of Railway Commissioners for the Kootenay Central Ry., under construction, mileage 96.16 to 102.41. (Nov., pg. 504.)

### The Late F. Augustus Heinze.

F. A. Heinze, who died at Saratoga, N.Y., Nov. 5, aged 42, of cirrhosis of the liver, was, at one time, largely interested in copper mining in Montana and British Columbia, and in railway building in the Pacific province. In the nineties, when President of the Montana Ore Purchasing Co., Butte, Mont., he made a contract with the Le Roi Mining Co., Rossland, B.C., to smelt 20,000 tons of ore to be taken from the Le Roi mine there. This contract involved the construction of a smelter. He organized the British Columbia Smelting and Refining Co., which located its works at the mouth of Trail Creek, on the Columbia River, 4½ miles from the Le Roi mine. It was proposed to handle the ore from the mine to the smelter by a series of horse and gravity tramways, the mine being 2,600 ft. higher than the smelter. This method of transportation was abandoned, and a narrow gauge railway was constructed under the Trail Creek Tramway Co.'s charter, work being started in the latter part of 1895. It was about 13 miles long, and extended from the wharf at the mouth of Trail Creek (now the town of Trail), through the town of Rossland to the Le Roi mine. It was built on a 4% compensated grade with curvature up to 25 degrees.

Shortly after the smelter began operation,

it was found that additional railway facilities were necessary to secure a regular and economical supply of coke, and as the Cross-nest coke was then available, it was decided to build a railway from Rossland to Castlegar, where ferry connection was made with the C.P.R. at Robson. This was a standard gauge line, 29.3 miles long, and was built under the Columbia and Western Railway Co.'s charter, granted by the B.C. Legislature in 1896, which authorized the construction of a railway from Trail, via Rossland and Midway, to Penticton on Okanagan Lake. After operating the line between Rossland and Castlegar for about two years Mr. Heinze sold the interests of the British Columbia Smelting and Refining Co., the Columbia and Western Ry., and the Trail Creek Tramway to the C.P.R. for \$800,000, about 270,000 acres of land in the vicinity being included in the sale.

F. P. Gutelius, now General Manager, Canadian Government Railways, Moncton, N.B., was General Superintendent, and had direct and entire charge of Mr. Heinze's railway construction and operation interests in B.C. W. F. Tye, who afterwards was Chief Engineer, C.P.R., was the Chief Engineer, and J. G. Sullivan, now Chief Engineer, Western lines, C.P.R., was Assistant Chief Engineer. A. C. Dennis, now in charge of Foley Bros., Welch and Stewart's contract for the Rogers Pass Tunnel construction on the C.P.R., was assistant engineer.

One of Mr. Heinze's first visits to Victoria, B.C., was in 1895, for the purpose of securing a charter for the Columbia and Western Ry. Among the features of his campaign was a lavish dinner at the Driard Hotel for the members of the Legislature. He secured the charter and a large land grant. He was in Victoria for the last time, a few weeks before his death, to see the Government on matters connected with the property he retained when he sold out his railway and some other interests in B.C. to the C.P.R.

**An old deal in connection with the Canada Atlantic Ry.**—In 1902, W. S. Webb, then President Rutland Rd., and some associates entered into an agreement to buy the Canada Atlantic Ry., along with some other lines in Canada. A deposit of \$250,000 was paid in Jan., 1902, on an option expiring in May of that year. One of the members of the syndicate was to do the financing, and it was understood that the Rutland Rd. would take over the purchase. The financial houses refused to aid in getting the \$11,000,000 necessary to carry through the deal, because W. S. Webb could not secure the guarantee of bonds from the Rutland Rd. H. L. Sprague, the third member of the syndicate on the option failing, and owing to the fall in Rutland Rd. stock, which ruined Meyer, sought to recover damages from Webb, alleging that it was on account of his negligence that the deal fell through. The action was decided in New York, Nov. 20, when judgment was given in favor of Sprague, damages being fixed at \$239,750.

**Illegal Insurance.**—It has been brought to the notice of the British Board of Trade that British insurance companies have insured or reinsured goods shipped on neutral vessels against risk of capture or detention by the British or allied governments. The Board of Trade is advised that such contracts of insurance or reinsurance are prohibited by law in England, and warns British insurance companies and underwriters against undertaking such business.

H. J. M. WILSON, telegraph operator for Pellatt & Pellatt, stockbrokers, Toronto, who died there Nov. 21, was the eldest son of the late James Wilson, at one time Superintendent, C.P.R., Toronto, and afterwards Claims Agent.



## Railway Development.

### Projected Lines, Surveys, Construction, Betterments, Etc.

**Alberta and Great Waterways Ry.**—We were officially advised recently that grading had been completed to mileage 131 from the junction with the Edmonton, Dunvegan and British Columbia Ry., and that track had been laid to mileage 30. A press report of later date states that track has been laid to mileage 45, and that ballasting is practically completed for 30 miles. Our official advices further stated it is expected to finish tracklaying to the end of the completed grading by Dec. 20. Supplies will then be taken in to the end of the track for next season's work.

Press reports state that a train service will be put in operation to Sucker Creek, early in December.

The Alberta Legislature has authorized the construction of a branch line from near Lac la Biche, southeasterly to the eastern boundary of the province. (May, pg. 500.)

**Algoma Central and Hudson Bay Ry.**—The Board of Railway Commissioners has authorized the company to build an overhead bridge to carry the highway and the International Transit Co.'s tracks across its tracks at Cathcart St. and Welde Ave., Tagona, Sault Ste. Marie, Ont. (Nov., pg. 500.)

**Burrard Inlet Tunnel and Bridge Co.**—Owing to the lack of a quorum of directors the consideration of R. Modjeski's report on the tenders for the building of the proposed bridge across the Second Narrows of Burrard Inlet, Vancouver, B.C., was adjourned recently to a date to be fixed by the president. (Nov., pg. 500.)

**Central Canada Ry.**—The Alberta Legislature has passed an act providing for the financing and building of the line from its junction with the Edmonton, Dunvegan and British Columbia Ry. to the Peace River Crossing; authorizing the building of a branch line from Sucker Creek to Grouard, about 30 miles, and providing for the guarantee of bonds for \$20,000 a mile in aid of the construction. We are officially advised that the line starts from the Edmonton, Dunvegan and British Columbia Ry., in the vicinity of Round Lake, where there will be a divisional point, which will be named McLennan. The line then runs northwesterly to the Hart River, and along that river to Peace River Crossing, crosses the Peace River, and proceeds southerly to Dunvegan. The contractors for the building of the line are J. D. McArthur & Co., Ltd., Winnipeg. This year about 30 miles of grading has been done, and track will be laid on this mileage as soon as track laying on the E., D. and B.C. Ry. has reached McLennan. No further grading will be done until next spring. The distance from McLennan to the Peace River Crossing is about 45 miles. W. R. Smith, Edmonton, is Chief Engineer of this railway, as also of the E., D. and B.C. Ry. and of the Alberta and Great Waterways Ry. (Nov., pg. 500.)

**Dominion Government Railway to Hudson Bay.**—A press report states that at Oct. 31, track had been laid on 175 miles from Pas to Port Nelson, Hudson Bay. On the remaining 245 miles, a very considerable amount of grading has been done, at various points, but these are not connected up, beyond mileage 197 from Pas. The telegraph line has been completed to mileage 165 from Pas. It is expected that grading will be connected up as far as Manitou Rapids, mileage 242, by Dec. 31. At this point a steel bridge, 275 ft. long, is to be built, and it is expected to start putting in the concrete substructure as soon as it is

possible to get in the plant and materials. A start will be made in the spring on putting up the station buildings. It is expected that the line will be fully completed by the end of 1916. The plant engaged on grading and bridge work, track laying and ballasting, consists of 3 steam shovels at Pas, and 2 at mileage 110; 13 locomotives; 100 Hart convertible cars and numerous box and flat cars, in addition to 2 passenger cars being operated as far as mileage 110. (Nov., pg. 500.)

An Ottawa dispatch, Nov. 16, states that the latest reports from construction headquarters show that 180 miles of track have been laid, and that in all 325 miles of grading have been completed. Grading and other work will be continued during the winter.

**Edmonton, Dunvegan and British Columbia Ry.**—We are officially advised that grading has been completed from Edmonton, Alberta, to mileage 290, which is 12 miles from the Big Smoky River, and that track has been laid to mileage 200. It is expected to have track laid to the end of the completed grading early in December. (Nov., pg. 500.)

**Erie and Ontario Ry.**—The Board of Railway Commissioners has approved of the location and detail plans of the station at Canal and Bridge streets, Dunnville, Ont. (Nov., pg. 500.)

**Glengarry and Stormont Ry.**—The Board of Railway Commissioners has authorized the company to connect its tracks with the Ontario and Quebec Ry. (C.P.R.) 700 feet east of mileage 37, Smiths Falls subdivision, mileage 0 of the G. and S. Ry.

Track was reported Nov. 7 to have been laid from St. Polycarpe, Que., to the east of the station in Cornwall, Ont. The steel for the remaining portion of the line has been delivered, and it was expected to have it laid by Dec. 1. Ballasting is in progress, and it is hoped to have the line ready for operation by Dec. 31. The passenger station at the corner of Pitt and Sixth streets, Cornwall, is practically completed, and considerable progress has been made with the freight shed, locomotive house, and turntable east of Sidney street. (Sept., pg. 418.)

**High River, Saskatchewan and Hudson Bay Ry.**—Application is being made to the Minister of Railways for approval of the route map of this projected railway from a point in any of the townships 25 to 29, range 1 west of the 4th meridian, Alberta, northeasterly to Saskatoon and on to the eastern boundary of Saskatchewan in either of the townships 52 to 56, and on to Pas, Man. The Saskatoon City Council has had the route map before it, and has arranged, to send a representative to express the city's views upon it to the Minister. (See High River and Hudson Bay Ry., Nov., pg. 500.)

**Intercolonial Ry.**—A New Brunswick paper stated, Nov. 3, that four crews were putting up new and heavier bridges on the line, and that by the end of the year, 105 old and light bridges would be replaced.

Work on the old New Brunswick and Prince Edward Island Ry., taken over recently by the Railways Department, is reported to be progressing favorably. About 20,000 new ties have been put in, about four miles of new steel has been laid, and about half the mileage between Sackville and Cape Tormentine rebalasted. The terminal at Cape Tormentine, the mainland terminus of the Prince Edward Island car ferry, is reported to be about half completed.

The contract for the subway under the tracks at Main St., Moncton, N.B., has been let to Soper and McDougall, Ottawa.

**Kettle Valley Lines.**—George Bury, Vice President C.P.R., completed a visit of inspection over the company's Western lines, including the K.V.R. now under construction, Oct. 30. The K.V.R., from Midway to Merritt, B.C., he is reported to have said, will be completed by June, 1915, when it will be taken over for operation by the C.P.R. (Nov., pg. 500.)

The Board of Railway Commissioners has authorized the opening for traffic of the line from Hydraulic Summit to Penticton, mileage 75.6 to 133.7 west of Penticton.

**Lake Erie and Northern Ry.**—It was announced in Brantford, Ont., Nov. 11, that the section from Brantford to Galt will be opened for traffic Jan. 1, 1915. The line has been leased to the C.P.R.

Plans for the station in Galt, filed with the Town Council, show a brick building with a 300 ft. platform, a short distance south of Main St.

A resolution has been passed by the Brantford Patriotic and War Relief Association inviting the City Council and the Board of Trade to co-operate with the L.E. and N. Ry. directors in applying to the Dominion Government to advance to the company the balance of the subsidy voted in aid of construction, in order that work on the Brantford-Port Dover section may be proceeded with. The amount is \$192,000, and W. P. Kellett, General Manager, stated in a letter to the Association, Nov. 9, that it would be sufficient to finance construction for about five months. (Oct., pg. 468.)

**Moncton and Buctouche Ry.**—A temporary station has been provided at Buctouche, N.B., to replace the one destroyed by fire recently. A new building will, it is reported, be erected in the spring. (May, pg. 214.)

**Northern Pacific and British Columbia Ry.**—Application is being made to the Dominion Parliament for the incorporation of a company with this title, with power, in connection with the Northern Pacific Ry. Co., a U.S. railway, to enter into an agreement with the Vancouver, Victoria and Eastern Ry. and Navigation Co. and the Great Northern Ry., another United States railway, which owns the V.V. and E. Ry., for running rights over that line from the international boundary near Huntingdon to New Westminster and Vancouver, B.C. The applicants also desire to have power to acquire lands for station and terminal purposes. A. H. MacNeill, Vancouver, B.C., solicitor for applicants.

**Pacific Great Eastern Ry.**—A combination passenger and freight service has been placed in operation on the line from Squamish to the Lillooet River at Pemberton Meadows.

Plans have been deposited with the Minister of Public Works for a bridge over the Lillooet River between mileage 19 and 20, Alta., Lake Summit North, and approval has been asked for the same.

**Pacific, Peace River and Athabasca Ry.**—Application is being made to the Dominion Parliament to authorize the building of the following additional lines: From tidewater at the head of Kitimat Arm, following the Kitimat River northerly to the summit between Kitimat and Lakelse Lake, thence northerly to the Skeena River, across that river by a high level bridge, and over the G. T. Pacific Ry., to the mouth of the Kitsumkalem River, following that river to the Seeax River, and on to the valley of the Naas River, at Aliyansh, about 112 miles; and from a junction of the Blackwater and Naas rivers along the valley of the former to the Galankeest River, on to the Skeena River, and along that river to the mouth of the Bear



River, about 57 miles. Pringle, Thompson, Burgess & Cote, Ottawa, solicitors for applicants. (Oct., pg. 468.)

**Prince Edward Island Ry.**—We are officially advised that the spur line connecting the existing line with the car ferry terminal under construction at Carleton Point, P.E.I., will be three miles long. The general character of the grading is light, cuttings, of red soil, requiring ploughing and picking 18 ins. below surface. The culverts are of corrugated iron pipe with concrete walls, and one having a 6 ft. concrete arch. Track is being laid with 80 lb. steel, and is to be completed to Carleton, 2.5 miles, this year. The cutting to the terminal will not be completed until the approach to the landing has been advanced sufficiently to remove the plant now in the way of railway grading. The plans of the layout of the railway terminals at the car ferry landing have not yet been completed. (Nov., pg. 501.)

**St. John and Quebec Ry.**—F. P. Gutellus, General Manager, Canadian Government Railways, made a trip of inspection over the completed portion of this railway, Nov. 6, and is reported to have said that everything was nearly ready so that it could be taken over for operation as a branch or intercolonial, under the terms of the agreement. The section completed is between Centreville and Gagetown, 120 miles, and gives connection with Fredericton, an entrance having been arranged for with the Intercolonial Ry. and the C.P.R. The entrance is from the south by laying a second track on the C.P.R. right of way from Victoria Mills to the I.R.C., Y., then along the I.R.C. tracks, crossing the spur north of the C.P.R. tracks by a diamond.

In connection with press reports as to the probable starting of construction on the Quebec Extension Ry. from Washburn, Me., to the Quebec boundary, we are officially advised that beyond completing surveys, no definite plans have been decided on. (Nov., pg. 501.)

**Western Dominion Ry.**—The Minister of Railways has approved of the route map of this projected railway to a point within five miles of Cardston, Alberta, and has directed that the line go through Cardston, in accordance with the plans approved by the Alberta Government. The Canadian Northern Ry. opposed the approval of the route submitted west of Pincher Creek into the Kootenay Pass, and the consideration of this section was postponed to enable the two companies to reach an agreement. The plans submitted to the Minister showed a route starting in tp. 5, range 5, at the Kootenay Pass, and running northeasterly through the southeast portion of tp. 6, range 4, west 5th meridian, then along the south fork of the Old Man River to tp. 6, range 1, where the river is crossed. A little further east the route crosses the survey of the Kootenay and Alberta Ry., and then proceeds almost directly for Pincher Creek. A branch line runs from Pincher Creek to Pincher station. The line proceeds easterly and southeasterly from Pincher Creek, passing a few miles to the east of Fishburn, then southerly across the Blood Indian reserve, then crossing Lee Creek some miles south of Cardston reaches Acton. The irrigation canals are crossed north of Kimball, and the international boundary is reached in tp. 1, range 23. It is reported that the line will connect at the boundary with a branch of the Chicago, Milwaukee and St. Paul Ry., or its subsidiary, the Chicago, Milwaukee and Puget Sound Ry. (Oct., pg. 468.)

**Winnipeg.**—The commissioners of the Greater Winnipeg Water District made a trip of inspection of the railway under construction from St. Boniface to Indian Bay, Shoal Lake, Lake of the Woods, Nov. 8. The

Northern Construction Co., which has the contract for building the line, ran a special train for the party as far as Birch River, mileage 70, to which point track has been laid. A bridge with a 50 ft. span is being built at this point. Grading is practically completed to Shoal Lake, and it is expected to have track laying completed by the end of December. The total cost of the line will be about \$1,250,000, and it is expected that after the construction of the water supply works has been completed it will be taken over by one of the railway companies entering Winnipeg.

The first station out of St. Boniface is at Deacon, which will be the operating headquarters. There is under construction a station building, with yards and other facilities, offices, locomotive house, and a residence for the Superintendent. The commissioners have asked tenders for 350 tons of 60 lb. steel rails, 150 kegs of track bolts, and 20 kegs of rail spikes. (Nov., pg. 501.)

### 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:—

#### C.P.R. Car Load Rates on Coal.

22723. Oct. 17, Re C.P.R. tariff, C.R.C. E 2870, applying on coal, in carloads. Upon the complaint of Montreal Board of Trade. It is ordered that the rates published in said tariff be suspended pending investigation by the Board.

#### Sand Rates to Welland Ship Canal.

22745. Oct. 24. Re application of St. David's Sand Co., Ltd., of St. Catharines, Ont., for a joint rate on sand from its pit near Niagara Falls, over the Michigan Central Rd. to Niagara Falls, and thence over the G.T.R. to the Welland Ship Canal works, where the sand is to be used. It is ordered that the M.C.R. and the G.T.R. file a joint rate of 50 cents a ton of 2,000 lbs. on sand from the applicant company's pit to Merritton, to be made effective not later than Nov. 9, 1914, the cars to be loaded to their full carrying capacity, subject to a minimum weight of 60,000 lbs.

#### Esquimalt and Nanaimo Ry. Freight Tariff.

22779. Oct. 28. Re application of Esquimalt and Nanaimo Ry., under sec. 327 of the Railway Act, for approval of its Standard Mileage Freight Tariff C.R.C. 268. Upon its appearing that the tolls and mileage groups of the said tariff for all distances covered by the company's railway are the same as those of the Pacific Standard Tariff prescribed for similar distances on the main land of British Columbia by general order 125, May 30, 1914, and approved by order 22412, Aug. 17, 1914. It is ordered that tariff 268 be approved until further ordered.

#### Victoria and Sidney Ry. Freight Tariff.

22798. Oct. 31. Re application of Great Northern Ry., under sec. 327 of the Railway Act, for approval of its Standard Freight Tariff of Maximum Tolls, C.R.C. no. V. 36, to apply on the Victoria and Sidney Ry. Upon the report and recommendation of the Chief Traffic Officer, and upon its appearing that the tolls and mileage groups of the said tariff for all distances are the same as those of the Pacific Standard Tariff prescribed for similar distances on the main land of British Columbia by general order 125, May 30, 1914, and approved by order 22412, Aug. 17, 1914. It is ordered that the said tariff, C.R.C. no. V. 36, be approved until further ordered.

The 24 railway systems in Great Britain have contributed over 54,000 men to the British colors since war was declared.

### Great Northern Railway Lines in Canada.

**Vancouver, Victoria, and Eastern Ry. and Navigation Co.**—Application is being made to the Dominion Parliament for an extension of time for the building of the main line from Vancouver easterly, and the various branch lines authorized to be built by sec. 19, chap. 75, of the Statutes of British Columbia, of 1897; chap. 89 of the Dominion Statutes, 1898; chap. 111 of the Dominion Statutes of 1902, chap. 172 of the Dominion Statutes of 1905, and chap. 172 of the Dominion Statutes of 1910. The main line being built under these statutes starts from Port Guichon and extends easterly, via Hope, to near Grand Forks, B.C., where it runs on to a connection with Great Northern Ry. lines in the U.S. It has amalgamated the old New Westminster Southern Ry., and at several points runs across the international boundary. It has an agreement for running rights over a section of the Canadian Northern Pacific Ry. easterly to Hope, and is interested with the Kettle Valley lines in the building of two sections easterly of the Hope Mountain Summit.

**Vancouver Terminals.**—O. S. Brown, of the Great Northern Ry. engineering staff, Seattle, Wash., at a recent meeting of the Vancouver City Council's Railway Committee, reported that the Woodland and Clarke drive bridges should be finished Sept. 1, 1915, and the approach to Commercial drive in April, 1915. Plans for the general terminals and the station on False Creek are in course of preparation, but no definite date can be fixed for starting that section of the work. Everything, Mr. Brown said, called for by the agreement is being done. (Nov., pg. 504.)

#### C.P.R. Purchases in British Columbia.

Complaint having been made a little while ago that the C.P.R. favored eastern firms, etc., in buying for its B.C. Division, a conference was held in Vancouver, Nov. 12, between R. Marpole, General Executive Assistant; F. W. Peters, General Superintendent, and a delegation from the B.C. Manufacturers' Association, at which it was shown that the complaint was unfounded. It was stated that materials, etc., of Canadian manufacture, to the value of over \$600,000, were used in the construction of the station and pier at Vancouver recently, and that the largest portion of this amount was spent on B.C. products. It was also shown that during the 10 months ended Oct. 31, the company bought goods in Vancouver to the value of \$356,347.

**Litigation re Canada and Gulf Terminal Ry.**—The hearing of the case brought by Rene Dupont against M. J. O'Brien, H. J. Lyons, and the Canada Gulf and Terminal Ry., commenced at Quebec, Nov. 2. The action involves a claim for \$380,000, and the plaintiff, as organizer and participant in the construction of the road, seeks an accounting of the construction. In the course of the evidence it transpired that subsidies had been given on account of construction as follows: By municipalities, \$20,600; Province of Quebec, 143,200 acres of land, and Dominion Government, \$210,000.

#### C.P.R. Western Employes and the War.

A Calgary, Alberta, dispatch says:—Ten employes of the C.P.R. Department of Natural Resources have enlisted in the second Canadian contingent. The C.P.R. operating department in Calgary has agreed to contribute \$380 a month for the duration of the war to the Red Cross Society, contributors to include mechanics and employes of the Ogden shops. The Department of Natural Resources has undertaken \$116 monthly.



## Canadian Northern Railway Construction, Betterments, Etc.

**Canadian Northern Quebec Ry.**—The locomotive house at Longue Pointe, Montreal, was destroyed by fire Oct. 30, with three locomotives, and a quantity of machinery. The loss is placed at \$150,000.

**Montreal Tunnel and Terminal Co.**—It is reported that about a mile of the excavation necessary to complete the tunnel to its full dimensions has been done, and that about 600 ft. of the lining has been completed.

**Montreal-Ottawa-Port Arthur Line.**—The bridge across the Back River at Montreal was reported, Nov. 20, to be completed, but not finally passed for operation. From this bridge the line is completed to Ottawa, and beyond Ottawa to the Ottawa River at Chats Falls, where the bridge across the river was reported, Nov. 20, to be 30% completed. The grading is all completed to North Bay, and the track is laid right through with the exception of about two miles in the town of Pembroke. One lift of ballast has been given on the line through to North Bay, except for 15 miles, while a second lift of ballast has been given on about 100 miles of track to North Bay. It is expected that the steel bridge work on the line will be completed by Jan. 31, 1915. In addition to the ballasting the only work which will be carried over to 1915 will be the buildings at stations, etc.

The Board of Railway Commissioners has authorized the opening for freight traffic of the section from Cassels St., North Bay, mileage 229 from Ottawa to Capreol. From thence to Port Arthur the line is completed. It has been operated to Ruel for some time, in connection with the line via Parry Sound to Toronto. The Board of Railway Commissioners has authorized the opening for traffic of a piece of line from mileage 275 on the Toronto line to Capreol Jct. This is a divergence from the original line, necessitated by the completion of the line from North Bay.

**Canadian Northern Ry.**—The Board of Railway Commissioners has authorized the opening for traffic of the branch from Avonlea, on the Radville-Moose Jaw line, to Gravelburg, Sask., 80 miles.

We are officially advised in connection with the report that the Northern Construction Co. had a contract for grading for 23 miles from Medicine Hat to Hanver, Sask., that the C.N.R. has arranged to have a certain amount of grading done north of Medicine Hat by the farmers in the vicinity, in order to give them employment and that the work is being supervised by the Northern Construction Co.'s staff. It is reported that 300 men with 200 teams are employed.

