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Present Status and Tendencies of Railway Electrification.

By F. Darlington.

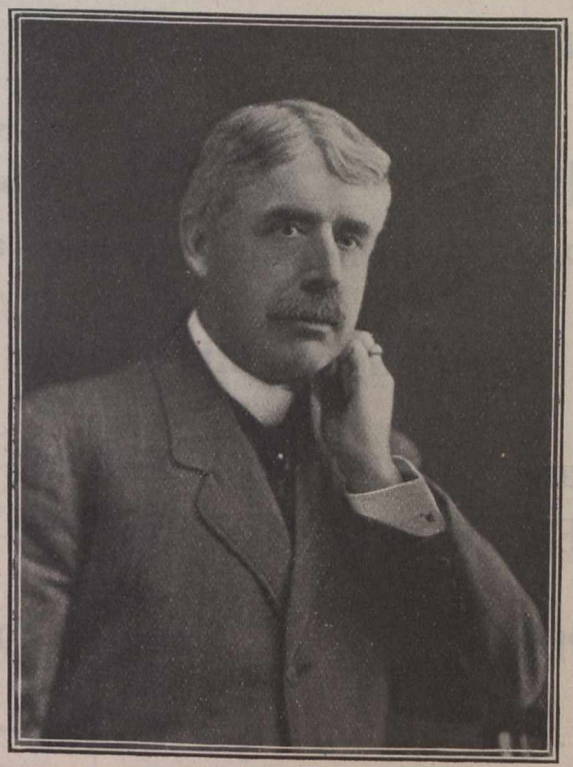
In the opening paragraph of a paper on railway electrification, recently read before the Engineering Society of Columbia University, L. R. Pomeroy wrote: "From a physical and mechanical view point, electric traction can meet all of the demands and requirements of railway service" and he added, "Whether electricity will replace steam traction or not, is entirely a commercial problem."

These two statements exactly describe the present situation regarding railway electrification. Electric power is capable of doing all of the work of railways. Will it pay to adopt it? We all appreciate that there can be no complete and comprehensive answer to this question at present; although during the recent period of financial depression, when no large improvements and extensions were undertaken by railways, splendid progress was made in the development of electric railway appliances, so that in many places where the application of electric power to railways would have been unprofitable a few years ago, it will now show a profit because of these improvements.

With the return of prosperity when business increases we have a right to expect that these improvements which have been both in the direction of reducing the cost of construction, and of increasing the power and efficiency of electric railway apparatus, will lead to new and extended applications of electric power to railways. Meanwhile independent interurban electric roads have grown extensively in the same territory with steam roads and often parallel to them, where the logical and economical course would have been for the steam railways to extend and increase their facilities and use electric power where it was advantageous. But electric motive power apparatus as it was first developed and used by trolley roads was not advantageous for steam railway work. It was excellent for single car operation, as is proven by its success, but it was too costly to install and was too inefficient for operating heavy railway trains. For steam railways to have adopted it under such circumstances would have meant electrical equipment for light local work only, while steam locomotives would have remained in use for heavy work, but today economical and efficient electrical apparatus is available for all railway requirements.

Improvements in the power and efficiency of electric railway appliances are making electric roads more and more on a par with steam roads for heavy transportation business, and it is more true every day that the best economy in any locality can be secured by a single line of railways rather than by separating the work and management. The separation of railways therefore into two classes, steam and electric, according to the kind of motive power they use, will soon become impossible, because modern electric railway apparatus is suitable for heavy as well as for light work and the advantages of combined management and operation of heavy railways and interurban roads, will be secured by utilizing improved electrical appliances for heavy traffic as well as for light traffic, and by combining both classes of work on one system and under one management. To whatever extent the conditions have been improved by the development of more economical and effective electric railway apparatus, to just that extent is the tendency of present times towards electrification of steam railways, since in the long run electrification will be carried as far as it will pay.

A short review of the various old and new electric railway systems comparing their first cost and efficiency will indicate the probable future course of electric railroads better than any opinion of mine would do. The first use of electric motors on railways was on city street cars where electric power replaced horses. The motors were of small size and the total power used per car was in the neighborhood of 15 h.p. and the motors were necessarily all of the direct current type, because in the early days of electric traction alternating current motors had not been developed. As a result of improvements in electric motive power appliances, street car lines were extended and the weight of their cars and the power of their motors were so increased that they became profitable for long runs, and interurban trolley roads resulted. At the same time direct current electric locomotives were developed chiefly for use where smoke from steam locomotives was objectionable, and, direct current motors have been improved and increased in power and are now thoroughly reliable for all classes of railway operation.