The Board of Railway Commissioners has authorized the opening for traffic of the line northeasterly from North Battleford, Sask., between Edam, mileage 38, and Turtleford, mileage 57.

M. H. MacLeod, General Manager and Chief Engineer, was in Edmonton, Alberta, Nov. 10, and is reported to have said that on the main line construction westerly track had been laid to 82 miles west of Yellowhead Pass, and that ballasting had been completed to 45 miles west of the pass. It was expected to tie up the steel with the gang working easterly early in December. He also stated that arrangements were being made for putting a train service on the following mileages:—On the line from Strathcona to Camrose, 45 miles; on the main transcontinental line to Onoway, 70 miles, and from Onoway to the Pembina River on the line to the Peace River Valley, 33 miles.

**Canadian Northern Pacific Ry.**—A. Ferguson, representing the Department of Rail-

ways, completed a visit of inspection over the lines under construction, Nov. 17. S. H. Sykes, who accompanied Mr. Ferguson on the trip, is reported to have said track is now laid to 82 miles west of Yellowhead Pass, and it was expected to complete the tracklaying to the bridge site at mileage 85 west of the Pass, Nov. 20. The erection of the bridge at this point is expected to be completed by Dec. 31, when tracklaying will be resumed westerly, to meet the gangs working northerly from Kamloops. On this section there remain only gaps totalling 45 miles to connect up the steel being laid easterly and westerly.

**Port Mann Shops.**—All of the structures at the repair shop plant at Port Mann, B.C., have been completed and are ready for the installation of equipment. The main buildings are constructed of reinforced concrete with wood and steel roof trusses. The largest structure is 276 by 143 ft. in plan, and is laid out in two main bays, one for erecting and the other for repair purposes. Other structures are a 15 stall round house, an 80 ft. turntable, a store house, boarding house to accommodate 150 men, and an 80,000 gal. steel water tank on a steel tower. The main repair shop has a 30 ft. gallery or elevated platform running the full length of the building and intended for light repair work. The two main bays of this structure are to be served by 10 ton traveling cranes, and modern drill, press and lathe equipment is to be installed. For lifting locomotives there is planned an electrically operated pair of jacks which can be spaced as desired between the limits of 25 and 45 ft. The new shops are about 1½ miles from dockage facilities, where seagoing vessels come, via the Fraser River, to deliver supplies for the machine shops or the construction work now in progress in the interior of British Columbia.

**Vancouver Island.**—The work in connection with the construction of the ferry dock and terminals at Patricia Bay, near Victoria, is being proceeded with. A temporary wharf has been erected for the landing of rails and supplies. About 80% of the line between Victoria and Patricia Bay has been completed, and it is expected to have it finished Dec. 31. (Nov., pg. 503.)

### Railway Finance, Meetings, Etc.

**Canadian Pacific Ry.**—At a meeting of directors, Nov. 9, a dividend of 2½% on the common stock for the quarter ended Sept. 30 was declared, being at the rate of 7% per annum from revenue and 3% per annum from special income account, payable on Jan. 2, 1915, to shareholders of record on Dec. 1.

**Grand Trunk Pacific Ry.**—A mortgage, dated June 29, 1914, made between the G.T. Pacific Saskatchewan Ry., the Royal Trust Co., and the Saskatchewan Minister of Railways, securing an issue of 4½% sterling terminal bonds, guaranteed by the province, was filed with the Provincial Secretary at Regina, Nov. 6.

**Grand Trunk Pacific Branch Lines.**—There has been deposited with the Secretary of State at Ottawa a mortgage deed dated June 5, made between the company, the Royal Trust Co., and the Province of Saskatchewan, securing an issue of 4½% sterling terminal bonds. The proceeds are to be used for the construction of terminal facilities at Regina, Saskatoon, and other points in Saskatchewan. The bonds are guaranteed, both as to principal and interest by the province.

**Lake Erie and Northern Ry.**—A meeting of shareholders will be held at Montreal,

Dec. 7, to decide upon the raising of funds for the completion of the railway, by the issue of bonds, and to approve of the form of mortgage to be given to secure the payment of the same.

**Ottawa and New York Ry.**—The Dominion Parliament is being asked to authorize the company to lease its line to the New York Central and Hudson River Ry.

**St. Lawrence and Adirondack Ry.**—Application is being made to the Dominion Parliament for authority to lease the company's line to the New York Central and Hudson River Ry.

**Southampton Ry.**—Application is being made to the Board of Railway Commissioners for a recommendation to the Governor in Council, approving of the leasing of its railway in New Brunswick to the C.P.R.

**The Temiscouata Ry. Bondholders' Committee, Ltd.**, give notice that the railway company has decided to pay interest at the rate of 1¼% for the year ended June 30 on the consolidated mortgage income bonds, payment to be made on or before Dec. 31. The actual date of payment has been left indefinite on account of the present conditions of exchange, but so soon as the date is fixed and the committee have received the dividend on the consolidated mortgage income bonds which they hold a similar payment will be made on the committee's provisional certificates, notice of which will be advertised and sent to the certificate holders.

**Timiskaming and Northern Ontario Ry.**—The net return from the operation of this railway, owned by the Ontario Government, for the financial year ended recently is \$250,000, practically the same as for the previous year. The capital investment in the undertaking is reported as \$19,000,000, and the annual interest charges \$700,000; there is, therefore, a deficit of about \$450,000 for the year.

**Toronto, Hamilton, and Buffalo Ry.**—A meeting of the shareholders was held at Hamilton, Ont., Nov. 11, when the agreement for taking over the Erie and Ontario Ry., now under construction to Dunnville, Ont., was approved. The shareholders of the latter company also met and approved of the agreement. Application will be made to the Board of Railway Commissioners, Dec. 15, for a recommendation to the Governor in Council to ratify the agreement.

**Large Holders of Bank Stocks.**—Among the 45 persons who each hold \$100,000 or more, par value, in one of the Canadian chartered banks are the following who are connected with transportation interests in some way or other: R. B. Angus, director C.P.R., Montreal, \$100,000, Bank of Montreal; Sir Montagu Allan, Montreal, \$175,000, Merchants Bank; estate of the late Senator Gibson, Beamsville, Ont., \$100,000, Dominion Bank; C. R. Hosmer, director C.P.R., Montreal, \$120,000, Bank of Montreal, \$60,000, Merchants Bank, \$132,500, Royal Bank; H. S. Holt, director C.P.R., Montreal, \$210,000, Royal Bank; Senator MacKeen, Halifax, ex-President Halifax Electric Ry., \$100,000, Royal Bank; W. D. Matthews, director C.P.R. and President St. Lawrence and Chicago Navigation Co., Toronto, \$138,000, Dominion Bank; Sir Edmund Osler, director C.P.R., Toronto, \$150,000, Dominion Bank; Sir Henry Pellatt, director Toronto Ry., Toronto, \$228,500, Home Bank, in trust; estate of late Sir Robert Reid, formerly President Reid Newfoundland Co., Montreal, \$216,000, Bank of Montreal; estate of late James Ross, Montreal, \$111,100, Bank of Montreal; estate of late Lord Strathcona, \$277,700, Bank of Montreal; W. J. Sheppard, ex-President Northern Navigation Co., Waubaushene, Ont., \$100,000, Royal Bank.



# Canadian Railway AND Marine World

ESTABLISHED 1898.

Devoted to Steam and Electric Railway, Marine, Express, Telegraph, and Railway and Canal Contractors' Interests.  
Official Organ of the various Canadian Transportation Associations.  
Published on the first of each month.

ACTON BURROWS, LIMITED - Proprietors,  
70 Bond Street, Toronto, Canada.

ACTON BURROWS, A. Can. Soc. C. E.,  
Managing Director and Editor-in-Chief.  
AUBREY ACTON BURROWS - Secretary and  
Business Manager.

Associate Editor - JOHN KEIR  
Associate Editor - DONALD F. KEIR  
Mechanical Editor - FREDERICK H. MOODY, B.A.Sc.  
Canadian Business Representative - W. H. HEWITT  
70 Bond Street, Toronto  
United States Business Representative, A. FENTON WALKER  
143 Liberty Street, New York, N.Y.  
European Business Representative - J. MEREDITH MCKIM  
3 Regent St., London, S.W., Eng.

Authorized by the Postmaster General for Canada, for transmission as second class matter.  
Entered as second class matter, July 25, 1913, at the Postoffice at Buffalo, N.Y., under the Act of Congress of March 3, 1879.

SUBSCRIPTION PRICE, including postage anywhere, \$2 a year.

SINGLE COPIES, 20 cents each, including postage.

The best and safest way to remit is by express money order. Where one cannot be obtained, a post office money order, or bank draft, payable at par in Toronto, may be sent. Cheques or drafts not payable at par in Toronto cannot be accepted. Remittances should be made payable to Canadian Railway and Marine World.

### NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

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

TORONTO, CANADA, DECEMBER, 1914.

### PRINCIPAL CONTENTS.

Appointments, Transportation .....	542
Birthdays of Transportation Men .....	549
Board of Railway Commissioners,—	
Orders by, Summaries of .....	534
Traffic Orders .....	545
Canadian Northern Ry., Construction .....	546
Locomotive Headlight Installation .....	532
Canadian Pacific Ry., Blue Flag Holder ..	536
Construction, Etc. ....	543
Rogers Pass Tunnel .....	537
Electric Railway Department.....	549 to 555
Answers to Topical Questions .....	552
Construction .....	555
Edmonton Municipal Ry. Difficulties ...	551
Finance, Meetings, Etc. ....	550
London and Port Stanley Ry. Rolling Stock .....	551
Montreal and Southern Counties Ry. Pro- gress .....	551
Montreal Tramways Co., and its Fran- chise .....	554
Projects, Construction, Etc. ....	553
Toronto Ry., Ontario Railway and Mun- icipal Board's Judgment .....	549
Overcrowding .....	551
Express Companies, Among the .....	555
Grand Trunk Pacific Ry. Construction .....	549
Grand Trunk Ry. Betterments .....	538
Intercolonial Ry. Grade Crossing Elimina- tion .....	531
Mainly About Railway People .....	540
Marine Department .....	556 to 564
Dominion Government s.s. Grenville for St. Lawrence Buoy Work .....	559
Fort William Shipping Report .....	561
Sault Ste. Marie Canals Traffic .....	561
Vancouver Dry Docks Projects .....	555
Vessels Registered .....	560
Welland Ship Canal Progress .....	556
National Transcontinental Ry. Construction	549
Power House Equipment, Leonard Shops	539
Railway Development .....	544
Railway Earnings .....	535
Railway Finance, Meetings, Etc. ....	546
Railway Mechanical Methods and De- vices .....	530, 531
Railway Mileage in Alberta .....	536
Railway Rolling Stock Notes .....	541
Telegraph, Telephone and Cable Matters..	564
Track Work and Handling of Snow .....	527

## A Section of the Alberta Railway Act Declared Invalid.

The Imperial Privy Council's Judicial Committee has declared one of the sections of the Alberta Railway Act to be ultra vires. The act (statutes of 1907, chap 8), provided in Sec. 82, as follows:—

"82. The company may take possession of, use or occupy any lands belonging to any other railway company, use and enjoy the whole or any portion of the right of way, tracks, terminals, stations or station grounds of any other railway company and have and exercise full right and powers to run and operate its trains over and upon any portion or portions of the railway of any other railway company, subject always to the approval of the Lieutenant Governor in Council first obtained or to any order or direction which the Lieutenant Governor in Council may make in regard to the exercise, enjoyment or restriction of such powers or privileges.

"(2) Such approval may be given upon application and notice and after hearing the Lieutenant Governor in Council may make such order, give such directions and impose such conditions or duties upon either party as to the said Lieutenant Governor in Council may appear just or desirable, having due regard for the public and all proper interests and all provisions of the law at any time applicable to the taking of land and their valuation and the compensation therefor and appeals from awards thereon shall apply to such lands and in cases under this section where it becomes necessary for the company to obtain the approval of the Board of Railway Commissioners for Canada it shall do so in addition to otherwise complying with this section."

In the session of 1912, an amending act (chap. 7), was passed, providing in Sec. 7 to add to section 82 of the act of 1907, quoted above, as follows:—

"(3) The provisions of this section shall extend and apply to the lands of every railway company or person having authority to construct or operate a railway otherwise than under the legislative authority of the Province of Alberta in so far as the taking of such lands does not unreasonably interfere with the construction and operation of the railway or railways constructed and operated or being constructed and operated by virtue of or under such other legislative authority."

The Canadian Privy Council decided on Jan. 4, 1913, that certain questions in connection with the Province's right to enact the section quoted above should be submitted to the Supreme Court of Canada, pursuant to the Supreme Court Act, Sec. 60. The question came before the Supreme Court in Feb., 1913, and the court decided that it was not competent to the Alberta Legislature to enact legislation authorizing the construction and operation of railways in such a manner as to interfere with the physical structure or with the operation of railways subject to the jurisdiction of the Dominion Parliament of Canada. Judge Brodeur dissented, being of the opinion that such legislation would be within the jurisdiction of the provincial legislature provided that in its effect there should be no unreasonable interference with Dominion railways.

The Province then appealed to the Imperial Privy Council's Judicial Committee which, on Oct. 22, upheld the Supreme Court of Canada's decision. Lord Shaw, who delivered their Lordships' judgment for Lord Moulton, said railways such as were described in the British North America Act, Sec. 92, came under the exclusive authority of the Dominion Parliament. The provincial legislature, therefore, had no power to

effect by legislation the line or works of such a railway, and their Lordships had no hesitation in pronouncing that the act in dispute was ultra vires of the Alberta Legislature. Their Lordships were of opinion that the decision appealed from was correct. They would accordingly advise His Majesty that the appeal should be dismissed, but without costs.

## Nominations for Officers of Canadian Society of Civil Engineers.

The following have been nominated for officers and members of council for 1915: For President, F. C. Gamble, Chief Engineer, Public Works Department, Victoria, B.C.; for Vice President for 3 years, A. E. Doucet, District Engineer, National Transcontinental Ry., Quebec; A. St. Laurent, Public Works Department, Ottawa. For Vice President for 1 year, E. E. Brydone-Jack, Professor of Civil Engineering, Manitoba University; Gordon Grant, Chief Engineer, National Transcontinental Ry., Ottawa.

For councillors, District 1, S. P. Brown, Chief Engineer, Montreal Tunnel, etc., Canadian Northern Ry.; H. R. Safford, Chief Engineer, G.T.R.; A. Surveyer, Montreal; R. M. Wilson, Montreal, District 2, C. B. Brown, Chief Engineer, Canadian Government Railways, Moncton, N.B.; F. W. W. Doane, City Engineer, Halifax, N.S. District 3, A. Amos, Quebec; T. A. J. Forrester, Quebec. District 4, G. J. Desbarats, Deputy Minister Naval Service, Ottawa; A. J. Grant, Superintending Engineer, Trent Canal, Peterborough, Ont. District 5, S. B. Clement, Chief Engineer, T. & N.O. Ry., North Bay, Ont.; J. L. Weller, Engineer in Charge, Welland Ship Canal, St. Catharines, Ont. District 6, W. G. Chace, Winnipeg; F. H. Peters, Calgary, Alta. District 7, N. J. Ker, Vancouver; D. O. Lewis, District Engineer, Canadian Northern Pacific Ry., Victoria, B.C.

## Harmony of Farming and Transportation Interests in the Northwest.

Representatives of the Grain Growers' Association of Manitoba and Saskatchewan, the United Farmers of Alberta, and the Canadian Manufacturers' Association met in Winnipeg early in November to consider a number of matters of mutual interest. An authorized statement handed to the press, summarizing the results of the conference, contained the following references to transportation matters:

"Another of the needs is for better and cheaper transportation from the farm to the ultimate market. Embraced under this heading are the problems of good roads, of shipping and receiving facilities, and of rail and water rates. To arrive at an intelligent understanding of any of these would call for weeks of careful study; to devise and to apply the proper remedy would be a matter perhaps of years. Again the question arises, Who is to do it, and how is it to be financed?"

"In this connection it is but fitting that we should acknowledge with gratefulness the generous spirit with which the railway companies have responded to appeals for relief in specific instances. With their help many a difficult situation has been successfully tided over, and we trust that friendly co-operation may long continue to characterize the relations of farming and transportation interests."

It is dangerous to forge high speed steel after the temperature has dropped below a bright yellow.



## Birthdays of Transportation Men in December.

Many happy returns of the day to:—

E. T. Agate, M. Can. Soc. C. E., District Engineer, Canadian Northern Ontario Ry., Sudbury-Port Arthur Line, Sudbury, born at Pittsford, N. Y., Dec. 7, 1874.

J. H. Barber, M. Can. Soc. C. E., Engineering Department, C.P.R., Montreal, born at Cobourg, Ont., Dec. 20, 1856.

H. E. Bissell, Right of Way and Claims Agent, Grand Trunk Pacific Ry., Winnipeg, born near Noyan, Que., Dec. 31, 1867.

G. Blackbird, Locomotive Foreman, G.T.R., Richmond, Que., born at East Dereham, Norfolk, Eng., Dec. 23, 1849.

N. E. Brooks, M. Can. Soc. C. E., Engineer of Maintenance of Way, Western Lines, C.P.R., Winnipeg, born at Sherbrooke, Que., Dec. 25, 1866.

Harold Browning, steamship agent, etc., Windsor, Ont., born at Stamford, Lincolnshire, Eng., Dec. 2, 1864.

T. C. Burpee, M. Can. Soc. C. E., ex Superintending Engineer, Canadian Government Railways, now of Edmundston, N.B., born at Sheffield, N.B., Dec. 11, 1852.

W. W. Butler, Vice President, Canadian Car and Foundry Co., Montreal, born at Danville, Ohio, Dec. 9, 1862.

M. M. Campbell, Building Inspector, G. T. R., Montreal, born at Bridgeton, N. B., Dec. 17, 1879.

W. C. Casey, General Agent, Passenger Department, Atlantic Steamship Lines, C. P. R., Winnipeg, born at Moncton, N. B., Dec. 12, 1882.

H. Foster Chaffee, ex Passenger Traffic Manager, Canada Steamship Lines, Ltd., born at Knowlton, Que., Dec. 18, 1868.

A. H. Chave, Purchasing Agent and Assistant to First Vice President, Canadian Car and Foundry Co., Montreal, born at Williamsbridge, N. Y., Dec. 26, 1872.

W. H. Gardiner, City Freight Agent, C. P. R., and District Freight Agent, Esquimalt and Nanaimo Ry., Victoria, B. C., born there Dec. 6, 1859.

H. H. Gildersleeve, Manager, Northern Navigation Co., Sarnia, Ont., born at Kings-ton, Ont., Dec. 15, 1865.

A. S. Goodeve, member Board of Railway Commissioners for Canada, born at Guelph, Ont., Dec. 15, 1860.

A. J. Gorrie, ex-General Superintendent, Canadian Northern Quebec Ry., Quebec, born at Raith, Kirkcaldy, Scotland, Dec. 10, 1868.

W. H. Grant, Manager of Construction, Mackenzie, Mann and Co., Ltd., Toronto, born at Acton, Ont., Dec. 8, 1858.

F. P. Gutelius, M. Can. Soc. C. E., General Manager, Canadian Government Railways, Moncton, N. B., born at Mifflinburg, Pa., Dec. 21, 1864.

D. B. Hanna, Third Vice President, Canadian Northern Ry., Toronto, born at Thornliebank, Scotland, Dec. 20, 1858.

J. J. Hennigar, General Agent, Canada Steamship Lines, Ltd., Hamilton, Ont., born at Topeka, Kan., Dec. 21, 1884.

G. Hiam, District Freight Agent, C. P. R., Fort William, Ont., born at Montreal, Dec. 14, 1888.

E. W. Holton, General Passenger Agent, Northern Navigation Co., Sarnia, Ont., born at Belleville, Ont., Dec. 15, 1872.

S. P. Howard, ex-General Freight Agent, Eastern and Lake Superior Divisions, C. P. R., Montreal, born there, Dec. 30, 1865.

A. J. Isbester, Assistant District Engineer, Port Arthur District, Canadian Northern Ry., Port Arthur, Ont., born at Ottawa, Dec. 18, 1879.

R. Johnson, Night Locomotive Foreman, C.P.R., Sortin Yard, Montreal, born at Quebec, Que., Dec. 24, 1863.

S. R. Joyce, Travelling Passenger Agent, G. T. R., Toronto, born at Napanee, Ont., Dec. 15, 1887.

J. T. McGrath, ex-Superintendent of Motive Power and Equipment, Chicago and Alton Rd., Bloomington, Ill., born at Toronto, Dec. 6, 1869.

A. T. McKean, City Freight Agent, C. P. R., Winnipeg, born at St. John, N. B., Dec. 18, 1886.

A. E. Macdonald, General Claims Agent, Canadian Northern Ry., Winnipeg, born at Woolwich, Eng., Dec. 11, 1870.

L. Macdonald, Division Freight Agent, G. T. R., Toronto, born at Montreal, Dec. 10, 1871.

A. D. MacTier, General Manager, Eastern Lines, C. P. R., Montreal, born at Blairgowrie, Scotland, Dec. 27, 1867.

A. Price, Assistant General Manager, Eastern Lines, C. P. R., Montreal, born at Toronto, Dec. 6, 1861.

G. D. Robinson, Assistant Export and Import Freight Agent, C. P. R., Toronto, born at St. John, N. B., Dec. 7, 1877.

Collingwood Schreiber, C.M.G., Hon. Mem. Can. Soc. C. E., General Consulting Engineer to Dominion Government, Ottawa, Ont., born at Bradwell, Essex, Eng., Dec. 14, 1831.

F. P. Smith, Secretary, Canada Steamship Lines, Ltd., Montreal, born there, Dec. 23, 1873.

C. E. E. Ussher, Passenger Traffic Manager, C. P. R., Montreal, born at Niagara Falls, Ont., Dec. 29, 1857.

H. H. Vaughan, M. Can. Soc. C. E., Assistant to Vice President, C. P. R., Montreal, born at Forest Hill, Essex, Eng., Dec. 26, 1868.

R. C. Vaughan, Assistant to Third Vice President, Canadian Northern Ry., Toronto, born there, Dec. 1, 1883.

A. P. Walker, M. Can. Soc. C. E., Division Surveyor, Ontario Division, C. P. R., Toronto, born at West Hartlepool, Eng., Dec. 9, 1860.

E. H. Wood, Division Car Foreman, Ontario Division, C. P. R., Toronto, born at St. John, N. B., Dec. 30, 1880.

## National Transcontinental Railway Construction.

We were officially advised, Nov. 17, that the Intercolonial Ry. expected to begin operating the entire section of the National Transcontinental Ry. between Moncton, N. B., and St. Jean Chrysostome, Que., the point of junction with the Intercolonial near Levis, Nov. 23. The distance is 457.7 miles.

The service previously given extended from Moncton to St. Eleuthere, Que., 290.8 miles. No definite arrangements have been made for the operation of any other part of the line, except as at present. It is expected, however, that arrangements for the permanent operation of the whole line will be concluded at an early date.

Tenders are under consideration for the supply of boilers and stokers, feed water heater, steam engines and stokers, generators, switchboard and wiring, at the Leonard shops, St. Malo, Que.

Tenders will be received to Dec. 8 for the supply of 150,000 ties, to be delivered at Belair and La Tuque, Que. (Nov., pg. 501.)

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

Calgary and Edmonton Ry.....	1,116.00
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.....	1,905.90
Total .....	3,021.90

## Grand Trunk Pacific Railway Construction.

M. Donaldson, Vice President and General Manager, returned to Winnipeg, Nov. 2, after having made a full inspection by daylight of the entire main line from Winnipeg to Prince Rupert, and a general inspection of the branch lines in operation and under construction. Speaking of the main line construction he is reported to have said that the final lift of ballast on the 125 miles west of Fort George was expected to be completed by Nov. 15. The only work to be done on the main line was the completion of the terminal buildings at Fort George, Endako, Smithers and Pacific.

It was officially announced in Winnipeg, Oct. 29, that a contract had been let to Carter, Halls and Aldinger, Winnipeg, for the erection of terminal buildings at Fort George, Endako, Smithers and Pacific, B.C., at a total cost of \$300,000. Reference was made to the reported letting of this contract in our last issue. The locomotive houses will have 12 stalls each, and the buildings at each place will include a machine shop, boiler house and coal plant, etc. Work has been started at the several points, and it is expected to have all the buildings completed by May 1, 1915.

It is proposed to use a number of oil burning locomotives on the line in British Columbia. For the storage of oil the Imperial Oil Co. is building a storage plant having a capacity of 150,000 gallons at Prince Rupert, and the G.T.P.R. is arranging for the building of storage plants at different points along the line as far east as Jasper Park.

Construction on the dry dock and the shipbuilding plant at Prince Rupert is being pushed forward. Two of the dry dock pontoons are in position, and five more are expected to be launched by Dec. 31. There are to be 12 pontoons in all, and the completed dock will lift a 20,000 ton steamer. The shipbuilding and repair plant is practically completed, as also are the wharves and docks. The whole work is expected to be completed by the end of 1915.

A Seattle, Wash., press dispatch, Nov. 12, states that plans for the new docks there are complete; that some preliminary construction work will be started Jan. 1, 1915, and that tenders for the main work will be asked for by Jan. 31. The dispatch gives the following particulars of the work to be done:—The new dock house will be a two story, slow burning frame structure, with a timber frame, sheathed in sheet iron. The waiting room will be on the Railroad Ave. end of the structure and not at the face of the pier, as in the burned building. It will be covered by a dome similar to that on the Coleman dock house. The new dock house will be plain. There will be no tower as on the old dock. A balcony will be provided for each side of the building. (Nov., pg. 501.)

**The C.P.R. and Winnipeg Water Supply.**—The Winnipeg City Council is said to have practically "found" \$200,000 by a resolution passed by the C.P.R. directors in 1907 being turned up. By this resolution the C.P.R. agreed to pay the city \$200,000 in 10 annual instalments, when the city took steps to acquire a permanent water supply. It was resolved at a council meeting recently that the C.P.R. be now asked to pay \$20,000, the first annual instalment of the \$200,000 promised. The only provision attached to the grant is that the supply must meet the approval of the company's engineers and a certain amount of progress must also have been made before the payment of any instalment.



# Electric Railway Department

## Ontario Railway and Municipal Board Order Re Toronto Railway.

The report to the Ontario Railway and Municipal Board on a survey of traffic requirements in Toronto and service furnished by the Toronto Ry., made by C. R. Barnes, assisted by J. H. Cain and J. M. Campbell, and which was summarized in Canadian Railway and Marine World for July, was taken up by the Board during October and the early part of November at several hearings, at which numerous witnesses were examined. On Nov. 9 the Board's opinion was announced as follows:—

This application was launched in Nov., 1911, and sets out in detail a list of alleged defaults of the respondent, and of defects in its street railway service in Toronto, having regard to the agreement between the parties hereto, and claims a remedy appropriate to each. These allegations and claims may be summarized as follows:—The refusal of the respondent to issue to passengers requesting them transfers from cars operating on one route to cars operating on another route, and asking an order directing the respondent to issue such transfers. The failure of the respondent to operate its cars on the Dundas St. route to the west limit of Keele St., and asking an order directing the respondent so to operate such cars. The failure of the respondent to operate its cars on the Queen St. route northerly along Roncesvalles Ave., and asking an order directing the respondent to operate all such cars along Roncesvalles Ave. to the Y at Humber side, and returning down Roncesvalles Ave. to Queen St. The failure of the respondent to operate its cars on the Church St. route to and around the Union Station, and asking an order directing the respondent so to operate such cars. The failure of the respondent to operate a sufficient number of cars, in consequence of which the cars operated are greatly overcrowded, and asking an order directing the respondent to operate 200 more cars. That the respondent withdraws its cars from operation too early during the hours when traffic is heaviest, and asking an order directing the respondent to continue to operate all cars in special service during such rush hours till 9 a.m. and till 7 p.m. That the respondent did improperly Y certain of its cars operated on the Bathurst St. route at Dupont St., and asking an order directing the respondent to Y all such cars at Christie St. That the respondent did improperly Y certain cars operated on the Parliament St. route at Papé Ave., and asking an order directing the respondent to Y all such cars at Greenwood Ave. The failure of the respondent to operate all the cars on the King St. route to the easterly terminus of that route, and asking an order directing all such cars to be operated to said terminus.

After a number of sittings for taking evidence, the hearing of the application was adjourned on Feb. 20, 1912, in order that the applicant might procure a report from a traffic expert upon street railway transportation in Toronto, with suggestions for its improvement. Bion J. Arnold, of Chicago, was employed by the city, and submitted a report, Oct. 25, 1912, which was put in as evidence in support of the application. This report, in the traction improvement and development of the Toronto metropolitan district, contained a number of recommendations for the improvement of the street railway service in Toronto, and as a result the city's application was in effect enlarged,

and in addition to the claims made in the original application, the city asked for an extension of the respondent's tracks and service along a number of specified streets, and for a rerouting of a number of the car services. Both parties subsequently submitted evidence bearing both upon the claims made in the original application, and those suggested by the recommendations contained in Mr. Arnold's report. In view of the fact that that report was based upon a survey of the requirements of the so called Toronto metropolitan district, which embraces areas in respect of which this Board has no jurisdiction upon this application, and in view further of the fact that the matters under enquiry required for their determination technical knowledge, and an experience to be gained only by long familiarity with street railway transportation problems in large cities, and their solution so far as they have been found susceptible of solution under present day conditions, the Board decided to procure the services of an independent expert adviser. C. R. Barnes was accordingly retained by the Board, he having had some 20 years experience as Electric Railway Expert on the Public Service Commission of New York State, investigating methods of construction, equipment and operation of electric street railways. Mr. Barnes presented his report to the Board, dated May 15, 1914, in which, after a comprehensive and detailed survey of the company's equipment and operation in its various departments, he made certain recommendations for the improvement of the service. These recommendations fall naturally into three groups, dealing respectively with:—Track extension and reconstruction; additions and improvements to rolling stock; improved methods of operation.

The expenditure involved in a compliance with these recommendations was estimated by Mr. Barnes at \$2,950,000. The concluding paragraph of the report reads:—"Discussion of terms of franchise, contracts and protection of investment, has been intentionally omitted from this report, as it is considered that these matters do not properly come within the scope of this investigation." In this, no doubt, Mr. Barnes acted wisely, as he was concerned only in suggesting those physical changes and additions which, in his judgment, were necessary to bring the equipment and service up to the standard of completeness and efficiency which he had in mind. Obviously, however, those matters which Mr. Barnes properly excluded from his consideration cannot be overlooked by the Board, when expenditure of nearly \$3,000,000 is in contemplation, and the suggestion is made that a large part of the company's equipment, still capable of rendering service, should be compulsorily retired and virtually scrapped. In particular it must be borne in mind that of the company's franchise period of 30 years, less than 7 years remain to run, and that the unexpired term of the franchise, and the earning power which it represents, are an important, if not the chief asset, of the company in financing so large an expenditure.

Another and recent development which cannot be overlooked by the Board is the fact that the company's revenues have shown a serious falling off for the last three months. The commencement of this de-

cline is coincident with the outbreak of hostilities in Europe, and in view of the widespread trade disturbance caused by the onset of war, the shrinkage of the company's receipts may well have been occasioned by it. To what extent this falling off is due to the inevitable reaction after a period of expansion and overtrading, it is impossible to determine—equally conjectural is the probable duration of the period of depression on which we have entered. This is certain, that since early in August the company's receipts have fallen off, on an average, \$1,000 a day. So serious a factor in the problem, affecting as it does the company's ability to assume new financial burdens, must not be lost sight of. Besides, the depletion of revenue evidences a falling off in the volume of travel, and therefore a probable proportionate relief of the chief grievance, to remedy which the application was launched—overcrowding.

At the hearing on Oct. 21 last, the attention of Mr. Barnes, when under examination, was called to this decline in revenue, and he was questioned as to it and its effect by Mr. Osler, and in reply said, "I would not make this report, and these recommendations, under existing conditions?"

Mr. Barnes replied:—"I would like to explain that answer; the report was based upon the condition of traffic which at that time had been reached by progressive increases from year to year, and on the assumption that these increases would be continued."

Mr. Barnes was then questioned as to whether consideration should be given to the fact that, owing to a general depression, the company's revenues were declining, combined with the fact that its franchise period was nearing an end. He was asked:—"Having regard to the financial conditions which you know to exist, and to the franchise condition of this company, and having regard to these changed conditions which we have been speaking of up to the present time, do you think that it is now reasonable—and having regard to the large number of cars which you can see the company has been putting on—do you think it is reasonable to ask the company to undertake capital expenditures at the present time?" He answered: "I can repeat what I said before—that the recommendations were based upon a condition of traffic which necessitated improvement in the service, the changed conditions relieve to the extent of the change the necessity for improvement which is self-evident. On the question of franchise, the report states that I did not take that into consideration. The decreased earnings as shown by these statements submitted in this city, and the decreased earnings which I know are taking place in the State of New York, would make the time inappropriate to require companies to make capital expenditure, and companies should be permitted to curtail operating expenses to the lowest possible point consistent with reasonable service. On the question of the short term of the franchise, based on my experience in railway affairs, I would say that the company could not be equitably requested to make the capital expenditures necessary by the recommendations, unless some arrangement for reimbursement was made at the expiration of the franchise."

Before indicating the board's conclusions upon the matter of claim still undisposed of,



it seems proper to enumerate those which from time to time, during the pending of the application, have been dealt with or satisfactorily settled, either by interim order of the board or by the company on its own initiative, or at the suggestion of the board without a formal order. A consideration of these will show that in the result many grievances complained of have been redressed in virtue of additions to the company's equipment, or changes in its mode of operation. By an order dated Dec. 11, 1911, the company was directed to adopt the system of practically universal transfers now in vogue. By the same order the company was directed to continue the Dundas St. service to the end of the line to Keele St., and to operate the Queen St. cars along Roncesvalles Ave. as far as Boustead Ave. The cars on the Church St. route are now operated to and around the Union Station, as sought by the city in its application. The cars on the Bathurst St. route now Y at Christie St., instead of at Dupont St., as formerly. The cars on the Parliament St. route now Y at Greenwoods Ave., instead of at Pape Ave., as formerly. All the cars on the King St. route are now run to the eastern extremity of the company's track on that street, instead of as formerly being in some cases Y'd at Woodbine Ave. or Scarborough Park, or being run into the King St. barns. A new track was laid at Louisa St., between Teraulay and Yonge Sts. By an order dated Oct. 3, 1913, the company and city were directed to do all things necessary on the part of each of them to complete and make ready for operation the company's railway along Teraulay St., from Queen St. to Agnes St., and thence westerly along Agnes, Anderson, and St. Patrick Sts. to Bathurst St. During 1912 and 1913 200 new cars, being the number of additional cars asked for in the city's original application, were added to the company's equipment, as follows: In 1912 the company put in service 50 double truck and 50 single truck convertible cars, and during 1913 75 double truck and 25 single truck cars, and during 1914 1 double truck convertible car, and during the above periods none of the company's cars were withdrawn from service.

The conclusions reached by the board for the improvement of the company's service, and which may be incorporated in a formal order, are the following: That before Jan. 1, 1915, the company reconstruct 13.45 miles of track classified as in poor condition by Mr. Barnes; that before June 1, 1915, the company extend its tracks, with all necessary overhead work, pursuant to plans and specifications to be approved by the board, from their northerly terminus on Ossington Ave. at Bloor St., northerly along Ossington Ave. to and along Hallam St., to Dufferin Ave., thence along Dufferin Ave. to Lappin St., and thence along Lappin St. to Lansdowne Ave., and do along such extension operate cars according to a schedule approved by the board. That before Dec. 1, 1914, the company do extend its tracks with the necessary overhead work, pursuant to plans and specifications to be approved by the board, along Teraulay St., from its tracks on College St. southerly to a junction with its tracks at the corner of Teraulay and Agnes Sts., and do operate its cars thereon according to a schedule to be approved by the board. That upon Jan. 1, 1915, the company place metal troughs of an approved type on the trolley wire where it is carried over steam railway tracks. That the company before Jan. 15, 1915, reconstruct the platform and steps of 34 of the cars referred to in recommendation 15 of Mr. Barnes' report, and as more fully detailed upon pg. 165 thereof; and report to the board upon the feasibility of reconstructing the remainder of the 202 cars referred to in recommendation 15, together

with the cost of such reconstruction. That the company build and have in operation upon routes approved by the board, no later than June 1, 1915, 50 double truck motor cars of a design approved by the board. That on or before May 1, 1915, the company equip each of its cars with a legible route sign on the right hand side, and a destination sign at the front end, both signs to be suitably illuminated during the hours of darkness. That cars constructed by the company in future shall be equipped with push buttons. That the company report to the board not later than Jan. 15, 1915, on an improved heating system for its cars and the cost of the same. That during the summer months and during the hours of congested travel in other months all the College Street cars going west be run along Howard Park Avenue and around the High Park loop, but that only each alternate car at other times be run along Howard Park Ave. and around the High Park loop. That the company report to the board not later than Jan. 15, 1915, on the practicability of the rerouting proposed in recommendation 9 of Mr. Barnes' report. That the company report to the board not later than Jan. 15, 1915, on the operation of its cars at the points mentioned on pages 50 and 51 of Mr. Barnes' report, with a view to preventing unnecessary delays. That the company not later than Jan. 15, 1915, submit to the board a draft bylaw dealing with the several matters referred to in recommendation 7 of Mr. Barnes' report.

The board has already disposed of the application for an order to extend the Bloor St. line from Lansdowne Ave. to the north eastern corner of High Park, on the ground that, by reason of the company's abandonment of its charter, the board has no jurisdiction to make such an order.

The board is of the opinion that the Wilton Ave. line should be extended to Danforth Ave., as recommended in Mr. Barnes' report, but no such order will be made until the subways under the steam railways are constructed and the new streets being opened up by the city are put in condition to receive the tracks.

The board is of the opinion that the extension of the company's tracks along Ossington Ave., Hallam, and Lappin Sts., hereby ordered, should be extended westerly from Lansdowne Ave. to Dundas St., but no order for such further extension can be made until subways are constructed under the steam railway tracks.

The board orders that the cost of procuring and having printed Mr. Barnes' report, \$9,960.32, be borne equally by the parties hereto, and that each of the parties pay to the board in law stamps \$100.

**The Savings of Electric Traction over steam on the Butte, Anaconda & Pacific Ry.** were reported at a meeting of the American Institute of Electrical Engineers in Spokane recently by J. B. Cox. The number of trains had decreased 25% but 35% more tonnage was hauled per train. Repairs had dropped 26% and locomotive house expenses 38%. For energy alone \$150,727 was saved. The reduction in trainmen's wages was \$31,146. The total cost of conversion to electric traction was \$1,201,000, making the total savings some 20% on the cost.

**Electric Traction in Montreal.**—The Maisonneuve, Que., City Council has passed a resolution favoring application to the Board of Railway Commissioners for an order to compel the use of electric locomotives within the city limits. The City Councils of Montreal, Westmount and Outremont have been asked to join in the application.

## Electric Railway Finance, Meetings, Etc.

**British Columbia Electric Ry. and allied companies.**—Gross earnings for September, \$650,516; operating expenses, maintenance, etc., \$509,626; net earnings, \$140,890, against \$734,283 gross earnings; \$560,888 operating expenses, maintenance, etc.; \$173,395 net earnings for Sept., 1913. Aggregate gross earnings for three months ended Sept. 30, \$2,015,351; net earnings, \$466,547, against \$2,260,854 aggregate gross earnings; \$583,478 net earnings, for same period 1913.

**Calgary Municipal Ry.**—A Calgary, Alta., press report says: There were 404,201 less fares collected by Calgary Municipal Ry. in Sept., 1914, than in Sept., 1913. The deficit for the nine months ended with September is about \$60,000. It was about \$54,000 up to Aug. 31. The measures that have been taken to cut down the expenses of the system are not yet showing much effect. It was late in September before drastic action along this line was taken. The balance of revenue operating expenses for September was \$14,881.01. This balance, however, is not large enough to care for the extra charges, such as sinking fund, interest on debentures and depreciation. That is where the deficit comes in. The revenue for Sept., 1914, was \$51,190.70, and for Sept., 1913, \$62,519.18. The operating expenses for Sept., 1914, were \$36,309.69, and for Sept., 1913, \$46,361.21. The number of passengers carried in Sept., 1914, was 1,077,353, and in Sept., 1913, it was 1,481,554.

**Cape Breton Electric Company** is reported to have sold \$25,000 of its \$130,000 5% bonds authorized by the Public Utilities Commission recently at 88. At the time of the application to the Commission for the required permission it was stated that the proceeds of the bonds were to be used to liquidate expenditures on capital account, and that the bonds also were to be used as collateral security for advances from banks. The company's head office is in Boston, and its railway operates in the Sydneys and Glace Bay and between those places.

Gross earnings for September, \$27,733; operating expenses and taxes, \$17,816.77; net earnings, \$9,956.23; interest charges, \$5,206.50; balance, \$4,749.73; bond sinking and improvement funds, \$1,190; net balance for reserves, depreciation, etc., \$3,559.73, against \$32,515.62 gross earnings; \$16,955.73 operating expenses, taxes, etc.; \$15,559.89 net earnings; \$4,891.66 interest charges; \$10,668.23 balance; \$1,190 bond sinking and improvement funds; \$9,478.23 net balance for reserves, depreciation, etc., for Sept., 1913. Aggregate gross earnings for nine months ended Sept. 30, \$260,714.91; net earnings, \$105,579.24; interest, bond sinking and improvement funds, \$58,426.40; net balance, \$48,514.82, against \$271,728.42 aggregate gross earnings; \$115,407.56 net earnings; \$54,816.15 interest, bond sinking and improvement funds; \$60,591.31 net balance for same period, 1913.

**Dominion Power and Transmission Co.**—A Hamilton, Ont., press despatch says the directors have declared a dividend of 2% on the \$5,100,000 of limited preference shares, payable Dec. 15 to shareholders of record Nov. 30. This makes the second dividend of this amount paid during this year, bringing the total payments to date to 7½%. When the dividends total 10% the limited preference stock will become common stock, of which \$2,614,500 is now outstanding. It is generally thought that the remaining payment of 2½% will be made next June, if all goes well.

**Hamilton St. Ry.** receipts for the third quarter of 1914 decreased \$31,319 from the corresponding period of 1913.



**London St. Ry.**—Gross earnings for nine months ended Sept. 30, \$282,192.46; expenses, \$200,033.84; net earnings, \$82,188.62.

**London and Lake Erie Ry. and Transportation Co.**—A mortgage deed made between the company and the Fidelity Trust Co. of Ontario, dated Oct. 1, has been deposited with the Secretary of State at Ottawa.

**Montreal and Southern Counties Ry.**—The officers and directors for the current year are:—President E. J. Chamberlin; Vice President and Treasurer, Frank Scott; Secretary, J. A. Yates; Comptroller, W. H. Ardley; other director, W. H. Biggar, K.C. The General Manager is W. B. Powell.

**Toronto Ry., Toronto and York Radial Ry., and allied companies.**—Gross earnings for September, \$879,321; operating expenses, maintenance, etc., \$430,095; net earnings, \$449,226, against \$865,796 gross earnings; \$411,159 operating expenses, maintenance, etc.; \$454,637 net earnings for Sept., 1913. Aggregate gross earnings for nine months ended Sept. 30, \$7,622,107; net earnings, \$3,714,653, against \$7,183,470 aggregate gross earnings; \$3,553,004 net earnings for same period 1913.

The Toronto Ry. receipts for October were \$487,689.05, against \$519,274.03 for Oct., 1913. The percentage paid to the city was, for Oct., \$39,274.20, against \$42,924.59 for Oct., 1913.

**Winnipeg Electric Ry.**—Gross earnings for September, \$310,996; operating expenses, \$185,977; net earnings, \$125,019, against \$331,732 gross earnings; \$181,652 operating expenses; \$150,080 net earnings for Sept., 1913. Aggregate gross earnings for nine months ended Sept. 30, \$3,071,940; net earnings \$1,290,310, against \$2,981,434 aggregate gross earnings; \$1,336,374 net earnings for same period 1913.

### Edmonton Municipal Railway's Financial Difficulties.

Commissioner Harrison presented a report to the Edmonton, Alberta, City Council recently, on the Edmonton Municipal Ry., which said, in part:—"Before the cars start out in the morning, and take in any receipts, the following fixed charges have to be met before a profit can be made for each day:—Interest and sinking fund charges, \$650; depreciation, \$280; interest on overdraft in bank, \$55; total, \$985. Operation and maintenance charges:—Wages and salaries per day, \$900; power charges, \$350; total, \$1,250; grand total, \$2,335. In other words, before the street railway begins to show a profit it must earn not less than \$2,335 a day or must carry at least 47,000 passengers per day to pay expenses. At present the railway is carrying on the average 32,000 passengers a day, and is going behind at the rate of \$500 to \$800 a day.

"Our system is overcapitalized; we have twice as many miles of track per thousand of population as any other city in the Dominion, and in many instances four times as many miles; in other words, we have extended our system far more rapidly than good business practice would warrant.

"A mere change of officials will not cure the evil, and I have therefore requested the appointment of a committee of the council to examine into street railway matters in order that a careful study may be made of them. Only by a reduction in our operating expenses, by a reduction in our power charges, by our refusal to extend the railway further into non-paying territory; by the elimination of excessive depreciation charges, and by a determined effort through various means to increase the number of passengers carried, through the establishment of amusements, such as skating rinks

and amusement parks at the end of the line, may we hope to increase the traffic, and by this means in time overcome the deficit.

"I am thoroughly convinced that if a committee would make a thorough study of the conditions, and receive with open mind suggestions that may be made for the improvement of our system by the Superintendent and others, a solution of our street railway difficulties may be obtained. The difficulties may not be solved all at once, but at present we are losing so much money that unless some decided step is taken there is a grave danger that the confidence of our citizens in the municipally owned street railway will be so shaken that they may even go so far as to consider the disposal of this franchise to a private company. This would be an extreme measure for which there is no need, provided a remedy is applied in connection with the large deficits incurred in operating the system from day to day."

### Montreal and Southern Counties Railway Progress.

Nov. 1 was the fifth anniversary of the opening of the M. & S.C. Ry. On Nov. 1, 1909, the first service between McGill St. and the south shore was put into operation. The company then owned 2 passenger cars and these made 28 trips to and from St. Lambert only. Today the company is operating over 40 miles of track and is serving St. Lambert, Montreal, South Longueuil, Greenfield Park, Country Club, Chambly, Richelieu, Marieville, Rougemont and St. Cesaire, making in all 90 trips daily over the Victoria Bridge. In addition it has another 16 miles of track under construction to link up Abbotsford and Granby. In January next work will be begun on the extension of the tracks on the Montreal side as far as Youville Square.

In place of the 2 cars which comprised the railway's rolling stock 5 years ago, there are now 32 passenger cars, 2 baggage cars, 2 flat cars, 2 rotary plows, 1 double track sweeper, and 1 single track sweeper. During the first year 319,778 passengers were carried, while for the fiscal year ended June 30 last, W. B. Powell, the General Manager, reports that the company carried 1,915,379 passengers, against 1,661,245 in 1912-13.

The effect which this line has had on the towns through which it passes is shown by the increased population figures:—

	1909.	1914.
St. Lambert .....	1,800	5,300
Lougueuil .....	3,900	5,800
Greenfield Park .....	500	1,300
Montreal South .....	664	802

In addition the company has been the means of opening up many new centres of population, including Alexandria Park, Rivera Park, St. Lambert Heights, St. Lambert Annex, Springfield Park, Sunlight City, East Greenfield Park, Pinehurst, Brooklin, Brentwood, South Kensington, Woodbine, Beverl, Albani, Belleville, Tunnel Terminals and Elswick Townsite.—Montreal Mail.

**U. S. Coins in Montreal.**—It was stated in the daily press recently that the Montreal Tramways Co. was refusing to accept United States coins for fares on its cars. We are officially advised that the report is untrue. In some cases the new nickels will not enter the fare box slots, but when this is the case, exchange is made by the conductor for a Canadian 5c. piece, which may be deposited in the box.

The Quebec Ry. Light, Heat and Power Co.'s employes have contributed \$725 to the Quebec Patriotic Fund.

### Overcrowding on the Toronto Railway.

At the assizes at Toronto, Nov. 2, the grand jury, on the city's complaint, returned a true bill against the Toronto Ry. Co. for criminal negligence, in endangering the lives, safety, health or comfort of passengers without lawful excuse, each day throughout the year, and unlawfully omitting to take reasonable precautions to avoid such nuisances. A considerable amount of evidence was taken, during which it was, more or less, admitted that at certain times of the day there was a certain amount of overcrowding, which the company was powerless to prevent, and to which the city and the general public contributed.