J. E. Quick
General Baggage Agent Grand Trunk Ry., and Grand Trunk Pacific Railway.

Complete direct current railway electrifications include an electric power generating plant, and trolleys or third rails and sub-stations, etc., for transmitting and distributing the electric power from the generating plant to moving trains, and motive power apparatus on the trains for converting the electric power into mechanical power for train propulsion. Improvements in the power and efficiency of electric generating plants kept pace with the advancement in direct current motor construction, and the apparatus for conducting electric power from the power house and distributing it by direct currents to moving trains was also improved.

The introduction of the so-called commutating poles or inter-poles is the most valuable improvement that was made in the last few years in direct current railway apparatus, because it enables the use of higher voltages on the motors and consequently on direct current distribution systems than were formerly possible; but with all that has been done to improve direct current appliances the minimum cost of direct current railway electrification prevents the general substitution of electric power for steam when large units of power are used per train and it does not seem possible with direct current apparatus to further materially reduce the cost of electric equipment. With the increasing power of electric trains third rails were substituted for overhead trolley wires and were increased in size and weight and supplemented by copper feeder cables, and protected by insulated covers, and the capacity of sub-

stations was increased until appliances for the transmission and distribution of electric power by direct currents has become so costly that extensive use of direct current electric motive power for heavy railway service is unprofitable. Furthermore, sub-stations for changing high tension alternating current to direct current require a high labor cost for their operation.

Large powers can be more cheaply transmitted and distributed with alternating currents than with direct currents and this early led to a general effort among engineers to substitute alternating currents for direct currents for train propulsion and these efforts were effectively seconded by the practical development of two types of alternating current motors which you all know as single phase and three phase motors. Single phase motors are operated on single phase alternating current which requires two conductors for its transmission. In the case of electric railways, the conductors for distributing current to trains, consist of one overhead trolley wire and the track. Three conductors are required for three phase alternating current so that three phase electric railways require two separately insulated trolley wires in combination with the track.

Complete systems for the transmission and distribution of electric power from the power house to moving trains are much more simple with alternating current than with direct, since where alternating current motors are used on the trains it is not necessary to change from alternating to direct current, and also alternating current is readily transformed on the trains from high potential used on the trolleys to low potential used on the motors. Furthermore, three phase motors can be worked with fairly high potential alternating current so that on many three phase roads the current from the trolley wires is not even transformed to low potential for the motors. To complete the comparison of the direct current and alternating current distribution systems used in railway work, it must be remembered that under the conditions met with in railroading the efficiency of power distribution by direct current systems is very inferior to the efficiency with alternating current systems. In existing direct current installations between 25 and 50% of the power generated is lost in transmission from the power house and distribution to the trains, and with direct current systems 35% is probably about the average loss, while with single phase alternating current transmission and distribution the average loss under similar service conditions would ordinarily be about one-third as great. Three phase transmission and distribution is not so efficient as single phase but would ordinarily be far more so than direct current.

There is some difference in the cost of the locomotives employed in the different electric railway systems and it is generally in favor of direct current and three phase locomotives as compared with single phase locomotives, but for ordinary steam railway train weights and distances and density of traffic this difference in the cost of locomotives is several times offset by the difference in the cost of the electric power transmission and distribution apparatus, especially in the case of direct current distribution, even though at the present time direct current locomotives usually cost between 25 and 35% less than single phase locomotives for the same service. This difference in cost will be somewhat reduced as experience in single phase manufacture increases. Generally the electric power taken from the trolley by single phase locomotives is from 0 to 6% more than the power taken from the trolley or third rail by direct current or three phase locomotives doing the same work, but there are some conditions under which single phase locomotives take less electric power than direct current or three phase locomotives because the control apparatus for single phase motors is more efficient than direct current and three phase motor control. But in any event the superior efficiency of power transmission and distribution by single phase currents several times more than offsets the slightly superior efficiency of direct current motors, especially where power is used in large units for moving heavy trains as on ordinary steam railroads.

Estimates recently prepared for the electrification of about 100 miles of single track railroad with about 25 miles of side tracks and with heavy grades to be climbed and very heavy and frequent trains to be handled, show the total cost of direct current transmission and distribution apparatus including sub-stations, $2,381,000.00 and for single phase alternating current with transformer stations $1,011,000.00. This was figured for 1,500 volts on a third rail for direct current and 11,000 volts on an overhead trolley for single phase current. The difference in cost of the two power distribution systems is $1,370,000.00. However, the single phase locomotives for the same railway would be more costly than direct locomotives by about $374,500, but this amount is only about one-quarter of the difference in the cost of the transmission and distribution appliances. Seven direct current sub-stations were required in the distribution system for the direct current equipment, and the attendance on these stations would cost between $15,000 and $20,000 a year, against which the attendance on the single phase transformer stations would be practically nothing.