Chief Justice Falconbridge, in summing up, stated that the facts were not disputed, but that the charges were practically admitted, and that the case was clearly proved, the only matter that remained for the jury was to say to what extent the company was justified. He continued, that the question in point was rather one of palliation than justification, and that the company's claim that the public was responsible for the conditions as they existed was answered by the general law of the land which gave the company the right to use force in preventing overcrowding of the cars, and that when people knew the law the company would have no difficulty in enforcing it. He also stated that the rights of the occupants of a car are superior to those of the persons who had not yet boarded it.

Before agreeing on a verdict of guilty, the jury reported twice that it had failed to come to an agreement, on which the Chief Justice informed them that there was no reason for disagreement, as he had "practically asked for a conviction." Counsel for the company immediately asked for a stated case, the main reason being the charge delivered by the Chief Justice, which was practically an order to the jury to bring in a verdict of guilty. He argued that it was for the jury to consider the evidence. In granting the stated case, the Chief Justice stated that the General Manager admitted that if given power to refuse passengers when the cars were overcrowded, and use force, he would do so. According to a previous judgment in 1911, when the company was found guilty of the same offence, it was plainly stated that the company could use force to stop overcrowding, and the General Manager's evidence was practically an admission of guilt. Sentence was suspended pending the disposition of the stated case in the Court of Appeal.

### Rolling Stock for London and Port Stanley Railway.

The London and Port Stanley Ry. Commission has given contracts to the Canadian General Electric Co. for 3 electric locomotives and for the electrical equipment for 5 motor cars, according to the specifications detailed in Canadian Railway and Marine World for November, the contracts approximating \$135,000. As stated previously, the locomotives will be 1,000 h.p., with a hauling capacity for a trainload of 1,000 tons. The cars will have a 4 motor electrical equipment of about 600 h.p. per car. The equipment both for the locomotives and cars will be of the latest type, with the latest automatic safety devices.

The motor cars and trailers, of which there will be 5 each, will be of one pattern, and steel construction throughout. Specifications for the car bodies were completed towards the end of November and tenders have been invited up to Dec. 2.



## Answers to Questions on Electric Railway Topics.

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

**Paving between branch-off tracks.**—Where several branch-offs lead from the main line tracks in the centre of the street to a car barn, how far apart would they have to be in your city before company would not be held responsible for the paving between?

G. Gordon Gale, General Manager Hull Electric Co., Hull, Que.—We are required to pave 12 ft. of roadway with a single track and 18 ft. with a double track. Branch-offs to a car barn would be considered as single tracks, and 3½ ft. on each side of rails would be paved by company.

**Oil temperature in oil-cooled bearings.**—What is the maximum temperature at which oil in oil-cooled bearings should operate where the oil circulates around the bearings and the water is cooled?

F. G. Clark, Chief Engineer Toronto Ry.—An answer to this question depends almost entirely upon the characteristics of the oil and also to some extent upon the bearing metal used. There is no very satisfactory way of determining the exact temperature of the oil at the bearing surface. It may be many degrees lower temperature half an inch away from the bearing surface, being mixed with other oil of lower temperature, which has been cooled by the circulating water pipes. Satisfactory operation has been obtained where a mixture of oil under similar circumstances has had a temperature of 150 degrees Centigrade.

**Sleet on trolley wires.**—What has proved the most effective method of combating the effect of sleet on trolley wires; what form of sleet cutter, sleet wheel or other device do you use; what special instructions are given train men for use during sleet storms; how many sleet storms will you average during the winter?

G. Gordon Gale, General Manager, Hull Electric Co., Hull, Que.—Sleet scrapers have proved the most effective. Ours fit into trolley wheel groove and are clamped around end of trolley pole. The portion of the scraper coming in contact with the trolley wire has a number of cutting edges. We have not found the sleet wheel of much use. During sleet seasons all cars carry sleet scrapers. Crews are instructed to place scrapers in position as soon as sleet commences to show interference with operation. We average about a dozen sleet storms during the winter.

F. G. Clark, Chief Engineer, Toronto Ry.—There is no effective method of combating sleet on trolley wires which does not tend to destroy the trolley wire. No sleet cutter is used. No special instructions with respect to trolley wire are given to train men. We have approximately six sleet storms during the winter.

**Weatherproof feed wire.**—In ordering weatherproof feed wire do you specify three cotton braids or two jute braids and one cotton; in your opinion which is the best insulation; what variation do you allow in the size of the conductor; what variation do you allow in weight; in stranded wire do you specify annealed copper wire or medium hard drawn?

F. G. Clark, Chief Engineer, Toronto Ry.—We have no standard. I do not know which is the better insulation of the two mentioned. All our specifications for size of conductor state that it is not to be less than —, and weight is not to be less than —. We specify stranded wire for long spans, hard drawn. For short spans medium hard drawn, and where extra flexibility is re-

quired, as in station cables, it is to be annealed.

**Size of axles.**—What is the proper size for axles for use with pony wheels on maximum traction trucks when 80% of car weight is on drivers?

W. R. McRae, Master Mechanic, Toronto Ry.—We use 4 in. axles on pony wheels and 4½ in. on drivers of maximum traction trucks. We do not have either broken or sprung axles, since increasing from 3½ in. pony and 4 in. drivers, with which this type of truck was originally equipped. The entire car equipment of this road is given a thorough overhauling once a year, regardless of the type of motor. New equipment is given a provisional overhauling after one year of service, and is given the usual general overhaul after the second year of service. G.E. types 80, 67 and 1,000 are standard on this road.

**Curtailment of expenses.**—If the mechanical department has radically to curtail expenses, what sub accounts can best be reduced, always considering safety first?

W. R. McRae, Master Mechanic, Toronto Ry.—Not any that I know of without affecting all.

**Armature and axle bearings.**—What composition is used for armature and axle bearings, and what was cost per 1,000 car miles of Account 36-J, Motor Bearings, for year ended Dec. 31, 1913?

W. R. McRae, Master Mechanic, Toronto Ry.—The composition of armature and motor bearings is as follows:—tin 96 parts, copper 4 parts, antimony 8 parts. Cost of armature bearings per 1,000 car miles is 58c., and of motor axle bearings 21c. This includes inspection, maintenance, lubricants and lubricating.

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co.—Armature bearings lined with babbitt:—tin 83.3, copper 8.3, antimony 8.3; axle bearings are of brass:—copper 72, lead 20, tin 7, miscellaneous 1. Cost of armature bearings per 1,000 car miles:—labor 7.8c., material 8c., total 15.8c.; cost of axle bearings per 1,000 car miles:—labor 3.8c., material 7.5c., total 11.3c.; grand total 27.1c. The labor includes car barn charges for inspection and exchange. 95% of the cars are 4-motor cars.

**Window glass.**—What grade of window glass is used and what was cost per 1,000 car miles of Account 32-F, Window Glass, for year ended Dec. 31, 1913?

W. R. McRae, Master Mechanic, Toronto Ry.—Double diamond glass in car windows at a cost, for 1913, of 20c. per 1,000 car miles.

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co.—American 32 oz. glass. Cost per 1,000 miles 0.31c. Cost is excessive on account of many old cars with drop sash, storm windows used on all cars during winter time, and non-folding swing doors in rear bulkheads of all cars.

**Types of lamps in cars.**—What type of lamp is used in cars and what is lamp consumption per 1,000 car miles a year?

W. R. McRae, Master Mechanic, Toronto Ry.—We use carbon lamps in all cars and lamp consumption in 1913 equalled 1.4 per 1,000 car miles.

**Purchases by contract.**—What materials are purchased under contracts of a year or more duration?

W. R. McRae, Master Mechanic, Toronto Ry.—We purchase only car wheels on a contract basis.

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co.—We endeavor to make all purchases without exclusive contract, excepting oils.

**Crew for snow cleaning.**—In addition to the transportation crew, is any shop man placed on snow ploughs and snow sweepers when operating on the road?

G. Gordon Gale, General Manager, Hull Electric Co., Hull, Que.—On snow sweepers, transportation crew only. On snow ploughs, one shop man in addition to transportation crew.

W. R. McRae, Master Mechanic, Toronto Ry.—Snow sweepers are operated and manned entirely by transportation crews.

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co.—No shop men on snow ploughs or sweepers.

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

D. E. Blair, Superintendent Rolling Stock, Montreal Tramways Co.—We have never been able to find any serious increased flange wear on wheels on gear side of 2-motor trucks, but have found a difference on trucks equipped with only one motor. Increased peripheral wear seems to be general in both cases. The reason for this, in my opinion, is that because the gear is near to one end of the axle, the wheel on that side is subject to greater abrasion, owing to absence of spring between drive and periphery of wheel. In other words, the wheel on that side tends to do most of the constant slipping that occurs between wheels and rail to maintain a balance under the variables to which each wheel is subject, viz.—difference of diameter of wheels, curvature of track and torsional deflection of axle under heavy driving effort of motor.

## Mainly About Electric Railway People.

W. H. MUNRO, Local Manager, Peterborough Radial Ry., is convalescent after several weeks illness.

A. S. FARMER, Superintendent, Gas Department, Moncton Tramways, Electricity and Gas Co., Moncton, N.B., has been transferred to Oklahoma, where the same interests carry on similar business.

G. R. G. CONWAY, Chief Engineer, British Columbia Electric Ry., gave an address to the Vancouver Branch of the Canadian Society of Civil Engineers, at its first winter meeting, Oct. 29, on the engineer and the war.

J. G. WALLACE, K.C., of Woodstock, Ont., who was appointed early in the year as trustee for the bondholders of the Woodstock, Thames Valley and Ingersoll Ry., has been appointed county judge for Oxford, Ont. He is continuing in the trusteeship.

A. E. BECK, K.C., who for a number of years has been one of the British Columbia Electric Ry.'s permanent counsel and also its Claims Agent, will leave the company's service at the end of this year to practise law on his own account. The company's legal and claims departments will be amalgamated under the control of the other permanent counsel, V. Laursen.

Clifton Carr, son of C. E. A. CARR, formerly General Manager, Quebec Railway Light, Heat and Power Co., and now of Toronto, is serving as a private in the Queen's Own Rifles, now at Salisbury Plain, Eng. He is a recipient of the Carnegie Hero Fund, for saving the life at New Orleans, La., two years ago, of an old man who attempted suicide by jumping from a ferry boat, and \$2,000 has been set apart from the fund for his further education. He was born in Toronto, educated at Upper Canada College there, and Tulane University, New Orleans, and is 21 years old.



## Electric Railway Projects, Construction, Betterments, Etc.

**Brantford St. Ry.—Grand Valley Ry.**—A press report states that a 200 kw. 25-cycle Westinghouse rotary converter has been purchased for installation in the power house at Brantford, Ont.

A contract is reported to have been let to T. Harper, Brantford, for the erection of a new station on the G.V.R. at Paris, Ont. (Nov., pg. 516.)

**Chestermere and Calgary Suburban Ry.**—The Alberta Legislature has granted an extension of time for the completion of this projected electric railway into Calgary.

**Cornwall Street Ry., Light and Power Co.**—The new franchise granted to the company will expire in 1934. It is practically the same as the one that has expired.

We are officially advised that no decision has been reached as to when the loop line on Cumberland and Water Streets will be built. (Nov., pg. 516.)

**The Dunnville, Wellandport, and Beamsville Electric Ry.** has a charter to build from Dunnville to Jordan and Beamsville, and to other points in the Niagara Peninsula of Ontario. The first section of the line, from Wellandport to St. Ann's, where it will connect with the Toronto, Hamilton, and Buffalo Ry., has been under construction since early last year, and we are officially advised that deeds have been secured for a considerable stretch of right of way, that about 12 miles of grading have been completed, that considerable work has been done on culverts, drains, and fencing, and that the bridging is fairly well completed. An extension of time for the completion of the work was given the company last year. Some time ago negotiations were entered into with the Hydro-Electric Power Commission of Ontario, with the object of having the latter take over the work as then completed and incorporate it in the commission's scheme of municipal lines. The commission has had a survey of the line made, and is considering a proposition made by the company to take the line over on an actual cost basis. Nothing further has been accomplished in the proceedings to date. J. A. Ross, Wellandport, Ont., is President. (Nov., pg. 516.)

**Fort William Electric Ry.**—During this year the following extensions have been put in hand, and with two exceptions had been finished when we were advised recently: Yonge and Brock Streets, 0.74 mile; Sprague St., Walsh to Brock St., 0.42; Franklyn St., Victoria Ave. to Walsh St., 0.67; Victoria Ave., Vickers St. to Syndicate Ave., 0.15; Syndicate Ave., Victoria Ave. to Southern Ave., 0.65; Southern and Pacific Aves., Syndicate Ave. to Simpson St., 0.27; Island No. 2, excursion, 1.70 miles; total, 4.93 miles of single track; Frederica St., Yonge St. to Neebing Ave., 0.83 mile; Victoria Ave., Franklin St. to Vickers St., 0.25; total, 1.8 miles of double track. The single track on Island No. 2, and the double track on Frederica Ave. are the two pieces not completed. Track was laid on four extensions during 1913, which have been put in operation this year, viz., Frederica St., from the C.N.R. to Yonge St., 0.40; and three incinerator spurs, Frederica loading station, 0.35; Sprague loading station, 0.28, and Pacific Ave. incinerator, 0.27. Total, 1.25 miles. (Oct., pg. 476.)

**Guelp Radial Ry.**—The Board of Railway Commissioners has authorized the G.R.R. to construct an interchange track with the G.T.R., on Suffolk St., Guelp, Ont.

**Hydro-Electric Power Commission of Ontario Projected Railways.**—Representatives of the various municipalities interested in the bylaws voted on, Oct. 19, to wai

ch was made in our November issue (pg. 516), met in Toronto, Nov. 11. Fifteen municipalities are interested, and of these only two voted against the bylaw, the majorities in each being small. After discussing the situation it was decided to ask the town council of Newmarket and Uxbridge township council to again submit bylaws to the ratepayers. The Dominion Parliament will be asked next session to vote a subsidy at the same rate as for steam railways in aid of the building of the 75 miles of line projected. Sir Adam Beck, on behalf of the commission, stated that as soon as the bylaw is accepted in the two municipalities above mentioned the line for the distribution of power will be built through the whole 15.

The line will, it is stated, be given an entrance into Toronto along Danforth avenue, over the Toronto civic car line, and continue either along the new Bloor street viaduct or down the Don River Valley. (Nov., pg. 516.)

**International Transit Co.**—The Board of Railway Commissioners has authorized the building of a bridge at Tagona, Sault Ste. Marie, Ont., to carry a highway and the I.T. Co.'s tracks across the Algoma Central and Hudson Bay Ry. The cost of the bridge is to be borne by the electric railway company.

**Lacombe and Blindman Valley Electric Ry.**—W. L. McKinnon & Co., Toronto, advertised recently inviting tenders for \$206,700 of this company's first mortgage bonds, maturing in 1943. The Alberta Government has guaranteed the principal and interest of the bonds, for \$7,000 a mile, or \$273,700 for 39.1 miles. They bear 5% interest.

**Lethbridge Municipal Ry.**—The extension of the line under the subway was completed Nov. 6, and a service was put in operation towards North Lethbridge, Alberta, immediately thereafter. Commissioner Reid is reported to have said that the ratepayers having refused to vote the money, the paving could not be laid down this year.

**The Moncton Tramways, Electricity and Gas Co.** has a number of improvements under way. It is replacing all its old low pressure boilers with new high pressure boilers of 200 h.p. capacity each, and will boilers of the return tubular type. The new be worked at 150-lb. pressure. Three boilers of this type are being installed, and with the one of this same type installed several years ago the company will have a boiler capacity of 750 h.p. New steam piping is being installed throughout the power house. A 150 kw. motor-generator set for operating the street railway during the day-time, when the lighting load is light, is also being installed. This set, which is being furnished by the Canadian General Electric Co., will be operated from the alternating system.

**Moncton Tramways, Electricity and Gas Co.**—A temporary frame car barn has been built to replace the building which was destroyed by fire, Sept. 14. This building is 30 by 80 ft., with accommodation for five cars, and is on the same site as the one burned. We are officially advised that it is probable that a steel and brick car barn will be built in the summer, on a new site which has not yet been acquired. (Oct., pg. 477.)

**Montreal and Southern Counties Ry.**—The Montreal City Council, Oct. 27, finally passed the bylaw granting the company permission to extend its tracks across McGill St. and along Youville St. to St. Peter St., along St. Peter St. to Youville Square, and along the south side of the square to McGill St., with a Y at the corner of St. Peter St. and the Square. One of the sec-

tions of the agreement releases the Council from any liability for damage in the event of the company being prevented from exercising the privilege granted by reason of the previously existing right of any other company to the use of the streets. The work is to be started in Jan., 1915, and proceeded with to a completion, or the franchise is to become void. (Oct., pg. 476.)

Application is being made to the Dominion Parliament for an extension of time within which the company may complete the several lines of railway authorized to be built.

**Niagara Gorge Rd.**—Press reports state that a contract has been let to the Turner Co., Buffalo, N.Y., for the building of a car house, repair and paint shop at Niagara Falls, N.Y., and that it will be of reinforced concrete and tile construction, 156 by 200 ft.

**The Niagara River and Eastern Ry. Co.** has been incorporated in New York State to build an interurban railway from the terminal of the Buffalo, Lockport, and Rochester Rd., in Buffalo, along the Niagara, Lockport, and Ontario Power Co.'s right of way, to Niagara Falls, N.Y., 20 miles. The capital is fixed at \$1,500,000, the head office at Niagara Falls, N.Y., and the company is authorized to use steam or electric power for operation. The incorporators are: E. G. Connelte, President International Ry.; F. A. Dudley, Vice-President B., L., and R. Rd.; A. J. Porter, and A. W. Gray, Niagara Falls.

**Oshawa Ry.**—The Board of Railway Commissioners has authorized the C.P.R. to connect its recently opened Campbellford, Lake Ontario and Western Ry. in Oshawa, Ont., with the Oshawa Ry., which does a switching service for the different railways in the town.

**Ontario West Shore Ry.**—It was reported from Goderich, Ont., Nov. 19, that engineers representing the Hydro Electric Power Commission of Ontario, have been going over the line so far as it has been constructed, and the route as laid down, with a view of reporting on its value, as part of the electric railways projected for Western Ontario by the Commission. (Nov., pg. 517.)

**The Ottawa Electric Ry.'s** new auxiliary power plant is reported to have been put in operation Nov. 19, to have cost \$200,000, and to be capable of generating 5,000 h.p. The boiler room is equipped with three Babcock and Wilcox boilers, self stoking, with mechanical feed and ash conveyors. From the boilers the steam passes into big steam domes and in turn feeds into a Westinghouse-Parsons double flow steam turbine 3,200 kilowatt capacity, but which can carry an overload of 50%. This turbine generator operates at the rate of 3,600 revolutions a minute. The plant is expected to obviate troubles from lack of power due to low water in the river. (Aug., pg. 385.)

**Ottawa and St. Lawrence Electric Ry.**—We are officially advised that contract has been let to Eastman, Kenny and Stearns, Russell Tp., Ont., for grading about six miles of the projected line, that about two miles of grading has been completed, and that it is expected to have about eight miles between Russell and Metcalfe completed and ready for the rails by the end of the year. H. W. Pearson, Confederation Life Building, Toronto, is Secretary. (Nov., pg. 517.)

**Peterborough Radial Ry.**—We are officially advised that the work on Charlotte St., Peterborough, Ont., is part of the reconstruction which has been carried out on about 25% of the company's line. The city council has, within the last year, entered upon an extensive programme of street paving, involving the streets upon which the tracks are laid. The company decided that when the city was carrying out its paving work, entirely new track and special work would



be put in position. During the autumn of 1913 and in the present year the company has been engaged in that work, and has laid 80-lb. A.S.C.E. section rail throughout in 60-ft. lengths, with continuous joint plates, inserted manganese guarantee construction in special work, with solid manganese switch tongues, and solid intersections at the principal railroad crossings. There is a good subgrade of gravel under all the reconstructed work, and the track was laid, after rolling on 6 x 7 cedar ties, placed at 2-ft. centres, and filled in from top to bottom with concrete, which was run at the same time as the base for the asphalt pavement. Between and outside the rails is paved with blocks. The Charlotte street section remains to be completed, but, although all the material is on hand, the work will not be carried out until next spring, as the city has decided not to pave the street until then.

It is proposed to make an extension of about a mile in the spring into recently built-up territory. At present the company is engaged on the extension and enlargement of the feeder system, and is putting up 10,000 lbs. of copper wire. During the summer about half a mile of track at various points has been reconstructed.

**Sarnia St. Ry.**—We are officially advised that the proposed extension south on Christiana St. to Clifford, and on Clifford St. West toward the river, at Sarnia, Ont., is not likely to be made until the spring.

**Sudbury-Copper Cliff Suburban Electric Ry.**—The Board of Railway Commissioners has authorized the company to build its tracks across the C.P.R. at Elm St., Sudbury, and across various spur lines and the C.P.R. Stobie branch.

**Toronto Civic Car Lines.**—We are official-

## Montreal Tramways Company and Its Franchise.

The question of the Montreal Tramways Co.'s franchises, which has been under consideration by the Montreal City Council, came up at a meeting of the Board of Control, Nov. 11. There have been a number of suggestions put forward and reports made, the latest of which is one by the Mayor, which was made public Nov. 9. It is said that Controller Hebert is also preparing a proposal for a new franchise. As the full board was not present Nov. 11, the Mayor refused to have the matter considered.

The proposition put forward by the Mayor is in two parts. The first deals with what the company is asked to do, and the second with what the city would bind itself to do. The company is asked to abandon all existing franchises in territory from Lachine limits to Riviere des Prairies and Cartierville on the west, the river on the south, the boundary of Longue Pointe Ward on the east, and Riviere des Prairies on the north; to abandon all rights it now has of being exempted from taxes in that district; to give up any franchise it may possess in any territory outside the above-mentioned district when it becomes annexed to the city (the question of fares to be settled at a later date); to extend its double track on St. Lawrence Boulevard from the C.P.R. subway to Riviere des Prairies; to build the following lines by Nov. 1, 1915: On Cote des Neiges Road, from the cemetery entrance to a junction with the existing line on Queen Mary Road; from St. Dominique St. via Isabeau St. and St. Lawrence Boulevard to Cremazie Road; from Church Ave. via St. Patrick St. and Monk Boulevard to Allard St.; complete the double track on Notre Dame St. east to eastern limits of the city; from Papineau Ave. via Rosemount Boulevard to St. Michel Road; Masson Street line to be extended

ly advised that the electric railway to be built on Bloor St. west, as a civic undertaking, by the Toronto City Council, will extend from the west street line of Dundas St. to the east street line of Quebec Ave., approximately 4,000 ft. The permanent construction will be double track, paved with wood block. This work will be started in the spring, but meanwhile a single track is being laid on the north road allowance. The permanent roadbed will have 9 ins. of concrete under the ties, which will be of oak, 6 x 8 x 5 inches; girder rails, Ladin rail section 122-467, will be used, with rail brace triplates and wood block paving. On the temporary track 60-lb. rails, A.S.C.E. section, will be used, with light ballast. Work on the temporary construction was started Nov. 4, and it is expected to have it completed by Dec. 31.

The question of operating the line was considered by the civic works committee on Nov. 6, when the Commissioner of works was directed to negotiate an agreement with the Toronto Ry. It was reported that the company was willing to operate the line as a stub on the basis of 20c a car mile, and the Commissioner of Works said he was of opinion that the city could operate it at 16c per car mile.

The line will cost \$125,000, of which amount \$5,000 will be expended on the temporary line. Legislation authorizing the issue of debentures for this amount without a vote of the ratepayers will be obtained next session of the Ontario Legislature, the Premier having promised that it will be enacted.

**Winnipeg Electric Ry.**—Press reports state that plans are being prepared for filing with the city council for extensions in the north-west section of the city, in accordance with the City Engineer's directions.

from Ninth Ave. to connect with the Pius IX. Ave. line; from Centre St. via Atwater, St. Patrick, Duberger, Gladstone, and Archibald to Church Ave.; to establish a service on Boyce St. as soon as the city opens it, between Maisonneuve and Tetreaultville; to construct four specifically named lines as soon as subways or overhead bridges are built; to submit questions of other extensions to the Public Utilities Commission and abide by its decision; to keep tracks free from snow and ice, and to pay one-half of the cost of the removal from the rest of the street; to pay \$12,000 a year for street watering; to pay half of the interest and sinking fund chargeable to the city and the company for any work ordered by the city or the Public Utilities Commission; to pay full cost of work made necessary to the company by reason of a change of grade; to pay for street repairs extending 18 ins. from each track; to charge no more than a 5c fare between 6 a.m. and midnight, and no more than a 10c fare between midnight and 6 a.m.; to sell regular tickets at 6 for 25c, limited tickets at 8 for 25c, and school children's tickets at 10 for 25c; to charge no more than 5c and 10c fares as above on subways to be built by the city; to establish an auto bus service on streets to be designated within five years (provided the city has power to do so) at a 5c fare; to refer all claims and disputed accounts at present outstanding to arbitration; and to expend \$130,000 on two ferry boats to St. Helen's Island, with an additional \$20,000 on the necessary wharves.

The city in return to grant a new franchise covering the entire city, to run for 30 years, and to bind itself to do the following: To build at its own cost rapid transit underground tunnels, the company to furnish tracks and equipment, and to pay as rental a

sum equal to the annual interest on the cost of construction; to build the first tunnel at once under St. Lawrence Boulevard, from Vitre St. to Mile End Station, and others as is deemed necessary; to extend the franchise for 10 years, if at the end of the 30 year period the city decides not to expropriate the system; to apply to the Legislature for an act to authorize the company to do the following: To establish a double track service on Vitre St., between St. Denis and Victoria Square, and to widen at its own expense Vitre St., from St. Denis to Victoria Square, the company to have the right to expropriate the land necessary; to put a full double track service on St. Antoine St., as far as De Courcelles St., St. Antoine St. to be widened to 60 ft., and the company to have the right to expropriate; to give to the city what land it owns as a right of way so that Notre Dame St. may be extended from St. Remi St. to Rockfield Road; to cede what land it owns between St. James St. and St. Clothilde Church for use as a public park; to expropriate the property of the Mount Royal Park incline railway within six months and to construct a surface line that will give suitable access to Mount Royal Park. (Nov., pg. 576.)

## Electric Railway Notes.

British Columbia Electric Ry. employes have contributed \$485.22 to the Vancouver citizens' war fund.

The Peterborough Radial Ry. has increased the number of its cars so as to give a 10-minute service on all its lines.

Chesterfield, Eng., is issuing tokens for the free transportation of Belgian refugees over its street railway and motor bus routes.

The Montreal City Council decided, Nov. 20, to cooperate with the Montreal Tramways Co. in its safety first campaign.

The Lethbridge, Alberta, Municipal Ry. has distributed a time card, showing the times at which cars will pass given corners, on all its lines.

A 54 hour schedule for the employes of the Lethbridge, Alberta, Municipal Ry. went into effect Nov. 9. The change enables the employment of two more men full time.

Welland, Ont., women, who acted as conductors for a day recently on the Niagara, Welland and Lake Erie Ry., secured \$300 for the Canadian Patriotic Fund.

The Toronto Suburban Ry. is appealing to the Imperial Privy Council against a court decision which holds it responsible for the cost of paving the track allowance on Davenport Road, Toronto.

The British Columbia Electric Ry.'s office staff in Vancouver held their annual dinner Nov. 14. G. Kidd, General Manager, and G. R. G. Conway, Chief Engineer, were among the speakers. It was reported that the Office Staff Social Club had 175 members and was doing a good work.

The Toronto Board of Control is trying to secure a 5c. night fare for working people. The Corporation Counsel contends that under the Ontario Railway Act of 1913 no fare over 5c. shall be charged by any railway for a distance not exceeding three miles.

Sir Adam Beck, Chairman of the Hydro Electric Power Commission of Ontario, in addressing the University of Toronto Engineering Society recently, said the time had arrived when the Dominion Government should declare its policy in regard to granting subsidies for the proposed inter-urban electric railways to be built by municipalities under the commission's auspices.

C. Dunwell, a motorman on the Edmonton Municipal Ry., addressed a meeting of the Edmonton Property Owners' Association



recently, claiming that if given absolute control he could put it on a paying basis within six months. It was stated that the deficit is about \$800 a day and that only about 36 cars, out of 80 owned, are being operated.

It was reported at a public meeting in Saskatoon, Sask., Nov. 13, that the capital cost of the Municipal Ry. was \$733,396.50. The capital charges, including sinking fund and depreciation for 1914, were \$55,813.91, and for the Sutherland extension, \$1,062.17. Of the funds authorized to be raised under certain bylaws, there remained unraised, Oct. 30, \$100,000 under bylaw 622 and \$25,000 under bylaw 804.

A press dispatch from London, Ont., Nov. 19, stated that the London St. Ry. was ready to sell out to the city and that a written proposal would be laid before the Board of Control shortly. It also stated that the matter would probably be put to the vote of the ratepayers in January, and that the city's debentures would be acceptable to the company. The franchise has about ten years to run.

The Edmonton, Alberta, Radial Ry. has adopted a special "market transfer," in order to promote business at the newly opened civic market. Passengers going direct to the market, on market days, are given a "market transfer," which enables them to make the return trip on a single fare. Superintendent Larmouth is reported to have expressed the opinion to the civic authorities that a portion of the cost of this "transfer" should be borne by the Market Committee.

The six single truck street cars which the Brantford Municipal Railway Commission has ordered from the Preston Car and Coach Co., as mentioned in our last issue, will have bodies 21 ft. long, with 6 ft. vestibule at each end. The seats will be longitudinal, upholstered in woven rattan with spring seats and backs. There will be no bulkhead at either end. The steps will be folding, working in unison with the doors, under the control of the motorman or conductor only. The roof will be of the turtle back type, with automatic ventilators to ensure good ventilation, and the whole will be finished in natural cherry both inside and outside. The bodies will be mounted on heavy trucks, with 8 ft. wheel base. The electrical equipment will be Westinghouse 101 B2 motors, double equipment, brake type B to be applied at front end, Consolidated Car Heating Co.'s 192W heater. The cars will be delivered about the middle of December.

**Toronto Ry.'s assessment reduced.**—The Toronto Ry. Co. appealed to the Court of Revision recently, against the city's assessment, as fixed by the assessors, at \$1,212,280 on structures on streets, that is, rails, poles, wires, etc., and \$500,000 on conduits, cables, etc., a total of \$1,712,280. The court reduced these items to \$1,102,500 and \$200,000, respectively, a total of \$1,302,500. The plant in the Yonge St. sub station, fixed by the assessors at \$184,000, was reduced by the court to \$115,000.

**U.S. Railways.**—A Washington, D.C., press dispatch says:—"Completion of the work of physical valuation of railways will bring an answer to the question of whether the Government should own the nation's railways. C. A. Prouty, director of valuation of the Interstate Commerce Commission, also expresses the opinion that a general rate increase may be needed in this country."

The maximum freight car load 35 years ago was 24,000 lbs. whereas today there are 100,000 and 140,000 lb. cars, and the limit does not yet appear to have been reached.

### Montreal Tramways Co's Construction.

We are officially advised that the following new work was done between Jan. 1 and Oct. 31:—

Bernard St., between Park Ave. and St. Lawrence, 0.275 miles' double track or 0.55 miles single track.

Loop at Closse and St. Luke, 0.15 miles single track was installed.

Both pieces of work referred to above were laid with no. 115 girder rail, with the exception of the inside rail of the curves, which was laid with no. 132 g.g. rail.

Masson St., from 10th Ave. to 13th Ave., was laid with no. 80 T rail for 0.12 mile single track.

Notre Dame St. was laid with no. 80 T rail for 2.665 miles double track, and 5.33 miles single in Montreal East and Pointe aux Trembles, and in Longue Pointe Ward 0.55 mile double track was laid with no. 87 T rail (now under construction).

In addition to the above 8 miles of single track were renewed, also several large inter-

Postmaster General, at Calgary, Alta., for \$77,260, for alleged infringements of the Post Office Act, in carrying large numbers of letters from Calgary to Edmonton and Lethbridge, for mailing at the latter places at the 1c. drop letter rate.

The revenue, expenses, etc., of the Canadian Northern Ex. Co. for June, were as follows:

	1914.	1913.
Receipts from operation ....	\$84,623	\$87,203
Express privileges .....	32,156	34,051
Total operating revenue .....	52,467	53,151
Total operating expenses ....	35,456	32,200
Net operating revenue .....	17,011	20,950
Taxes .....	6,389	631
Operating income .....	10,621	20,318

The Canadian Ex. Co.'s revenue, expenses, etc., for June, were as follows:

	1914.	1913.
Receipts from operation ...	\$443,054	\$392,242
Express privileges .....	286,154	237,420
Total operating revenue .....	156,900	154,822
Total operating expenses ...	131,391	146,810
Net operating revenue .....	25,508	8,011
Taxes .....	7,249	1,830
Operating income .....	18,259	6,180

### Vancouver Drydock Projects.

In Canadian Railway and Marine World for October it was stated, in connection with other information about the Dominion Shipbuilding, Engineering and Drydock Co.'s project for building a drydock, etc., at Vancouver, that it had been announced that the Dominion Government had approved the plans and granted the full subsidy under the act granting aid in the construction of drydocks. This information appeared to be reliable, but on making inquiry from the Public Works Department at Ottawa we are advised that no application has been received from the company referred to for a drydock subsidy.

An application has, however, been received from the Amalgamated Drydock and Engineering Co. of British Columbia, Ltd., for the construction of a drydock and appurtenant works at Vancouver, and while no subsidy agreement has been entered into, an order in council has been passed indicating the Government's willingness, provided the company can finance the undertaking, to subsidize a dock of the following dimensions:—Length from caisson stop to head wall, 1,150 ft.; width of entrance, 110 ft.; depth over sill at extreme high water spring tides, 41 ft.; depth over sill at low water spring tides, 24.25 ft.; the dock to be divided into two parts, 650 and 500 ft., respectively. The estimated cost of the dock is \$5,458,418.37, and the subsidy mentioned in the order in council is 4% a year on this for 35 years.

**Wentworth St. Incline Ry., Hamilton, Ont.**—The Hamilton, Ont., Board of Control had a conference with G. F. Webb, Nov. 12, with reference to the extension of the Wentworth St. Incline Ry. Mr. Webb explained plans which had been prepared, showing tracks passing under the Toronto, Hamilton and Buffalo Ry., and across the G.T.R. on the level, and extending north from the present terminus, sufficiently far to reduce the existing gradient, and stated that he would undertake to carry out these plans if the city would construct a permanent roadway on Wentworth St. The members expressed a general approval, and asked that complete details be submitted, so that a definite decision might be reached and a recommendation made to the city council at an early date.

**Melville-Davis Touring and Steamship Co., Ltd.**, has been incorporated under the Ontario Companies Act, with \$40,000 capital and office at Toronto, to carry on a foreign exchange business and to act as general steamship, railway, and transportation agents.

### 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.

sections, among which were those at the corner of St. Catherine and Atwater and McGill and St. James. The cost of these two alone was \$50,000.

### Among the Express Companies.

Dominion Ex. Co.'s employes have contributed \$4,220 to the Canadian Patriotic Fund.

The Board of Railway Commissioners has issued orders establishing express delivery and collection limits for Kentville, N. S., and Red Deer, Alta.

J. C. Miller, a cashier of the Dominion Ex. Co., at Ottawa, was on Nov. 7, sentenced to four years imprisonment for embezzling \$2,387.

The Canadian Ex. Co. has about 31,000 employes, 1,000 offices, 450 horses and 615 wagons, sleighs and motor trucks, and it operates over about 8,000 miles of territory.

The Dominion Ex. Co. has removed its St. John, N.B., office from its temporary position on King St. to the new C.P.R. building at the corner of King and Germain Sts. The company occupies a portion of the ground floor.

The Dominion Ex. Co. is being sued by the



# Marine Department

## Progress of Work on the Welland Ship Canal.

From time to time, since the inception of the new Welland Ship Canal scheme, information concerning the operations have appeared in Canadian Railway and Marine World. The principal article, in July, 1913, described the work as then contemplated, and in Sept., 1913, a typical lock, such as is to be used in the canal, was described. Other information has appeared since. The general dimensions of the canal are as follows:

Length, lake to lake .....	25 miles.
Width, at bottom .....	200 ft.
Width, at water line .....	310 ft.
Depth, in canal prism .....	25 ft.
Depth, on lock sills .....	30 ft.
Number of lift locks .....	7
Locks, useable length .....	800 ft.
Locks, useable width .....	80 ft.
Height of lock walls above sills .....	81.5 ft.
Lift of each lock .....	46.5 ft.

The canal has been divided into 9 sections, of which 4 have been under contract for a year. The principal portion of the work undertaken to date is the section from Lake Ontario to opposite Thorold, embracing sections 1 to 3, and containing the 7 locks. This is the heaviest portion of work on the whole canal, and in conse-

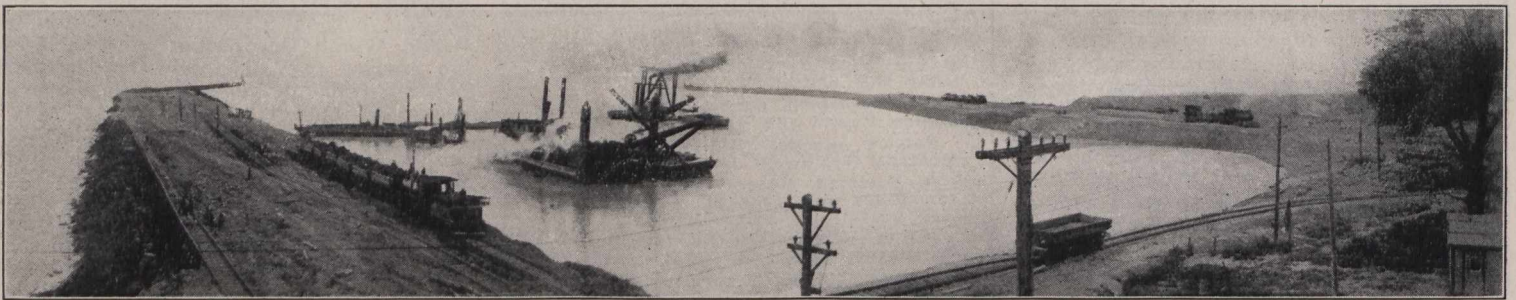
quence, a later commencement of the southerly end, where the work is lighter, will bring the sections to a completion at about the same date.

When the earth filling is completed rock will be brought from section 3 to roughly rip-rap the outer slopes.

In the harbor there is a sounding scow about 40 ft. square, provided with 4 large spuds or anchors. It was built for the general purposes of the survey staff in connection with the harbor work, but principally for ascertaining the elevation of the surface of the rock beneath the overlaying material and as it was liable to be caught out in rough weather before the piers were extended out as far as they are, and as sometimes a perfectly steady platform is required, the scow is arranged with a heavy engine on each spud, by means of which it is enabled to hoist itself completely out of the water and above the reach of wave action, which will thus have only the 4 spuds to strike against. When it is required to move the machine the scow is lowered into the water and the spuds lifted up clear of the bottom by the same machinery. There are at present two large dipper dredges in operation. The dredge that foundered last year off Port Dalhousie, is being raised.

Trains of dirt cars from the excavating machines arrive and depart constantly from the service ground fill in the lake. Several different styles of dump cars are used on this work, the principal kind being a 12 yd. car, automatically operated by compressed air. Approximately 2,500,000 cu. yds. of excavated material have been carried to the pier construction up to Sept. 30.

The head of lock 1 will be located under the Lake Shore Road. This road, and the Niagara, St. Catharines and Toronto Ry., will be carried over the lock on bridge 1, which will be of a wide bascule type. A drag-line excavating machine is working in the lock pit, having completed the excavation for the west entrance wall. This wall will extend from near the lake to the foot of the lock and will be of reinforced concrete, buttress type. A departure from the ordinary has been made in its design, in that structural steel frames are used, one in each counterfort, for the purpose of supporting the reinforcing steel rods, many of which pass through holes punched through the frames, and also for the purpose of supporting the contractor's forms. This wall is founded on rock, and the concrete crib docking will be built to form an extension of it into the harbor. Drag-line excavating machines are being extensively used on the several sections and represent a departure in excavating machinery which have only come into use during the last few years. They have a wider radius of action from one setting, and can operate to greater depths,



Harbor at Port Weller at Lake Ontario End, Welland Ship Canal, with Piers extended about Half Way.

Section 1 includes 1½ miles of work on shore and 1½ miles in Lake Ontario. The lake work consists of dredging a 25 ft. channel from deep water to the shore line, the material being cemented gravel and hardpan, overlying shale rock. Some of the latter must also be removed. Sites will be dredged upon which to rest large reinforced concrete cribs, which will be sunk in line, and when filled with the dredged material, and a concrete superstructure built, will form long lines of docking, principally on the west side of the canal. There will also be 700 ft. of this crib work on either side of the entrance to the harbor, 1½ miles out in the lake. These concrete cribs are being made at Port Dalhousie, from which point, 3 miles distant, several have been towed to the new harbor and temporarily grounded.

The harbor is being formed by dumping all the surplus earth from sections 1 and 2 and the lower end of section 3 to form embankments or dykes on either side of the harbor. To allow a start to be made in forming these embankments, temporary wooden pile trestles are being built out into the lake in advance of the dumps, and the trestle on the west side is now somewhat over half way out to the extreme length, and the trestle on the east side is not very far behind. In order to give the piles

the full depth of this section being excavated from the one setting. The cribs, to which reference has already been made, are divided into 18 compartments, and each compartment is provided with a temporary wooden bottom held down by diagonal braces fitted to notches built in the side walls. When the crib is finally sunk in position by means of water let into it through pipes provided for that purpose the temporary bottoms will be removed by pulling on ropes which are attached to wedges holding the struts in place, thus allowing the bottoms to float to the surface, and they will be used over and over again in the different cribs. Fifty-five cribs in all will be required, each 110 ft. long, 38 ft. wide and 34 ft. high, and weighing 2,000 tons. When sunk the top of the cribs will be on a level with the water as it now stands in the lake.

Bridge 2, at station 145, near the upper end of section 1, will also be a bascule, carrying the highway across the canal prism and upper end of the pondage for lock 1, which has an area of 107 acres at elevation 289.0.

The Dominion Dredging Co., Ottawa and Port Weller, Ont., has the contract for this section. Several subcontracts have been let as follows: Lane Bros., locks, retaining walls and other concrete work; and J. H. Tromanhauser Co., 55 cribs for entrance piers and gate yard slip.

Section 2 extends from stations 150 to 380—about 4½ miles. This section comprises the excavation of some 7,000,000 cu. yds. of



earth, the building of locks 2 and 3, and the substructure of bridges 3, 4 and 5, and will cost approximately \$5,500,000, exclusive of lock gates, bridge superstructures, valves and other steel work, and cement. Excavation has proceeded very rapidly on this section by means of heavy steam shovels, drag-line excavators and several mule outfits operating in connection with western grading machines. The drag-line excavating machine is undoubtedly a coming machine for many kinds of excavation.

The pondage for lock 1 extends into this section to lock 2, which is situated toward the lower end of the section. At the site of this lock there is a peculiar shaped pit about 175 ft. by 25 ft., enclosed by steel piling, which will be the site of the upper breast wall of the lock. These piles are 45 ft. long and have been driven to refusal. It was expected they would have gone deeper than they actually have, and it is not known exactly what stopped them, as previous borings did not show particularly hard material at the depths at which they stopped. The material inside them is being excavated, the piles in the meantime being supported by heavy wooden bracing, and when solid rock is reached at a depth of about 60 ft. the pit will be filled with concrete and will form the upper breast wall of lock 2. This method of construction was adopted in order to conserve the ground above the breast wall in its natural state, as had the lock pit been excavated in the usual manner it would have been open for two years, during which time a slope probably flatter than 1 to 1 would have formed above the breast wall, as well as along the sides of the pit, whereas the present method will leave the material above the breast wall intact.

A concrete protection extending from a berm 5 ft. wide and located 5 ft. below the water line to a height of 5 ft. above it, is being laid opposite the Engineer's Office at Homer. This protection consists of a 6 in. slab of concrete laid on 12 ins. of broken stone, and it is expected this will serve all purposes better than ordinary stone protection. Below the site of lock 2 the berm has had the slope trimmed and a cut made to grade all at one operation by a drag-line excavator and a very small gang of men.

Above lock 2, there is a 200 acre pondage, at elevation 335.5, on the east side of the canal, retained by an embankment extending from lock 2 to Homer, the upper valley of Ten Mile Creek being utilized for this purpose, the lower portion of the basin being protected on the east side by an embankment. Between locks 2 and 3, at station 297, there will be located bridge 4, a bascule, on which the highway will be carried across the canal prism.

The upper end of lock 3 will be at the point of crossing of the new ship canal by the present canal, and north of the latter the two levels being the same, at elevation 332.0. A moderate sized dam is being built to the east of lock 3 to form a 150 acre pond or equalizing basin for lock 3. These ponds or regulating basins are necessary in order to prevent fluctuations in the levels when a lock is filled or emptied, as the filling of a lock would draw down the water of a 75 acre pond 1 ft. It is therefore advisable to have these ponds as much over 75 acres as possible. Some excavation has been done in the lock pit 3. Bridge 5, a bascule highway bridge, will cross the canal prism at station 374, near the upper end of the section.

The embankments along section 2 are being built by mule teams hauling waggons from the grading machines to the different banks, where the earth is placed in layers and compacted by the wagon wheels after being watered. The slopes are being sodded as the work proceeds. This, it is ex-

pected, will prevent the usual washing out of the slopes and will materially reduce the cost of maintenance of the canal, besides adding to the appearance of the banks.

Baldry, Yerburch and Hutchinson, London, Eng. and St. Catharines, have the contract for section 2, and have sublet portions

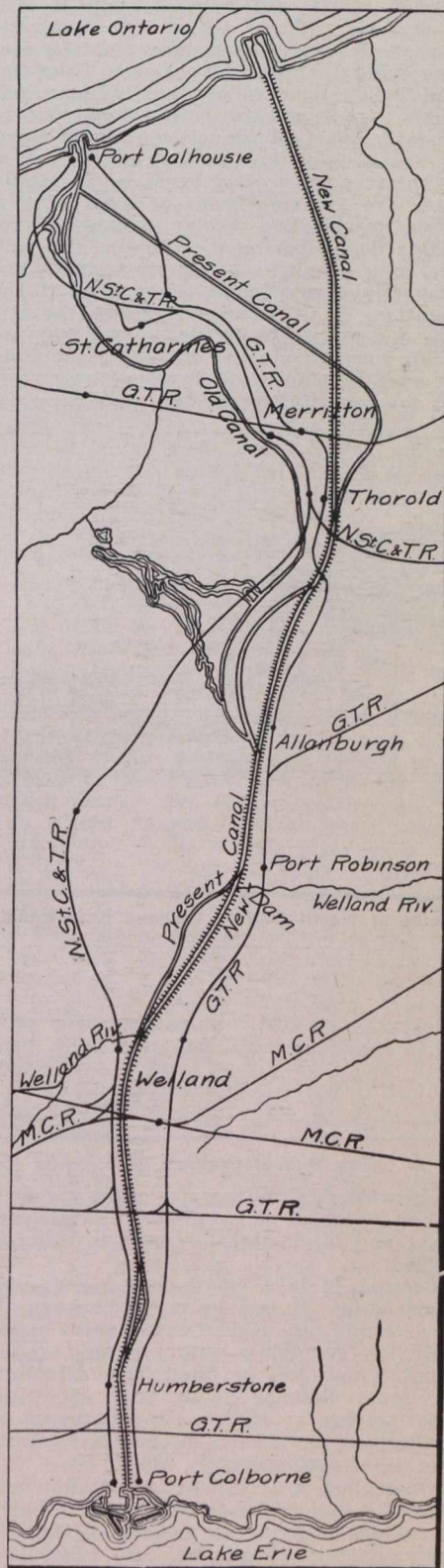
Jos. Riley, sodding finished slopes of canal.

Section 3 covers about 2 miles, situated mostly in the town of Thorold, and the value of the work to be done, not including lock gates, bridge superstructures, valves or Portland cement, is \$10,000,000. There are 3,500,000 cu. yds. of earth, 2,500,000 cu. yds. of rock and 1,500,000 cu. yds. of concrete masonry on this section. Near the lower end of this section, three twin locks in flight will be built, the lower ends of twin locks 4 being located under the G.T.R. main line, where four large steel spans are temporarily carrying the diverted railway. These three locks will lift a vessel 139½ ft. to an 84 acre regulating basin, which will be formed by the large dam now in course of construction on the east side at the head of lock 6. Above this pond will be built single lock 7, the head of the lock being situated at Peter St., Thorold, where a swing bridge crosses the present canal at the head of lock 24. A bascule bridge will be placed over the head of the lock at this point.