All of this detail regarding electric power transmission and distribution for the various electric railway systems may seem unnecessary in view of the general knowledge of the subject, but it has a most important bearing on electric railways because it is in this work, that is, in the transmission and distribution of electric power that the greatest expense and difficulty has been encountered. Cheapening the cost and improving the efficiency of electric equipment for the operation of railways moving heavy trains over long distances is the most important result accomplished by alternating current railway apparatus. It is for moving heavy trains long distances that the superiority of alternating current apparatus is most pronounced and it is in this class of work, which includes the work of the majority of steam railways, that we must anticipate the greatest future advancement in electric railroading due to changed conditions.

As already stated, the last two or three years have not been favorable for heavy railway improvements, so the possibilities of alternating current machinery on railways have not been generally realized by practical application, although the reduction in construction cost, and the improvement and efficiency of electric railway appliances, especially for heavy motive power work fully justifies the expectation that in the future electric power will be applied to much work now being done with steam power, and to the hope that electric and steam railways will eventually be united in doing a common business, and that the advantages of a single railway and single organization for serving any given territory will be realized by extending the application of electric power to steam railways for all kinds of service both freight and passenger whenever electricity is profitable for any class of work.

The foregoing paper was read before the Central Railway Club in Buffalo, N.Y., recently.

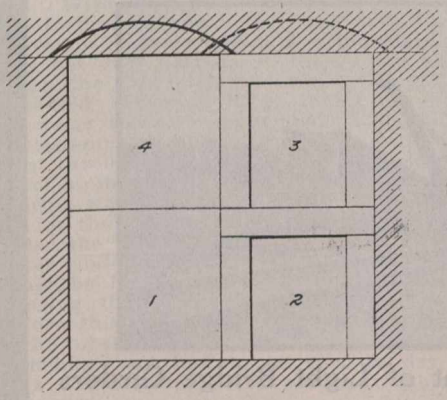
The International Railway Fuel Association's second annual meeting was held May 23 to 26, at Chicago, Ill. A number of papers and subjects were read and discussed, those on the methods of supervision, instruction and encouragement in locomotive operation to secure the greatest efficiency in fuel consumption, being in charge of a committee, of which D. Meadows, Assistant Division Master Mechanic M.C.R., St. Thomas, Ont., is chairman.

Engineering Features of the Detroit River Tunnel.

The method pursued in the construction of the Michigan Central Rd.'s tunnel under the Detroit River between Windsor, Ont., and Detroit, Mich., is the novel one of constructing tubes in the form of steel shells; sinking them into a trench dug in the bottom of the river; uniting them end to end; embedding them in a concrete casing and finally giving them a concrete lining. No compressed air was used in the subaqueous portion of the work except for the divers by whom the bolts, fastening the ends of the tube sections together, were placed.

In considering this plan it must not be confused with that of sinking independent caissons that were joined end to end, as in the case of the Metropolitan Ry. under the Seine at Paris. There the regular caisson method of sinking was followed, using compressed air in the usual manner. The caissons were independent sections to be sure and were afterwards joined together to form the tunnel. The Detroit tunnel, on the other hand, was formed by excavating a ditch across the bed of the river, setting a core in it and filling around with concrete, no caisson work being done at all.

The evolution of the idea is interesting and direct. The water in the river is 50 ft. deep in places and it was the natural desire of the engineers to keep as high as possible so as to avoid long or heavy approach grades; and so, when studying the situation, regrets were ex-



Order of excavation for centre wall of approach tunnel.

pressed that the bottom was not of rock so that the minimum of cover could be used. This suggested the excavation of a trench and filling it with an artificial rock (concrete) and then tunneling through that. But why tunnel? Why not sink a core and form the concrete around it? That was the birth of the idea and the completed tunnel is the result.