In order to carry the double track G.T.R. main line over the works during construction, to allow free passage for the excavated material from the lock pits to the stone crusher, located just north of the main line, and to Lake Ontario, the railway has been slightly diverted to the north, and is carried on four heavy steel spans across the site of the foot of twin locks 4. In order that this diversion might be finally disposed of and cause no further trouble to the G.T.R. or to the contractor, the centre pier upon which one end of these steel spans rest has been sunk through earth and rock, to a depth of 90 ft., to the level of the foundations of the lock, and it will eventually be incorporated in the centre wall of the locks. The side piers have been sunk to about two-thirds of this depth, to the surface of the rock below. This will allow the contractors to excavate the lock pit completely without interfering with the bridge, and allow the lock walls to be built. When the locks are completed, two bascule lift bridges will be placed on the present line of the G.T.R. and the line replaced to its former position. The temporary spans will then be removed. It will be noted that instead of building double track spans, two single track spans have been constructed, the idea being that they will be easier to sell upon the completion of the work, than a double track structure.

The dam at the head of lock 6 is of earth construction having a concrete core wall extending from the rock surface to an elevation about 30 ft. below the top of the dam. The dam will be 75 ft. high at the highest point, and the core wall is built in a trench in the clay overlying the rock, varying in depth from 5 to 30 ft. The good earth from the excavation has been dumped on either side of the dam site, to be afterwards re-handled into the work. The seat of the dam was carefully prepared by removing all loam and other loose material and benching all sloping surfaces. A toe trench was then excavated along the full length of the dam for a few feet in depth into the solid material, and the dam has been built up in layers of approximately 8 to 12 ins., each layer being carefully watered, spread and rolled. The process will be continued to the top, which will use up all the material now along each side of it. A heavy stone talus, consisting of rock from the excavation, will be placed on the down stream side of the dam, to add weight and to prevent sliding, and earth will be dumped on the up stream side after the water has been let in, to reduce the depth of water in the pond to about 10 or 12 ft.

The G.T.R. Port Dalhousie-Port Colborne branch now runs across the sites of locks



Route of Welland Ship Canal.

as follows: Yale and Reagan, portions of excavation work; Hill-Leonard Engineering and Construction Co.; Stein and Reade; Michael Conroy, construction of embankment, about 50 mule teams being at work on this last subcontract; Jos. Battle, concreting, this subcontract is completed; Ernest Bennett, a number of culverts; and



5, 6 and 7, and is shortly to be moved to its new location in the very large cutting extending along the west side of the new work; 1,500,000 cu. yds. of material have been removed from this cutting within a length of 1½ miles. This line will divert from the G.T.R. main line near the present branching off point, a short distance to the west of the new crossing of the canal.

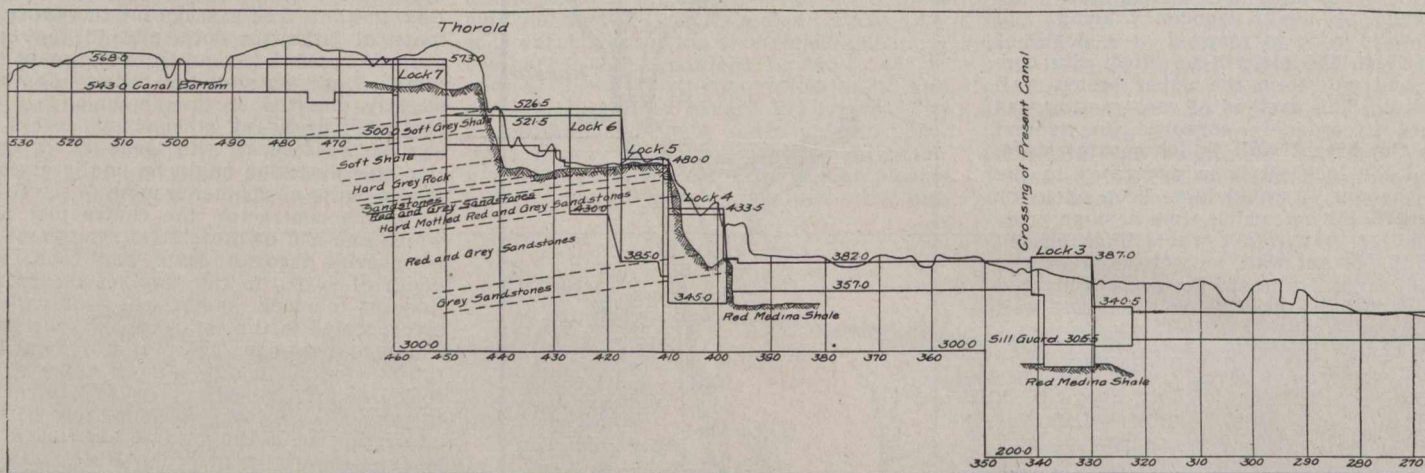
Bridge 6 will be a double track bascule bridge, carrying the G.T.R. main line over twin locks 4. At the head of this triple lift of locks will be bridge 7, a bascule highway bridge crossing the upper end of lock 6. The upper end of lock 7 will also be crossed by a bascule highway bridge. The crossing of the canal by the Niagara, St. Catharines and Toronto Ry. will be bridge 9. On the west side of the canal, this line will be carried on a reinforced concrete bridge spanning the G.T.R. division, which is completed, while the line will be carried across the new canal on a swing bridge, which will be the only one of its type on the canal. Both the centre pier and abutments, all of concrete, are completed, and

amalgamation of the interests of O'Brien and Doheny, and Quinlan and Robertson, of Montreal, the headquarters for that contract being at Thorold. No subcontracts have been let on this section.

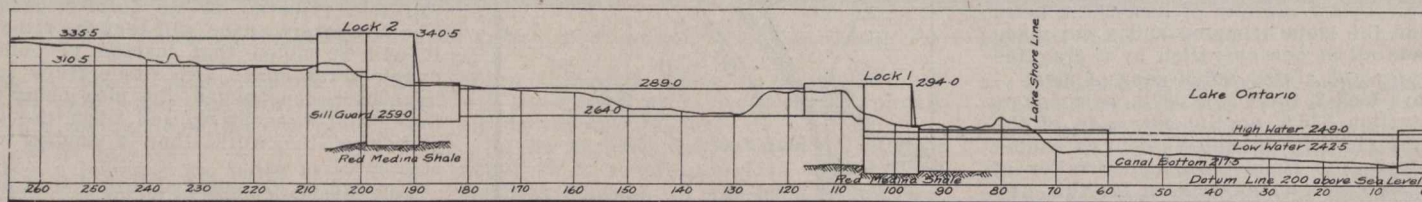
A short distance north of the crushing plant 150 ton track scales are being constructed, which will weigh a train of cars 110 ft. long. These scales will weigh all the stone leaving the crushing plant for sections 1 and 2. From the scales to Lake Ontario, little over 6 miles, the Railways and Canals Department has built a double track, standard gauge, construction railway along the west side of the canal. This railway is carried over the present canal, about a mile below the crushing plant at lock 3, by a double track steel bridge, completed recently. The department maintains this railway and supplies a superintendent, dispatchers and switchmen, who control all the operations on it. The contractors for sections 1, 2 and 3 are entitled to the free use of this road for moving crushed stone from the crushing plant to their respective works, and for removing excavated material from

land River, and section 8, with a diversion at Humberstone, with guard lock, will be the two heaviest sections on the upper reach of the canal.

The surveys for the new canal were made under the direction of J. L. Weller, M. Can. Soc. C.E., Engineer in Charge, who also prepared the plans, etc., and who is superintending the construction. The foregoing information was secured through Mr. Weller's courtesy on an inspection trip made by the Canadian Society of Civil Engineers, Toronto branch, Oct. 31, under the charge of A. F. Stewart, Chief Engineer, Mackenzie, Mann & Co., Ltd., president of the branch. The University of Toronto Engineering Society accompanied the party. Sections 1, 2 and 3 were carefully gone over, four open electric cars provided by the Niagara, St. Catharines and Toronto Ry. being hauled over the construction railway by a contractor's locomotive from the south end of the line, the party returning to St. Catharines from Port Weller on the same cars under their own power, over the N. St. C. and T. Ry.'s new Niagara-on-the-Lake line.



Profile of North End of Welland Ship Canal.



Profile of North End of Welland Ship Canal (contd.).

only await the steel span, when the line will be diverted to this bridge.

As there is plenty of rock on section 3, but none on sections 1 and 2, the contract for section 3 provides that the contractor must crush all the rock required for concrete, etc., for sections 1 and 2, and for this purpose a large stone crushing plant has been erected north of the G.T.R., which is in operation. The crushed rock will be stored in a huge pile, extending out from the highest end of the crushing plant, and the contractors for sections 1 and 2, when they require crushed rock, will send their cars to the pile, where they will be loaded by the contractor for section 3. This crusher is of large size, and has a capacity for 3,000 cu. yds. in a 10 hour day. Its location, immediately below the heavy cutting for the triple locks, is such as to provide a convenient location for the contractor dumping the excavated rock from the cuttings. Keystone and cyclone drills, operated by electricity, are in operation on the site of lock 5, drilling blast holes from 30 to 40 ft. deep in the rock.

The contract for this section is held by the Confederation Construction Co., an

their works to the service ground fills in Lake Ontario. A complete interlocking plant and block signal system is being installed.

Section 4a is a small one, covering the construction of two culverts, between the present and the original canal, and a supply weir for supplying water to the original canal, which will be filled from Allanburg, for some distance north, with excavation from section 5. McGuire and Cameron, St. Catharines, Ont., have the contract for section 4a at approximately \$80,477.50.

On section 5, Allanburg to Port Robinson, about 2½ miles, the contract is held by the Canadian Dredging Co., Midland, Ont., for approximately \$1,945,788. A subcontract for the dry excavation work on this section has been sublet to J. H. Corbett & Co., Moncton, N.B.

Contracts for sections 4, 6, 7, 8 and 9 are still to be let. As these sections cover principally the widening and deepening of the present canal prism, the work is light, and it is said that it will be possible to complete it in half the time of the heavier work on sections 1, 2 and 3. Section 6, with its diversion of the new canal into the Wel-

**Aids to Navigation in Hudson Bay.**—The Department of Marine has installed 10 beacon lights on the Aga system at Button Islands, Wales Island, Charles Island, Digges Island, Hatton headland, Ashe Inlet and Nottingham Island, in the Hudson Strait; and on Mansel Island, Cape Tatnain and Coats Island, in Hudson Bay. They have not yet been put in operation, but are all ready for operation at the beginning of navigation next year. Buoys have also been taken to Hudson Bay, to mark the entrance to Nelson River.

**Movements of Suspicious Vessels.**—The masters of all vessels in Canadian waters are requested to report the movements of any suspicious craft which they may meet, to the Customs officer of the first port at which they touch, for transmission to the captain in charge of the dockyard at Halifax, in the case of the Maritime Provinces, and to the Superintendent of the dockyard at Esquimalt in the case of the Pacific coast. It is not desirable that any hearsay information should be given, but it is very important that all definite information secured by masters themselves be forwarded promptly.



## Dominion Government s.s. Grenville for Buoy Work in the St. Lawrence River.

The s.s. Grenville, a buoy tending steamboat for the Marine and Fisheries Department, was launched at Toronto, Nov. 7, and it is expected that she will be ready for service before the opening of next navigation season. Following are the principal particulars:

Length, between perpendiculars .....	155 ft.
Length, overall .....	164 ft. 6 ins.
Breadth, moulded .....	30 ft.
Depth, moulded .....	13 ft.
Draught, fully loaded with 183 tons dead weight .....	9 ft. 6 ins.
Coal, bunker capacity .....	100 tons
Complement, officers and men .....	24

The vessel is of steel construction, built under the government survey, to be classed as 100 A1 at Lloyd's and also built under their special survey. She will be fitted with water ballast, and the full equipment will be according to the requirements of the Board of Trade and the Canadian Steamboat Inspection Act. She has six main transverse watertight bulkheads; a watertight bulkhead at the bow and stern, with the bulkheads adjoining, form trimming tanks. She has a straight stem, cruiser stern, lower, main, bridge and forecastle decks.

The captain's quarters are on the bridge deck. On the main deck, on the port side, are the several messes, and on the starboard side, the quarters of the junior officers. In the centre, the well rises from the lower deck. Back of this is the entrance hall, to the rear of which is the main dining saloon. Forward on this deck are the deck stores and cold storage, with a 10 ton winch engine. On the lower deck forward, are the crew's quarters, with the hold midway, back of which are the coal bunker, boiler room and engine room in succession. All staterooms, storerooms, bathrooms, toilets, pantries, galley and other spaces are fitted with lavatories, sinks, shelves, cupboards, drawers, wardrobes, lockers, settees, desks and other accessories required for the particular purpose for which each room is adapted.

The hull is of steel throughout. The stem is of rolled steel, 6¼ by 1¼ ins., while the stern frame is a scrap iron forging, with a propeller post 6¼ by 4 ins., and a rudder post 5¼ by 4 ins. The rudder is of an area of about 40 sq. ft., of 30 lb. steel plate on a scrap iron forged frame, with a 6 in. forged steel rudder stock, the latter enclosed between the hull and main deck by a watertight trunk of steel plates.

The keel is of the flat plate construction, 38 in. 27 lb., from the stem to three-fifths the length amidships, reduced to 18.77 lbs. at the aft end. The centre vertical keelson in the way of the engineroom is 13.87 lb., reduced to 12.24 lb., at the aft end; in the boiler space, 15.5 lb.; and in the way of the double bottom, 30 ins. by 14.69 lb., reduced to 12.24 lb. at the forward end. The vertical keel is connected to the flat plate keel by double 3½ by 3½ in. by 7.91 lb. angles, and to the floors, by double 3 by 3 in. by 5.81 lb. angles. The double keelson bars extending from the forward bunker bulkhead to the engineroom, are 3½ by 3½ in. by 6.57 lb. angles. The foundation plates are 12 in. 13.87 lb. There are two side keelsons in the way of the ordinary floors, of 12.24 lb. plates, connected to the bottom plating by single 3 by 3 in. by 5.81 lb. angles, and to the floors by single 2½ by 2½ in. by 4.79 lb. angles, and extend sufficiently above the floor plates to connect to single longitudinal 5 by 4 in. by 10.29 lb. angles. In the way of the boiler space, the intercostal plates are 13.05 lb., with extra intercostals in way of the engine space for the engine seating. In the way of the double bottom forward, the in-

tercostals are 11.42 lb. connected to the bottom plating by 3 by 3 in. by 5.81 lb. angles, to the floors by 2½ by 2½ in. by 4.79 lb. angles, and to the inner bottom plating by a single 3 by 3 in. by 5.81 lb. angle bar.

The main framing is of 5 by 3 in. by 9.72 lb. angle section, spaced 22 in. throughout, increasing to 5½ by 3 in. by 11.02 lb. from the break of the forecastle forward to the stem. Within the double bottom, the frames fitted to the solid floors are of 3 by 3 in. by 5.81 lb. angles, and from frame to bracket floors, 3½ by 3 in. by 6.32 lb. The bulkhead frames are single 3½ by 3½ in. by 8.98 lb. angles. Reverse frames, fitted to every floor, are of 3 by 3 in. by 5.81 lb., extending from the centre line to the upper turn of the bilge, and are doubled in the way of the engine and boiler spaces. In the double bottom, the reverse frames to the solid floors are 3 by 3 in. by 5.81 lb., and to the bracket floors, 3 by 2½ in. by 4.46 lb. There are 4 web frames, of 14 in. 12.24 lb. plate, connected to the shell by single 3½ by 3½ in. by 8.98 lb. angles, and framed on the inner edge by a single 5 by 3 in. by 12.75 lb. angle.

In the way of the engine room, the floor plates are 14.69 lb. plate, fitted to every frame, reducing aft of the engine room to 11.42 lb. In way of the boiler space, they are 17.14 lb. In way of the double bottom, there are alternate solid and bracket floors, the solid floors of 11.42 lb. plate, lightened by manholes about 32 by 13 ins., and the bracket floors are 11.42 lb. plates, connecting the centre girder and margin plates to the intermediate frames and reverse frames. The bracket plates to the tank margin and outside plating are 12.24 lb. plates, flanged on their inner edge and connected to the margin plate by a single 3 by 3 in. by 5.81 lb. angle. Forward of the double bottom, the floors are 13.06 lb. plates.

The engine seating on top of the ordinary floors has a sole plate of 25.59 lb. plate, connected to the vertical plate by double 3 by 3 in. by 7.81 lb. angle bars. The holding down bolt angles are 5 by 3 in. by 10.34 lb. The boiler saddles are formed of 17.13 lb. plates, framed by 3½ by 3½ in. by 8.98 lb. double angles, and rivetted to double reverse bars by double 3½ by 3 in. by 8.3 lb. angles.

The middle line strake of inner bottom plating is of 30 in. 13.87 lb. plate, with the other strakes of 11.42 lb. plating. The tank margin is 20 in. 12.24 lb., connected to the floors and tank brackets by two single 3 by 3 in. by 5.81 lb. angles, and similarly to the outside plating. The forepeak bulkhead is of 12.24 lb. plating, with the balance of 11.42 to 10.61 lb. plating. The forepeak bulkhead is stiffened by vertical 4½ by 3 in. by 8.51 lb. angles at 24 in. centres, and the other bulkheads, by 4½ by 3 in. by 8.51 lb. angles at 30 in. centres, vertically on one side, and 5½ by 3 in. by 8.51 lb. bulb angles horizontally on the other, fitted in line with the side stringers. The side stringer, between the main deck and the upper part of the bilge, is 8½ in. 13.05 lb. plate, connected to the outside plating by intercostal 3 by 3 in. by 5.81 lb. angle bars, and faced by a 3½ by 3 in. by 6.57 lb. angle bar.

The main deck is plated with 10.61 lb. plates, all fore and aft, with the main deck stringer of 36 in. 15.5 lb. plate, reduced at the ends to 16 in. 12.24 lb., with the stringer angle bars 3 by 3 in. 7.17 lb. The lower deck forward is of 10.61 lb. plate, with a lower deck stringer 18 in. 11.42 lb., connected to the shell and frames by 3½ by

3½ in. by 8.98 lb. angle bar collars. The bridge deck will have a stringer plate 16 in. 10.61 lb. with stringer angles 3 by 3 in. by 4.89 lb., and 7 in. 10.61 lb. tie plates and diagonals. The forecastle deck stringer is 16 in. 10.61 lb. connected to the shell by 3½ by 3 in. by 5.31 lb. angle bars. The windlass sole plate is 16.32 lb. and the tie plates and diagonals, 7 in. 10.61 lb. The side, end and tie plates forming the flying bridge are of 10.61 lb. steel plates.

The main deck beams in the way of the well are 5½ by 3 in. by 11.33 lb. bulb angles, fitted to every frame and connected to the frames by 19 by 19 in. 13.87 lb. knees, while clear of the well they are of 5½ by 3 in. by 9.7 lb. angles, fitted to every frame by 17 by 17 in. by 13.87 lb. knees. The lower deck beams are 4½ by 3 in. by 9.08 lb. angles, fitted to every frame by 14 by 14 in. 12.24 lb. brackets. The bridge deck beams are of 5½ by 3 in. by 11.02 lb. angles, fitted to alternate frames by 15 by 15 in. 12.24 lb. brackets. The flying bridge beams and supports are 4 by 3 in. by 7 lb. angles. The forecastle deck beams are 6 by 3 in. by 11.7 lb. angles, fitted to alternate frames by 16 by 16 in. by 13.87 lb. brackets.

The shell plating is of ship steel. The keel is of the dimensions before mentioned. The first four strakes from the stem to the break of the forecastle are 16.32 lb., and aft of this point, the first two are of 16.32 lb. for half the length amidships, reduced to 13.8 lb. at the aft end, and increased to 19.5 lb. in way of the boilers. The third strake is 15.5 lb. for half the length amidships, reduced to 13.8 lb. at the aft end, and 19.5 lb. in way of the boilers. The fourth strake is 14.68 lb. for half the length amidships, reduced to 13.05 lb. at the aft end. The fifth strake is 18.77 lb. from the stem to the aft end of the well, 15.5 lb. from there to half the length amidships aft, and reduced to 13.05 lb. at aft end. The sheer strake is 18.77 lb. from half the length amidships, reduced to 16.32 lb. at fore end and to 13.05 lb. at aft end. The forecastle side plating, bulwark plating, and bridge side plating, are 12.24 lb.; and propeller boss plate, 15.05 lb.

Rubbing keels are fitted for about 70 ft., consisting of 10 by 8 in. rock elm, connected to the shell by 4½ by 3 in. by 9.66 lb. angle bars, and with a face plate of 20-lb. plate.

There are two fresh water tanks, with a total capacity of 1,800 gals., of 12.24 lb. plate. The bunker capacity is about 100 tons, filled through 22-in. coaling scuttles on the main deck. There are two masts on deck, the lower ends of steel, with pitch pine upper ends. The foremast is fitted with a 15-ton steel derrick, operated by a winch located forward. There are also two 2-ton derricks on the main deck. The vessel is also provided with two 24-ft. lifeboats.

The vessel is steam-heated throughout by 25 lb. steam, reduced from the boilers, with a heating ratio of about 1 sq. ft. of heating surface per 100 cu. ft. of space. There is also a complete electric light system, with about 140 lights, in addition to a 16,000 c.p. searchlight projector, 20 ins. diam. The steering gear is operated by a horizontal 5 by 7½ in. engine.

The propelling machinery consists of a single screw, triple expansion 14 by 22½ by 38 by 24 in. engine, jet condensing. It is designed to develop 900 i.h.p. at 185 r.p.m. on 180 lb. steam. There are two Scotch boilers, single ended, 10 by 11 ft. with a total heating surface of about 2,260 sq. ft., and operated under forced draught.

The pumping equipment consists of fresh water pumps, sanitary pump, bilge pump, main feed pump, general service pump, ballast pump, and feed filter.

The vessel has been built by the Polson Iron Works, Ltd., Toronto.



**The Lingan-Montmagny Collision.**

The enquiry into the collision between the s.s. Lingan, under charter to the Dominion Coal Co., and the Dominion Government s.s. Montmagny, Sept. 18, when the latter vessel sank with the loss of 14 lives, was held recently at Quebec, before Capt. L. A. Demers, Dominion Wreck Commissioner, with Capt. F. Nash and E. C. Seats as nautical assessors. The court found that the collision was due entirely to faulty navigation by the pilot and crew of the Lingan, and the pilot, F. Gaudreau, and chief officer, Olaf Swanson, were found to have been in default. The pilot's license was suspended for the balance of the navigation season, and he was fined \$200, to be paid in four quarterly instalments of \$50 each, and the chief officer's certificate was suspended for ten months from Oct. 20.

The master of the Lingan, T. Garbett, while exonerated in the matter and while due cognisance was taken of his commendable and prompt action after his arrival on the bridge, was nevertheless criticized and reprimanded for having retired while his vessel was navigating a narrow and difficult section of the river, and his action was considered the more reprehensible when it was considered that the propitious weather conditions that had prevailed since his leaving Sydney had not necessitated his keeping lengthy vigil on the bridge. The master of the Montmagny, Capt. Pouliot, acted in accordance with the rule of the road and was therefore exonerated.

The judgment concluded with the statement that the duration of time which the Montmagny remained afloat following the impact formed the subject of keen enquiry, and as the preponderance of evidence estimated it to have been five minutes, the work of rescue was necessarily restricted to an all too short period. Brief though it was, it is nevertheless to be deplored that the flight of almost its entire crew over the rails of the Lingan remained unmarked by a single valorous deed, and the more lamentable is all this when one is forced to reflect that children raced the decks of the foundering vessel while the fleeing crew leaped to safety and ignored their cries. Further the court most emphatically states that the proverbial bravery of seafaring men was not displayed on this occasion, that the master was not the last man to leave his vessel, that the steward failed to show that he made special efforts to waken and assist the passengers who were to all intents and purposes under his charge, and that the engineer, who claims he had two children with him, abandoned them to save himself.

**The Requisition of British Vessels for War Purposes.**

A board of arbitration has been appointed in Great Britain in connection with the requisitioning of British vessels for general purposes during the war. Lord Mersey, who presided at the official enquiry into the loss of the s.s. Empress of Ireland, at Quebec, recently, has been appointed President, and W. Walton, Vice President. At the request of the Admiralty, the council of the Institute of Marine Engineers has nominated a member, Jas. Denny, a past president of the Institute. The rules under which the Board will deal with matters that will come before it, provide that claims arising out of the requisitioning of any vessel shall be made out in full detail and submitted to the Secretary of the Admiralty in triplicate within one month from the taking up of the vessel for service, accompanied by all necessary vouchers and documents. If the Admiralty and a claimant fail to arrive at an agreement within a reasonable time, to be determined in each case by the President, the Admiralty shall report the matter with the necessary papers to the President, who shall refer the matter to two arbitrators selected by him from the panels of arbitrators for consideration and report. The joint award of such arbitrators shall be final, and if they are unable to agree, the matter shall be referred to the President as umpire, who in all matters shall act entirely in his discretion, and his award shall be final. The Vice President may act under the direction of the President, and also as President, if the latter is unable to act. The President may alter or add to existing rules, and may authorize the arbitrators to act as a board to consider questions of general applicability, such as the approximate monthly hire for vessels of different classes, and other similar matters.

**The Second Stranding of the s.s. Floriston.**

Following an investigation into the accident to the s.s. Floriston by striking an iceberg in the Strait of Belle Isle, and the subsequent beaching of the vessel west of Rich Point on Aug. 29, which was held at Quebec, Sept. 23, the judgment in which was given in Canadian Railway and Marine World for November, a further investigation was held into the causes of an additional accident to the same vessel by stranding on Guyon Island, N.S., Oct. 13, at Louisburg, N. S., on Oct. 27, before Capt. L. A. Demers, Dominion Wreck Commissioner, and Capt.

Neil Hall, Halifax, N. S., and Capt. R. MacDonald, North Sydney, N.S., nautical assessors. Following is the judgment:—

In view of the evidence given, the court followed the courses and distances produced by the master, A. E. Kennedy, and finds that, no matter which way the operation described in the evidence is performed, or by any stretch of imagination, can it agree with the statements made, nor even allowing for the currents, which the master did not take into consideration, would it be possible for him to have been in the position he thought he was from his own reckoning, namely, Flint Island. The fact of his navigating through fog and thick weather for such a long period, and to have come near to a light, and not taken the ordinary precaution of taking soundings to assure himself of the nature and name of the light, and also the fact of his having used the lead, as it is stated he had done on several occasions, and not making any attempt to obtain bottom, but resting satisfied with a cast of 50 fathoms to indicate that he was away from the land, impresses the court with the idea that most careless and reckless navigation had been carried on. Just prior to this voyage, the master was severely reprimanded for the method he adopted in beaching his vessel in the Strait of Belle Isle after striking an iceberg, and that, in conjunction with his present conduct, causes the court to look askance at the statement he had made, and the entries in his log, in view of which the court finds him in default for reckless navigation and suspends his certificate for 12 months from Oct. 27, and owing to the fact that the master was almost constantly on deck, it will not deal with the certificate of the chief officer, John Purdis. With regard to the statements made by the representatives of the salvage companies, it is not within the court's province to reflect on their actions in connection with the non-success of the salvage of this vessel.

Lloyd's Register of Shipping reports that the vessels lost, condemned, etc., for the first quarter of 1914, were, steam 78, with a gross tonnage of 96,630; sailing 73, with a gross tonnage of 49,221. Of the total steam vessels, 19, with a tonnage of 17,847, and of the sailing, 20, with a tonnage of 8,214, were owned in the United Kingdom and the British Dominions.

The British Admiralty has announced that officers of vessels requisitioned for war purposes, holding master's certificates, will be given the temporary rank of sub lieutenants, and second engineers the temporary rank of assistant engineers in the Royal Navy Reserve.

**List of Steam Vessels Registered in Canada During October, 1914.**

No.	Name	Port of Registry	Where and When Built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
134492	Jas. R. Langdon	Quebec, Que.	Detroit, Mich.	1889 240 0	42 0	14 9	1489	951	116 n.h.p.sc.	Quebec and Levis Ferry Co., Quebec, Que.
134174	Jellicoe	Shelburne, N.S.	Allendale, N.S.	1914 49 6	15 7	7 6	25	24	2	W. McMillan, Lekeport, N.S.
134472	Kanawaki	Montreal	Penetanguishene, Ont.	1909 34 9	7 5	2 4	4	3	1	J. B. Stacey, Caughnawaga, Que.
134450	Lasalle	Toronto	Toronto	1914 85 0	15 0	8 8	85	33	16	J. E. Russell, Toronto
122202	Little Dan	Amherst, N.S.	West Bay, N.S.	1908 35 0	10 0	4 0	6	4	1	W. A. Downey, Amherst, N.S.
134491	Louis Philippe	Quebec, Que.	Laouzou, Que.	1914 162 0	37 0	11 0	600	251	58	A. C. Davie and G. D. Davie, J. O., Levis, Que.
130979	Mariska	Collingwood, Ont.	Cleveland, Ohio	1890 297 0	40 3	21 2	2502	1875	252	W. J. Bassett, Toronto, Ont.

**List of Sailing Vessels and Barges Registered in Canada During October, 1914.**

No.	Name	Port of Registry	Rig	Where and When Built	Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
103820	J. B. Newland	Belleville, Ont.	Schr.	Manitowoc, Wis.	1870 108 6	26 2	8 2	145	C. Taylor and G. Cousins, J. O., Belleville, Ont.
134331	J. F. Boyd No. 5	Sault Ste. Marie, Ont.	Scow	Chicago, Ill.	1908 66 0	30 0	6 5	196	J. F. Boyd, Sault Ste. Marie, Ont.
184382	J. F. Boyd No. 6	"	"	Sault Ste. Marie, Ont.	1914 90 0	30 0	8 5	230	"
134418	R. & H. No. 1	Vancouver, B.C.	"	Vancouver, B.C.	1910 59 2	24 0	5 7	73	J. W. Hackett, Vancouver, B.C.



**Shipping Report From Fort William.**

F. & W. Jones, grain, vessel, and marine insurance brokers, Fort William, Ont., wrote Nov. 15: Coal receipts show a slight decrease in the first half of November, there being 11 cargoes—7 anthracite and 4 bituminous. Despatch is unchanged since our last writing, but, owing to weather, boats are often bunched, and have to wait turn for considerable time. There is a good line-up in sight for the next week, 4 anthracite and 2 bituminous, although more than this is expected before the close of navigation. The stocks of coal at present are approximately:

	Anthracite tons.	Bituminous tons.
Fort William coal dock	32,200	302,000
C.P.R. coal dock	200,000	600,000
C.N.R. coal dock	145,000	450,000
<b>Totals</b>	<b>377,200</b>	<b>1,352,000</b>

Grain cargo shipments have shown a distinct contrast to all previous seasons. In place of the harbor being full of vessels loading, with a large line up waiting turn, cargo loading has shown but little activity, and the first half of November shows a considerable drop below the last half of October. Sixty-four cargoes have been shipped east, with a tonnage of 9,467,224 bush. Of these 11 were in United States bottoms and the balance—53—in Canadian bottoms. It will thus be seen that the total tonnage was practically 1,500,000 below the tonnage which left in the cargoes of the last half of October.

There has been no sign of any storage cargoes for the head of the lakes, although several of the Canadian bottoms have gone into storage at the lower lakes. During the last few days there has been an additional enquiry at Winnipeg for space. Shippers appear to be realizing that rates have reached bottom, and that their grain would be preferable at eastern points, where markets are likely to develop. This being so, bidding for space has been somewhat more active.

Attention appears to be now centring upon the preparations for next season's crop. The early harvest has made it possible to make great preparations for next season. Conditions have been most favorable, and excellent progress has been made. In the five fall wheat provinces of Western Canada it is estimated that over 1,250,000 acres are in preparation for fall sowing. This will be 9½ per cent. advance on last year's sowing. In the three northwestern provinces the fall sowing has slightly decreased, but with the favorable conditions prevailing will show considerably better results than the present season. Comparing the fall plowing of these three provinces with the previous two seasons the prospects are considerably higher, possibly 25 per cent.

Stocks at date, receipts and shipments since Nov. 1, are:

	Stocks.	Receipts.	Shipments.
Wheat	8,116,064-30	3,468,448-00	7,538,948
Oats	1,744,830-28	988,410	1,281,545
Barley	317,908-09	221,903	416,203
Flax	1,183,170-09	245,175	230,528

The Houston Ship Channel, which provides a 25 ft. depth from the Gulf of Mexico to Houston, Tex., was formally opened on Nov. 10, by President Wilson pressing a button in Washington, D.C., which fired a signal in Houston. Wharves, docks and other port appurtenances have not been completed, but a bond issue of \$3,000,000 has been approved for that purpose.

The contract for the construction of the concrete substructure of a steel viaduct over the old Welland Canal, near the G.T.R. station at St. Catharines, Ont., has been awarded by the St. Catharines civic works committee to Campbell and Littimer, Toronto, for approximately \$21,744.

**The Loss of the s.s. Cacouna.**

Following is the judgment of Capt. L. A. Demers, Dominion Wreck Commissioner, concurred in by Capt. Neil Hall, Halifax, N.S., and Capt. R. MacDonald, North Sydney, N.S., as nautical assessors in connection with the stranding and subsequent loss of the Dominion Coal Co.'s s.s. Cacouna, at Ferryland Head, Nfld., Sept. 26:—

After reviewing the evidence of the master, J. L. Newman, and the written evidence submitted, the court came to the conclusion that the master committed a grave error of judgment in taking too much for granted as to the course, velocity and direction of the current, and that he also committed an unpardonable mistake in maintaining full speed in a dense fog, thereby contravening the rule of the road which orders that the speed of a vessel shall be diminished in misty or thick weather, and that he failed when not hearing the whistle, which he expected to hear on Aquafortis, to stop his vessel, as, in the court's opinion, he could have done, and taken a sounding in order to ascertain the exact position of his vessel, owing to knowledge of all navigators of the vagaries of the tide on the Newfoundland shore. After taking into consideration that this is his first accident in a long period of service as master, the court suspends his certificate for three months from Oct. 26, and considers it is dealing very leniently with him as the author of the total loss of a valuable vessel.

The s.s. Cacouna was built at Newcastle upon Tyne, Eng., in 1884, and was screw driven by engine of 142 n.h.p. Her dimensions were, length 250 ft., breadth 35.4 ft., depth 16.4 ft.; tonnage, 1,451 gross, 931 register.

**British Columbia-Japan-Siberia Service.**

The arrival of the Russian s.s. Novgorod, at Vancouver recently, marks a further development of the C.P.R. in its relation to a complete round the world service. The Novgorod sailed from Vladivostock, Siberia, for Vancouver, calling at Japanese ports, where she was handled by the C.P.R. staff. She was scheduled to sail from Vancouver on the return trip, Nov. 25, and the C.P.R. is issuing through bills of lading by her for freight. Passengers will also be booked

either way, and it is expected that a large business will develop by this route. Connection is made with the Trans-Siberian Ry. at Vladivostock. In addition to the new business which will develop from the Siberian section, the service will undoubtedly be welcomed just now, since the C.P.R. trans Pacific vessels have all been requisitioned for war service, and the Japanese and Chinese services suspended. The Novgorod will be followed early in December by the s.s. Kiev, and it is stated that a monthly service with these vessels will be given. They belong to the Russian Volunteer Fleet, an organization with about 14 vessels aggregating 75,000 tons, the majority of which have been built either in England or Scotland, and Guthrie and Co. act as agents at Vancouver.

**The Canada-Cape Breton Collision.**

An investigation into the collision between the Gaspé and Baie des Chaleurs Steamship Co.'s s.s. Canada and the Dominion Coal Co.'s s.s. Cape Breton near the Lachine Canal in Montreal harbor, Oct. 7, was held at Montreal, recently, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. F. Nash and E. C. Sears, as nautical assessors.

The court, after considering the contradictory evidence submitted, found that the master of the s.s. Canada, P. Blouin, showed lack of ordinary judgment in advancing in such a narrow space, where he saw a vessel lying in an oblique way, as that part of the harbor will not permit two vessels to manoeuvre at the same time. The court is at a loss to understand why, when he put his vessel full speed astern, he did not keep her so until she had come to a dead stop, instead, as he admits when he gave the order to stop by telegraph, his vessel was still going three miles an hour, at which she struck the Cape Breton. The excuse that his vessel did not answer her helm as he anticipated cannot be accepted, as he has emphasized the fact that she steers well, and the court finds that there were no elements which could have contributed to a default in the action of the vessel, and there was no tide and an absence of wind. The fact that the whistle was not blown when going astern, though a breach of the rule of the road, was not contributory to the collision. Moreover the court thinks

**Sault Ste. Marie Canals Traffic.**

The following commerce passed through the Sault Ste. Marie Canals during October.

ARTICLES	CANADIAN CANAL	U. S. CANAL	TOTAL
<b>Eastbound</b>			
Copper	595	12,752	13,347
Grain	4,865,767	6,665,205	11,530,972
Building stone			
Flour	282,450	1,122,530	1,405,010
Iron ore	2,319,012	2,052,276	4,371,288
Pig iron	2,000		2,000
Lumber	4,440	55,490	59,930
Silver ore			
Wheat	17,798,087	9,885,063	27,678,150
General merchandise	820	21,357	22,177
Passengers	676	217	893
<b>Westbound</b>			
Coal, hard	25,900	211,810	237,710
Coal, soft	295,941	1,313,170	1,609,111
Flour			
Grain			
Manufactured iron	2,033	16,577	18,610
Iron ore	3,696		3,696
Salt	2,149	83,371	85,520
General merchandise	40,870	87,177	128,047
Passengers	368	475	843
<b>Summary.</b>			
Vessel passages	754	1,755	2,509
Registered tonnage	2,079,123	3,759,562	5,838,685
<b>Freight—Eastbound</b>	<b>Short tons</b>		
" — Westbound	"		
Total freight			
Freight—Eastbound	2,987,477	2,742,541	5,730,018
" — Westbound	368,747	1,641,240	2,009,987
Total freight	3,356,224	4,383,781	7,740,005



that a total observance of the rule of the road at that particular place cannot be expected, yet it was the master's duty to have brought his vessel to a full stop, when a few hundred yards from the Cape Breton, and waited until she had either headed down stream or entered the locks, especially as the Canada had seen the Cape Breton towed out from the berth near the one she intended to enter. In view of these reasons the court severely reprimands the master for his lack of prudence and judgment and orders him to pay the total cost of the enquiry to the Department of Marine by Dec. 15. The costs are made up as follows:—Two assessors, 4 days at \$10 a day, \$40; travelling and living expenses of Wreck Commissioner, two trips Ottawa to Montreal, Nov. 8, 9 and 10, and Nov. 17 and 18, \$47; stenographer's fees, \$140.34. Total, \$187.34. The master and pilot of the s.s. Cape Breton are exonerated from all blame.

It was ascertained that both masters moved their vessels within the harbor without first having notified the harbor master. There is a bylaw regulating the movements of vessels within the harbor. In view of the limited space available, it is imperative that this bylaw be strictly adhered to, and the court brings this infraction to the Harbor Commissioners' attention, as in the court's view, had the collision been of a more serious nature, it might have impeded traffic and caused serious losses to the shipping interests, besides affecting the reputation of the port.

### Atlantic and Pacific Ocean Marine.

Canada Steamships Line s.s. Bermudian, which was engaged in conveying Canadian troops to England, recently, and which was reported to have been further requisitioned by the British Admiralty to take troops from England to India, returned to New York, Nov. 5.

A press report from Montreal states that next season will see a new steamship line running between Montreal and England in competition with the North Atlantic pool, and that this line will be incidental to a co-operative enterprise which is being organized in Montreal.

A press dispatch from London, Eng., states that Furness Withy and Co., whose headquarters have been at West Hartlepool, Eng., from the inception of the company, will remove to Liverpool in the new year, chiefly owing to the considerable development in the company's Atlantic business.

The Red Star Line s.s. Zealand, one of the vessels utilized recently in the conveying of the Canadian contingent to Europe, and now running in the White Star-Dominion Line service, ran aground in Lake St. Peter, Nov. 13. It was stated that she was on soft bottom and would suffer no damage. She was released Nov. 16.

Manchester Liners s.s. Manchester Commerce, which struck a mine recently, near the Irish coast, and sank with her crew, while bound from Manchester, Eng., to Montreal, was valued for marine insurance at £54,000, and her cargo was worth approximately £100,000. She was built in 1899, and was of 5,363 gross tons.

It is reported that since the transportation of the Canadian contingent to England, the British Government has requisitioned the C.P.R. steamships Montezuma, Ruthenia and Tyrolia, which were engaged in that service, for further service, and has also requisitioned the company's steamships Lake Manitoba, Montcalm and Mount Royal.

It is reported that the British Admiralty has agreed to pay the White Star Line,

\$3,000,000, for the loss of the s.s. Oceanic, which was wrecked and lost recently on the north coast of Scotland while under requisition for war purposes. The commander of the Oceanic has been court-martialled and found guilty of negligence in the loss of the vessel.

The Mersey Docks and Harbor Board, Liverpool, England, gives notice that strict attention must be paid to the regulations in force for the defence of the River Mersey and issued by Brigadier-General Edwards, Commanding the Mersey Defences. Inward and outward traffic through the Rock Channel has been forbidden, and all ships, steamers, and craft of every kind must pass through the examination anchorage.

It was announced in Ottawa recently, that in conformance with the recommendation of the commission which enquired into the loss of the s.s. Empress of Ireland, the regulations regarding the taking on and dropping of pilots in the St. Lawrence will be changed at the reopening of navigation in the spring. It has hitherto been the practice for pilots to be taken on and dropped at Father Point, and this is considered dangerous. From the reopening of navigation, the point at which pilots will be dropped will be some four or five miles from where pilots are taken on. The change has been decided on for some time but it was not deemed advisable to make it in the middle of the season.

Very distinct warnings have been given recently to those who are, or may be, assisting German firms to continue their businesses by means of a temporary transfer to agents, or servants, or by other means. In this connection the proclamations have been very clear as to the duties of all British subjects, and it should be impressed on all concerned that it is to their ultimate advantage to see that the terms of the proclamations are carried out. A statement emanating from New York recently, states that there are at present in Liverpool, Eng., two or three German forwarding firms, which are now handling British made and British owned goods, having as their destinations the British Colonies and the United States. It is stated that these firms undertook the conveyance of goods at through rates from German manufacturing points to Canada and the U. S., via Great Britain, shipping from Liverpool, London and Southampton, in competition with the German direct lines, and that if these businesses are discontinued, the employes, most if not all of whom are British subjects, will be thrown out of work. The statement and its conclusion seems to be rather loosely built, as apparently the firms are handling British goods, and therefore their undertaking to convey goods from German manufacturing points via Great Britain in competition with the German direct lines, does not affect the matter. The conclusion that if these businesses are discontinued, the employes will be thrown out of work, does not necessarily follow, as most probably the business would flow through other channels, and the employes would soon be reabsorbed. It is clear that trading with or assisting the enemy should cease.

### Maritime Provinces and Newfoundland.

It is announced that the Public Works Department will take no action on the tenders received recently for repairs to the eastern pier at Newcastle, N.B.

An application was made recently at Portland, Me., for the appointment of a receiver for the Eastern Steamship Corporation, a subsidiary of the New York, New Haven and Hartford Rd. This is said to be

the first step in the reorganization of the company, which operates a steamship line between Boston, Mass., and St. John, N.B.

It is reported at St. John, N.B., that a company will probably be formed there during the winter to acquire the s.s. Victoria, at present owned by F. Clements, St. John, and E. G. Hoben, Fredericton, for operation on the Grand Lake route. This vessel has been running on the St. John River for some years. She was built at St. John in 1897, and is paddle wheel driven by engine of 53 n.h.p. Her dimensions are, length 191.2 ft., breadth 30 ft., depth 7.9 ft.; tonnage, 1,002 gross, 631 register.

At a meeting of the Halifax Board of Trade, recently, it was reported that a deputation had waited on various steamship companies and also on the Dominion Government, regarding steamship and mail service for the winter, and that though it had not succeeded in securing the whole of the mail service for the port, a promise had been obtained from one of the largest steamship companies, that Halifax would be utilized during the winter. The Government did not feel able to make any statement about the mail service, on account of the number and class of vessels which have been requisitioned by the British Admiralty for war purposes.

The Governor General in Council has confirmed a bylaw of the pilotage authority of St. John District, providing that no pilot shall board a vessel to pilot her inward except from a licensed pilot boat approved by the pilotage authority, unless on an application for the naming of a particular pilot to be permitted to board a vessel, in which case the pilot must have on his person such written permit, and he shall lose his next turn on the pilot boat to which he is attached. Any pilot speaking a vessel with a pilot on board who has gone on board without a permit shall be entitled to the pilotage of the vessel and not the pilot improperly employed.

### Province of Quebec Marine.

The name of the steamboat James R. Langdon, no. 134492, registered at Quebec, has been changed to Charles A. Shaw.

The s.s. Gladstone when entering Windmill Point basin, Montreal, Nov. 3, collided with a barge on which some men were working in fitting a propeller on the s.s. Jessamore, and sank her. The owners of the barge, the Hall Engineering Works, have taken action against the s.s. Gladstone for \$3,000 damages.

The naval station which was established for the inspection of incoming and outgoing vessels, at River Maheu, Isle of Orleans, in the St. Lawrence, has been closed for the winter. The Dominion Government revenue steamship Margaret, which was on duty there, has been sent to Halifax for general duty in connection with transports.

The Quebec Harbor Commissioners received a new grain barge from England, at the end of October, the voyage having taken 42 days. The vessel is being used to convey grain from the commissioners' elevator on the Louise embankment to vessels outside the breakwater, thus allowing them to take grain without leaving their berths.

The Quebec Harbor Commissioners are suing the New Zealand Shipping Co. for \$35,000 for damage alleged to have been done to Gilmour's wharf, at Indian Cove, by the company's s.s. Whakatane, when it collided with the wharf on Sept. 15, 1913. Part of the defence is that as the vessel was in charge of a licensed pilot the company is absolved of responsibility.

The two freight sheds which the C.P.R.



is building at Quebec are approaching completion, and it is reported that they, together with the necessary tracks for their operation will be ready for service by March, 1915. The inner shed for incoming freight is 600 by 50 ft., and the outer shed for outgoing freight is 400 by 30 ft., both being of reinforced concrete construction.

The Montreal Harbor Commissioners will, it is announced, commence work on the erection of its additional grain elevator, early in the spring. In the meantime such work as is necessary to prepare for the construction, such as the diversion of the Elgin basin sewer, demolition of old buildings on the site, and certain excavations, will proceed. The elevator will cost approximately \$800,000.

It is reported that the keel of the Dominion Government icebreaker for the St. Lawrence River service is being laid at the Canadian Vickers plant at Maisonneuve. The plant was expected to be completed by the end of November. The shipbuilding shed, which is finished, is 300 ft. long, and there the icebreaker will be built. It is anticipated that she will be ready for service by June, 1915, the work proceeding right through the winter. It is said that the greater part of the vessel's machinery is being made at the company's English plant, and that it will be shipped to Canada ready for placing in the hull, when the latter is ready for launching.

Canada Steamship Lines s.s. Louis Philippe, of which some particulars were given in our last issue, was delivered to the company by the builders, Oct. 20. She is intended for the Montreal and Longueuil ferry service, and will be placed on the route as soon as the dredging on the Longueuil side of the river is finished. She is equipped with fore and aft compound engines, supplied with steam by one boiler 12½ by 12½ ft., fitted with 3 furnaces, and working at 125 lbs. pressure. Her dimensions are, length over all 169½ ft., length over stem and stern posts 157 ft., beam extreme over wales 43 ft. 2½ ins., beam moulded on frame 37 ft., depth moulded at side 12¼ ft.

A series of trials in the loading and unloading of the N.T.R. car ferry Leonard, was made at Quebec at the end of October. The vessel was taken from Pointe a Carcey wharf, where she has been moored since her arrival from England, to the new wharf at Lampsons Cove. At this point railway tracks had been laid, and cars loaded with stone, etc., were run on to the ferry and removed again. The test was made with 21 cars placed on the three tracks on the railway deck, these with their contents weighing about 1,250 tons. As the wharf on the south side of the river at Windsor Cove was not finished, the ferry was not taken across the river, but after being unloaded she returned to the Louise Basin. It was anticipated that the accommodation on both sides of the river would be completed and the ferry placed in service towards the end of November.

### Ontario and the Great Lakes.

The Toronto Harbor Commission will, it is reported, build a large restaurant at Sunnyside in the spring, and operate a boat hiring business in connection.

A steel steam tug, 75 ft. long, for use on the Toronto harbor development, was launched from the Thor Iron Works, Toronto, early in November.

Lightship 96, a steel vessel, is being fitted out at Detroit, Mich., to take the place of the old wooden lightship on the Corsica shoal at the south end of Lake Huron.

The Dominion Marine Department has

awarded a contract for the construction of a lighthouse at the entrance to the Livingstone Channel in the Detroit River, to A. T. C. McMaster, Toronto, for \$14,500.

Canada Steamship Lines s.s. W. Grant Morden touched bottom in the St. Clair River, Nov. 4, in the middle ground between Sarnia and Port Huron. This was the second grounding by the same vessel in the river on the same trip. The damage was stated to be inconsiderable.