The scheme, simple as it appears in outline, was novel and daring in the magnitude of the undertaking and the depths of water to be encountered, but the results have fully justified it, for the completed work is dry and considered by its engineers to be one of the strongest subaqueous tunnels in existence. While the general scheme was one of simplicity itself, it is evident to anyone versed in such matters that, in its execution for the first time, problems of novel character would be constantly arising, the solution of which would tax the resourcefulness of the engineers to the utmost in order to reach a successful consummation. These problems cropped up from the very start. They began by presenting unexpected difficulties in the excavation of the trench in the bottom of the river in which the tubes were to be laid. The greatest depth of water at the point of crossing is about 50 ft. and the excavation was carried some 22 or 23 ft. below this, or 74 ft. from the surface. A bucket dredge was equipped to work to 40 ft. and did excellent work, taking out 1,500 cu. yds. per day. It was the intention to let this dredge lead and follow with a clamshell for the balance, but when the latter was set to work it was found to be unsuited to the task and that, at the rate which it could dig, the time required would be so long as to place it outside the pale of consideration. The first step, then, was to reconstruct the bucket dredge and adapt it for working to depths of 60 ft. But, although braces and strengthenings were added, breakages occurred to such an extent that the idea had to be abandoned. This was especially caused by the breakage of the spuds and the great expense attending the same. The solution was found in the designing of a special clamshell capable of removing 700 cu. yds. per day of 12 hours on an average with a maximum output of 1,200 cu. yds.

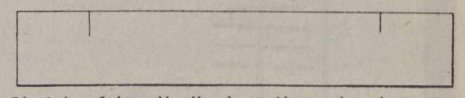
The material to be removed from the river bed and from the approach tunnels was a stiff blue clay, and the total net quantity was about 700,000 cu. yds. The method of removal were dredging from the river bottom and tunneling both with and without a shield in the approaches. It was thought at first that the drifts could be driven without using compressed air and some of the work was done in that manner for the centre wall. A drift was first carried forward for one of the lower quarters and that section of wall built, then the next lower quarter was removed, after which the two upper quarters in succession. A part of this, as already stated, could be done without air, but for much of the work air under pressure of from 10 to 20 lbs. or even more was required.

One of the points brought out in this work was the action of this stiff clay in its production of pressures. Stated in a general way, it was found that these pressures closely followed what would have been produced by a liquid having the specific gravity of the clay. With the depth of cover beneath which the workings were carried this created an enormous pressure; a pressure which, it was found, followed the law of liquids and increased to the bottom. Taking this broadly some of the physical difficulties of the work may be appreciated.

Surface indications of the flow of this material were followed closely and some interesting manifestations and conclusions therefrom were obtained. For example, the present M.C.R. line approaches the river through a cut, and the tunnel line passes beneath it on a slightly divergent line. At one point the centre of one of the tunnels is directly beneath one of the main tracks, while the other is beneath the slope of the cut on one side. The increased weight due to the height of the bank above the track caused it to settle very noticeably, but to a varying degree to a vanishing point out on one side, while there was no settling at all of the track on the lower level. In fact, it was not resurfaced during the whole of the work. It seemed as though the settling of the bank had raised the track enough to compensate for its own settling and held it to grade.

That this is so appears to have been proven by the behavior of a bank upon which a four-story brick building was standing and near which the tunnel passed. The conditions were identical with those previously cited, as the bank on which the building stood was one side of a cut. Adjacent to the brick building was a low shed of no great value. When the tunnel was carried beneath the shed the bank settled about 6 in. Before driving the heading along the building a pile of gravel whose weight was nearly equal to that of the bank was heaped upon the tracks immediately over the line of the tunnel. This load confined settlement to a small area, caused the breaking away of the section loaded from that underlying the building and checked the flow of the material, with the result that the maximum settling of the building was less than ½ in, and no cracks were formed in the walls. After the tunnel had been completed the gravel was removed.

So, in the excavation for the centre wall. The work was done in the order indicated on the diagram. After the two lower quarters had been removed and the wall built one of the upper quarters was taken out and timbered. The work was heavily done and stood all right until the other quarter was removed,

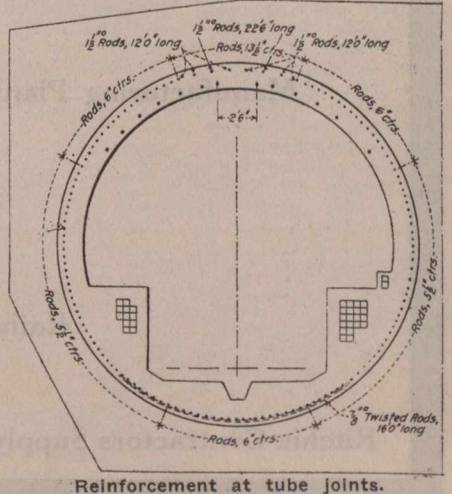


Sketch of longitudinal section, showing partial diaphragms used in sinking tubes.

when the timbering was crushed by the pressure. The suggested explanation of what happened is shown by the illustration. When the timbering was put in, the clay arched over and the two ends rested as indicated by the full line on the remaining quarter and the side. But, when the fourth quarter was removed, the arching took the form indicated by the dotted line, so greatly increasing the load on the timbering that it was crushed.