A press dispatch from Sarnia states that owners of various wrecks in Sarnia Bay have been notified by the Government that they must at once remove them, so that work may be started on the harbor works. It is stated that there are wrecks of five sailing vessels and one steamship in the way.

The Reid Wrecking Co.'s s.s. Colonial was driven ashore near Pardoville, while en route from Oswego to Milwaukee with coal, Nov. 12. It was reported, Nov. 16, that the heavy weather of the preceding two days had broken her up considerably and that she was a total loss.

The steamboat Manita, which has recently been operated between Lindsay and Sturgeon Point, is reported to have been sold to the Stoney Lake Navigation Co., and it is stated that she will be run, next season, between Peterborough and Stoney Lake points by way of the Trent Valley canal, in conjunction with the steamboats Empress, Islanda and Stoney Lake.

The St. Clair Conservation Co., Ltd., has been incorporated under the Ontario Companies Act, with an authorized capital of \$300,000 and office at Sarnia, to own and operate pleasure grounds, hotels, etc., and in connection therewith to own and operate steam and other vessels, with the necessary wharves, docks and terminal facilities. The provisional directors are:—C. A. White, J. T. Fuller and S. Cowan, Sarnia.

The United States Lake Survey reports the levels of the Great Lakes in feet above tidewater for October, as follows:—Superior 602.75; Michigan and Huron 580.28; Erie 572.10; Ontario 245.59. As compared with the October levels for the past ten years, Superior was 0.03 ft. above; Michigan and Huron 0.38 ft. below; Erie 0.08 ft. below, and Ontario 0.41 ft. below. It was anticipated that during November, Superior would drop 0.2 ft., and Michigan, Huron, Erie and Ontario 0.3 ft.

J. W. Norcross, General Manager, Canada Steamship Lines, is reported to have stated in an interview in Montreal recently that the company's earnings during the past few months were better than anticipated. Any forecasts for the future were, however, impossible owing to the general conditions prevailing. He considered that there was a possibility of a good portion of the crop remaining in the west until the spring, in which case the lake steamships would reap considerable benefit.

At a meeting of the joint committee of the International Waterways Commission at Detroit, Mich., Nov. 11, the chief matter dealt with was the question of the pollution of the water in the Great Lakes, the responsibility for which is disputed by both the municipalities adjacent to the lakes, and by steamship owners, each blaming the other. The vessel owning interests claim that vessels do not to any considerable degree contribute to the water pollution, while the municipalities state that there is but one cause for the contamination at times, and that is the discharge of water from steamboats, and at Sault Ste Marie, when large numbers of vessels anchor for shelter during storms, etc., the pollution is claimed to be very noticeable.

The Bassett Steamship Co., Ltd., Toronto, a recently incorporated company, has purchased the s.s. Mariska from the Pittsburg Steamship Co., Pittsburg, Pa., and has transferred her to the Canadian register. The s.s. Mariska was built at Cleveland, Ohio, in 1890. She is of steel with watertight double bottom for ballast, steel boiler house, three watertight bulkheads and two non watertight bulkheads, three cargo compartments with hatches spaced 24 ft. centres. Her dimensions are:—Length over all, 297 ft.; length between perpendiculars, 291 ft.; breadth moulded, 40 ft.; depth moulded, 22 ft.; tonnage, 2,325 gross, 1,835 register. She is equipped with triple expansion engines with cylinders 24½, 38 and 61 by 42 ins., with 1,200 i.h.p. at 80 r.p.m., supplied with steam by two Scotch boilers, 14 ft. diam. by 12½ ft. long, with 6 furnaces, 126 sq. ft. grate surface, 5,292 sq. ft. heating surface.

The Mayor of Owen Sound received a letter recently from F. F. Wood, the promoter of the dry dock and shipbuilding plant there, which stated that the plans for the dry dock were about to be filed with the Public Works Department at Ottawa, that the money necessary for the carrying on of the work had been secured, and that the people of Owen Sound might be assured that the dock will be built. He also stated that it was possible that something towards the securing of the site would be done during November. It is reported that representatives of some New York financiers have been in the neighborhood recently looking for a site for a dry dock, and making efforts to interest local capital in such a venture, but Mr. Wood states that they have nothing to do with the concern in which he is interested. There would thus appear to be two schemes before the people.

### Manitoba, Saskatchewan and Alberta.

The names of the steamboats Phyllis Williams and Rosamund Billet, registered at Winnipeg in the name of the Lake Winnipeg Shipping Co., have been changed to Limestone City and City of Winnipeg, respectively.

The season for navigation in Hudson Bay which was closed towards the end of October, is reported to have been without accident. In the previous year a number of accidents occurred, but since then the Marine Department has established a number of aids to navigation, which have rendered the route practicable and safe for traffic. Several vessels were on the route during the season taking cargo to Port Nelson up to September, and a large staff of men was employed, and will continue so during the winter, on the terminal work at Port Nelson.

### British Columbia and Pacific Coast Marine.

The Grand Trunk Pacific Coast Steamship Co. has moved its Seattle, Wash., office to 917 Second Ave.

The steamboat Helen M. Scanlon, registered at Vancouver, has had its name changed to Wm. H. Ladner.

A Vancouver press despatch states that the Boston-Pacific Steamship Co. will inaugurate a steamship line between Boston and Vancouver shortly.

The C.P.R. s.s. Princess Royal, which struck a rock in the Sabine Channel towards the end of October, was repaired at Victoria early in November. While she was undergoing repair the s.s. Princess Maquinna took her route.

The Dominion Government survey steamer Quadra has been completely overhauled at Esquimalt, the work covering the hull and



all equipment, the lifting of the main engines, and the re-rivetting of the tank top and engine foundations.

The Dominion Government lighthouse and buoy vessels Estevan and Leebro sailed recently from Victoria, the former for Queen Charlotte Islands, and the latter for Prince Rupert, to attend to the lighthouses and buoys on the routes.

An Ottawa press dispatch states that the western portion of the Broughton Strait, near Vancouver Island, has been closed to navigation, and that vessels between Johnston Strait and Queen Charlotte Sound must take the Wenton Passage and Blackfish Sound.

The C.P.R. s.s. Princess Irene, sister of the recently launched s.s. Princess Margaret, has been launched at Dumbarton, Scotland. It is anticipated that both of these vessels will be on the Pacific Coast for service early in the spring.

The Government breakwater and piers at Victoria are in the stage where work begins to show above water level. Pouring has commenced on the first two of the concrete cribs, which are to be floated into place and sunk in position as foundations for the superstructure.

C. H. Nicholson, General Manager, Grand Trunk Pacific Coast Steamship Co., Vancouver, who was in Montreal recently, is reported to have stated that he had received authority for the preparation of plans for a new dock at Seattle, Wash., to replace the one damaged by fire a short while ago.

At New Westminster there is nearing completion the first unit of an extensive scheme, to cost many millions, for the development of a harbor in the Fraser River. Features of this work are the methods of handling material by 150 h.p. electric cranes and a dipper dredge, which were built especially for the work and are supplemented by a Fruhling dredge rented from the Dominion Government.

A press dispatch from Vancouver stated recently that H. H. Stevens, M.P., had announced that he had successfully concluded special arrangements with the Pacific Dredging Co., which holds the contract for the harbor improvement works in False Creek, for the excavation of a 10 ft. channel in the creek between the Connaught and Granville St. bridges in advance of the main work in that waterway, making the channel navigable for tugs, scows and coasting vessels earlier than was originally planned.

### Mainly About Marine People.

WM. LAURIE, a government steamboat inspector at Montreal, died suddenly, of heart trouble, at his home at Westmount, Que., Nov. 12, aged 69.

J. W. GEDDES, Traffic Agent, Canada Steamship Lines, Lewiston, N.Y., whose body was recovered from the Niagara River recently, after he had been missed for several days, had been suffering from a heart affection, and it is feared that he was seized with an attack and fell into the river.

CAPT. F. CAREY, until recently commander of the C.P.R. s.s. Tyrolia, and formerly commander of the same company's s.s. Empress of Ireland, received a presentation at Liverpool, Eng., Nov. 17, in commemoration of his fifty years service at sea. During this period he crossed the Atlantic about 600 times.

LIEUT. KENDALL, R.N.R., who was in command of the C.P.R. s.s. Empress of Ireland when she went down in the St. Lawrence, and who, on the outbreak of war, was

appointed Lieutenant Naval Commander of the s.s. Calgarian, which had been requisitioned by the Admiralty, has been advanced to the rank of Commander of that vessel.

J. G. SING, M. Can. Soc. C.E., District Engineer, Dominion Department of Public Works Department, Toronto, resigned Nov. 17. During the ten years he held the position he had charge of all the harbor work in eastern and northern Ontario, covering practically the entire waterfront along the Great Lakes.

The death of ROBT. THOMSON, head of the steamship firm of Wm. Thomson & Co., of St. John, N.B., has severed one of the few links that remained between the days of wooden sailing ships and the age of steel and steam. In the former days the sails of the Thomson ships were to be seen on all the seven seas. The firm was quick to recognize the advancing age of steel and steam, and was among the first Canadian ship owners to initiate a line of freight steamships of its own. The present Battle line steamships have all carried the Thomson house flag. Mr. Thomson left an estate of \$343,000 besides life insurance.

### Telegraph, Telephone and Cable Matters.

Robert Bain, who has been acting as relieving superintendent for the Pacific Cable Board at Suva, has resumed his permanent post of assistant superintendent at Bamfield, B.C.

R. V. Aubin, heretofore night chief operator, Great North Western Telegraph Co., Ottawa, Ont., has been appointed local manager, Quebec, vice F. D. Boomer, transferred to Ottawa, Ont.

It is reported that an Italian priest has perfected a portable wireless telephone receiver, which at a recent demonstration proved its practicability by intercepting a prepared message between Rome and London.

The Grand Trunk Pacific Telegraph Co., since 1907 has erected 3,156 miles of pole line and 12,396 miles of wire, of which 50% is of copper, west of Winnipeg. All trains will be dispatched by telephone, the equipment for which is now on order.

F. D. Boomer, heretofore local manager, Great North Western Telegraph Co., Quebec, has been appointed local manager, Ottawa, Ont., vice C. E. Davies, who was appointed Traffic Superintendent, Toronto, in July.

The British Post Office Department has announced that it is willing to consider placing orders in Canada for the larger size of telegraph poles. It is reported that the competition of Russia and Norway would prevent Canada getting orders for the smaller poles.

R. Hicks, heretofore chief operator, Grand Trunk Pacific Telegraph Co., Edmonton, Alta., has been transferred to a similar position at Winnipeg, and has been succeeded at Edmonton by R. M. McMillan. S. Hutchison, who was in charge at Winnipeg, has been transferred to Prince Rupert.

The Great North Western Telegraph Co. has opened offices at Burgessville, Gorrie, Hespeler, Kemptville and Port Burwell, Ont., and has closed its offices at Capucins, Deschailons, Gentilly Lake St. Joseph Hotel, St. Pierre les Bequets, Valcartier Camp and Valcartier rifle range, Que. The name of its office at Stanfold, Que., has been changed to Princeville.

The Grand Trunk Pacific Telegraph Co. is endeavoring to reduce the volume of railway service messages over its lines. A recent bulletin on this subject points out the advantages of brevity in service messages, and instructing that the telegraph should

be used only for really urgent and important messages. It also stated that a perusal of messages sent over the wires indicated very clearly that a large number of messages would have served the company's purposes equally well if sent as traingrams.

The cable station erected at Bay Roberts, Nfld., recently, by the Western Union Telegraph Co., is of fireproof construction, of cement, tile and structural steel throughout, including the roof and floors. Three cables to Great Britain and three to Nova Scotia and New York, all of which are landed at Conception Bay, are operated from this station. Accommodation for the staff is provided in nine dwelling houses for the married men and a house with accommodation for 22 members of the staff.

The Pacific Cable Board advised, Nov. 5, that the Pacific cable between Canada and Australia, and the cable station at Fanning Island, have been repaired, and communication has been restored. The damage was caused by the German cruiser Nurnberg, which is still cruising in the Pacific Ocean. The statement of the islanders is to the effect that the Germans effected a landing under cover of the French flag and smashed all the instruments, and dynamited the engine, boiler and dynamo rooms and refrigerating plant, as well as the cable. All papers of any value were removed, and the office safe was blown open and about \$3,000 taken. The damage is estimated at about \$150,000.

The Commercial Cable Co.'s office at Waterville, Ireland, is being protected against any possible attack. The building is completely enclosed by a barbed wire fence, and a sentry patrols the ground inside. At the office door is another sentry, and all persons entering or leaving the office must show him a pass. The battery and testing rooms in the basement are blocked up with sand bags, and preparations are being made for a bullet proof protection for the windows of the operating room, consisting of galvanized iron and timber. When this is completed all operating will be done with artificial light. The cable at the point of landing is also protected with barbed wire and guarded, and an additional guard is maintained at the engine house. Other important points are to be protected with bullet proof guards.

Commercial telegraph service was inaugurated by the Grand Trunk Pacific Telegraph Co. to and from Prince Rupert, B.C., Nov. 12. Previously such service had only been in effect as far west as Prince George, B.C., 468 miles east of Prince Rupert. By the extension of this service, such important places as Smithers, Hazelton and Prince Rupert are afforded a cheaper means of telegraphic communication. The first commercial message was filed at Prince Rupert by the Mayor, and was addressed to the Mayor of Winnipeg, Man., containing greetings, and was responded to by its recipient. Commercial telegraph service is now in operation over all G.T.P.R. lines, serving among other important places:—Fort William, Ont., Winnipeg Man., Regina, Moose Jaw, Saskatoon, Sask., Calgary, Edmonton, Alta., Prince George and Prince Rupert, B.C. The construction of the telegraph lines has from the commencement been under the management of A. B. Smith, Manager of Telegraphs, G.T.R. and G.T.P.R., Montreal, his chief assistants being H. Hulatt, Commercial and Traffic Superintendent, Winnipeg, and W. J. Rooney, Superintendent of Plant, Winnipeg.

The Edmonton, Alberta, City Council is being asked to extend the date fixed for the opening of the Grand Trunk Pacific Ry. hotel in the city to April, 1915.



**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.

**Robert W. Hunt & Co., Ltd.,** Engineers, Bureau of Inspection, Tests and Consultations, Montreal, have issued an alphabetical list of railway, structural and other material which they inspect.

**H. M. SPERRY,** M. Am. Soc. C.E., for many years Sales Engineer, General Railway Signal Co., Rochester, N.Y., has been appointed Manager of the department of publicity and education organized by the company recently.

**F. H. Hopkins and Co.,** railway and contractors supplies, Montreal, has reorganized. J. J. Rosevear retiring on account of ill health. The other partners, F. H. Hopkins and R. A. C. McNally, continue the business under the old style.

**American Locomotive Co.—H. C. Hequemour** has resigned as General Purchasing Agent. Until further notice the purchasing and storekeeping departments will be under the jurisdiction of Leigh Best, Vice President.

**Canadian General Electric Co., Ltd.,** Toronto, has issued the following publications:—Bulletin 44565, variable release air brake equipment; bulletin 44300, gas electric cars; 44003, modern electric railway apparatus; B3292, attractive lighting of business streets.

**Flannery Bolt Co.,** Pittsburg, Pa., manufacturers of the Tate flexible stay bolt, have appointed Chas. Hyland as boiler expert, to succeed T. R. Davis, deceased. Mr. Hyland was for many years foreman boiler maker of the Michigan Central Rd. shops at Jackson, Mich., and was also employed on the Lake Shore Ry. in a similar capacity.

**COMMERCIAL FURNITURE  
FOR TICKET CASES AND**  
of all descriptions to stock  
or special design, apply to  
**The Canadian Office and School Furniture  
Co., Limited**  
Preston Ontario

**CANADIAN PACIFIC RAILWAY COMPANY.**

**Dividend Notice.**

At a meeting of the Board of Directors, held today, a dividend of two and one-half per cent. on the Common Stock for the quarter ended 30th September last, being at the rate of seven per cent. per annum from revenue and three per cent. per annum from Special Income Account, was declared payable on 2nd January next to Shareholders of record at 3 p.m. on 1st December next.

By order of the Board.

W. R. BAKER,  
Secretary.

Montreal, 9th November, 1914.

**W. W. Butler Co., Ltd.,** railway supplies, etc., Montreal, announces that E. G. Jackson, late General Sales Manager of Canadian Car and Foundry Co., Ltd., Canadian Steel Foundries, Ltd., and Pratt & Letchworth Co., Ltd., has returned from Europe, and has assumed the position of Vice President and General Manager of the W. W. Butler Co., with head office at Transportation Building, Montreal.

**M. Beatty & Sons, Ltd.,** manufacturers of dredges, hoisting machinery, etc., Welland, Ont., have made a change in their Toronto representation, by opening a district office in the Builders' Exchange, 154 Simcoe St., in charge of K. M. McKee, formerly of the head office, who will attend to the business in Toronto in future, instead of it being handled by H. W. Petrie, Ltd., as heretofore.

**Transportation Associations, Clubs, Etc.**

The names of persons given below are those of the secretaries unless otherwise stated.

**Canadian Car Service Bureau.** J. Reilly, Manager, 401 St. Nicholas Building, Montreal.

**Canadian Electric Railway Association,** Acton Burrows, 70 Bond Street, Toronto.

**Canadian Freight Association (Eastern Lines),** G. C. Ransom, Canadian Express Building, Montreal.

**Canadian Freight Association (Western Lines),** W. E. Campbell, 502 Canada Building, Winnipeg.

**Canadian Railway Club,** J. Powell, St. Lambert, Que. Meetings at Montreal, 2nd Tuesday each month, 8.30 p.m., except June, July and August.

**Canadian Society of Civil Engineers,** C. H. McLeod, 176 Mansfield St., Montreal.

**Canadian Ticket Agents' Association,** E. de la Hooke, London, Ont.

**Central Railway and Engineering Club of Canada,** C. L. Worth, 409 Union Station, Toronto. Meetings at Toronto, 3rd Tuesday each month, except June, July and August.

**Dominion Marine Association,** F. King, Counsel, Kingston, Ont.

**Eastern Canadian Passenger Association,** G. H. Webster, 54 Beaver Hall Hill, Montreal.

**Engineers' Club of Montreal,** R. W. H. Smith, 9 Beaver Hall Square, Montreal.

**Engineers' Club of Toronto,** R. B. Wolsey, 94 King St. West, Toronto.

**Great Lakes and St. Lawrence River Rate Committee,** Jas. Morrison, Montreal.

**International Water Lines Passenger Association,** M. R. Nelson, New York.

**Niagara Frontier Summer Rate Committee,** Jas. Morrison, Montreal.

**Nova Scotia Society of Engineers,** A. R. McCleave, Halifax, N.S.

**Quebec Transportation Club,** A. F. Dion, Quebec.

**Ship Masters' Association of Canada,** Capt. E. Wells, 45 St. John St., Halifax, N.S.

**Toronto Transportation Club,** W. A. Gray, 143 Yonge St., Toronto.

**Western Canada Railway Club,** Louis Kon, Box 1707, Winnipeg. Meetings at Winnipeg, 2nd Monday each month, except June, July and August.

**TRAFFIC EXPERT WANTED.**

Traffic expert desiring extra employment for a few hours per week may apply to Box 67, Canadian Railway and Marine World. Must be familiar with freight business conditions, rates, etc., in Ontario. State experience.

**Transportation Conventions in 1914-15.**

Dec. 1-4.—American Society of Mechanical Engineers, New York.

Dec. 8, 9.—Association of Transportation and Car Accounting Officers, Richmond, Va.

Jan. 19-21.—American Wood Preservers' Association, Chicago, Ill.

Mar. 16-18.—American Railway Engineering Association, Chicago, Ill.

April.—American Association of Demurrage Officers, Boston, Mass.

Apr. 28.—Association of American Railway Accounting Officers, Atlanta, Ga.

May.—Association of Railway Claim Agents, Galveston, Tex.

May.—Railroad Master Tinnners', Copper-smiths' and Pipefitters' Association.

May 4-7.—Air Brake Association, Chicago, Ill.

May 17-19.—Railway Storekeepers' Association, Chicago, Ill.

May 17-20.—International Railway Fuel Association, Chicago, Ill.

May 20-21.—American Association of Railroad Superintendents, San Francisco, Cal.

May 21-24.—American Association of Freight Agents, Richmond, Va.

May 26-28.—Master Boiler Makers' Association, Chicago, Ill.

June 9-11.—American Railway Master Mechanics' Association, Atlantic City, N.J.

June 14-16.—Master Car Builders' Association, Atlantic City, N.J.

June 15.—Train Dispatchers' Association of America, Minneapolis, Minn.

June 16.—Freight Claim Association, Chicago, Ill.

June 22-25.—Association of Railway Telegraph Superintendents, Rochester, N.Y.

July.—American Railway Tool Foremen's Association.

July 14-17.—International Railway General Foremen's Association, Chicago, Ill.

Aug. 17.—International Railroad Master Blacksmiths' Association, Philadelphia, Pa.

September.—Roadmasters' and Maintenance of Way Association.

Sept. 14-17.—Master Car and Locomotive Painters' Association of the United States and Canada, Detroit, Mich.

Sept. 21-24.—Railway Signal Association, Salt Lake City, Utah.

October.—American Association of Dining Car Superintendents.

October.—American Railway Bridge and Building Association.

Oct. 4-8.—American Electric Railway Association, San Francisco, Cal.

James Rowens, a steamship ticket agent at Toronto, was committed for trial there Nov. 6 on a charge of high treason. It is alleged that he attempted to pass a number of Austrian reservists out of the Dominion via the United States by representing them as Roumanians. This is the second case on precisely the same lines which has occurred in Canada during the war. The extreme penalty is death.

Coal and ash handling conveyors, belt conveyors, structural steel, heavy machine and foundry work, coal mine bankheads and screening plants, mine fans, etc.

**Engineers and Contractors  
THE EASTERN STEEL CO., LTD.**  
Formerly the Brown Machine Co., Ltd.  
and Bailey-Underwood Co., Ltd.

New Glasgow : : : Nova Scotia

**NOTICE.**

The General Railway Signal Company of the United States of America, the owner of the exclusive rights to Canadian patents No. 92323, No. 93127, No. 96256, and No. 97758, issued to Young and Townsend, and covering methods of signalling electrified railways, wishes to call the attention of all possible users of the devices and systems covered by such patents to the fact that it is prepared to sell and furnish, at short notice, all such devices and to install such systems upon any railway in the Dominion of Canada.

All inquiries regarding the above should be addressed to The General Railway Signal Company of Canada, Limited, Lachine, Province of Quebec, Canada.

**CHICAGO CAR HEATING CO.**  
VAPOR SYSTEM AND STEAM HEAT SPECIALTIES.  
CANADIAN FACTORY AND OFFICE—61 DALHOUSIE ST., MONTREAL **A. D. BRUCE, Agent**

GENERAL OFFICES:  
RAILWAY EXCHANGE, CHICAGO, U.S.A.  
NEW YORK, GRAND CENTRAL TERMINAL BLDG.  
ATLANTA, GA., CANDLER BLDG.  
WASHINGTON, D.C., MUNSEY BLDG.



# TATE FLEXIBLE STAYBOLTS



Allow for and accommodate the forces of expansion and contraction along the lines of least resistance.

The Tate Bolt can be longitudinally adjusted to compensate for the difference of expansion of Outer Boiler Shell over Fire Box.

**Over 5,000,000 in service**

THE RECOGNIZED STANDARD OF FLEXIBLE STAYS

Manufactured and Sold in Canada by

**Canadian Allis-Chalmers, Limited**

Head Office and Works, Toronto, Ont.

## FLANNERY BOLT COMPANY

Vanadium Building

Pittsburgh, Pa.

B. E. D. Stafford, Gen. Mgr.



# PATRIOTISM

There are Heroes of Business—as well as Heroes of Battle. Patriotism can be practised by giving employment to the workers who must remain at home to keep alive Canadian industry.

When you buy Canadian-made goods you help Canada.

When you buy foreign-made goods in preference to Canadian manufactures, you help foreign labor. And you increase the number of Canadians who may later need public help.

Support Canada—insure Canadian prosperity—by using only CANADIAN-MADE goods.

**NICHOLSON-MADE-FILES**

*Brands: Kearney & Foot Great Western American Arcade Globe*

are made in Canada—by Canadian mechanics for Canadian use.

Their manufacture will not be hindered by war.

Big stocks are in our warehouse and on dealers' shelves everywhere for immediate use. 50,000,000 per year are now required to meet the demand.

*Use Nicholson-Made Files. The Only Canadian-Made Files*

## NICHOLSON FILE COMPANY, PORT HOPE, ONTARIO