A final instance of this earth pressure may be cited as shown by the behavior of the timbering in the shafts. When they were first put down they were timbered far more heavily than the contractors considered to be necessary; but, as the work proceeded, even this proved to be insufficient and had to be increased. No measurements of the pressures actually obtaining were made, so that the work leaves no record other than that of the experience. But this is of such a character as to demonstrate that the usual formulas for earthwork pressures were sadly awry in this instance.

In carrying out the excavation on the land sections to the union with the subaqueous portion two distinct methods were employed. On the Detroit side of the river a shaft was sunk at a distance back from the shore, from which the land end of the approach was driven. Outside of this a heavy coffer-dam was built and the excavations carried in the open back to the shaft. The dam was formed of 8 by 16 in. piling, built to tongue and groove and filled in with clay between walls. At the Windsor end, the tunnel was carried out to the point of union with the subaqueous section, and then the trench excavated up to the

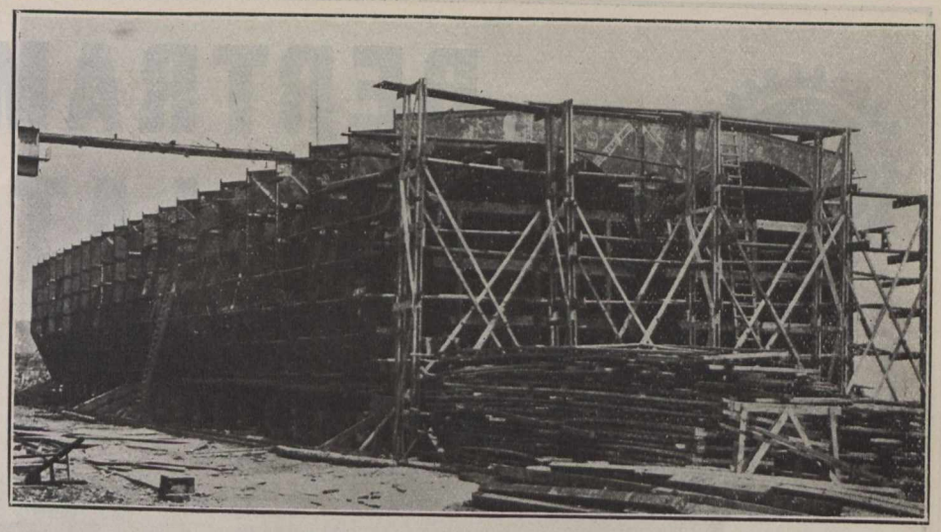


Reinforcement at tube joints.

face of the work, and the tubular section attached when sunk.

In all of the approach tunnel work there was nothing novel in the methods of procedure. The work was along lines that had been tried before, and was subject only to such changes as local conditions set up; so that, aside from the special problems that had to be solved it is about the subaqueous section that the real interest centres. The details of these sections had, of course, to be carefully worked out and all conditions were provided for as far as possible. They were designed to be built on the shore, launched like a ship and towed to their location. According to this plan they were built upon the regular ways in the regular manner. The method of launching on the great lakes differs from that of the coast. It is customary to launch ocean-going ships stern foremost, but all lake vessels are launched sideways or broadside on, for good and sufficient constructional reasons. Hence these tubes were built parallel to the shore and launched in the usual manner. With the sheathing up the sides, as shown in the photograph, they offered a much greater resistance to the movement of the whole into and through the water than a ship with its partially rounded hull and greater buoyancy. It was because of this and especially because of the latter deficiency that trouble was experienced, by sticking on the ways and not getting into the water. This trouble was overcome by carrying the sheathing back beneath the tube in the form of a flooring for a distance of 15 ft. from the outer edge, as indicated on the engraving. With this flooring an air space was formed at the outer edge and the buoyancy correspondingly increased. This not only decreased the angle at which the tubes left the ways, but the increased buoyancy lifted them out of the water and so brought about a material lessening of the resistance to movement through the water. It was a matter of no moment whatever, whether this flooring was water-tight at the joints or no, for the movement was so rapid that, under the worst of conditions, sufficient water could not leak in to do any harm either by lowering the buoyancy or increasing the resistance to the motion. Before this precaution was taken some of the tubes were slightly damaged in the launching and had to be sent to dry-dock. Afterwards there was no trouble whatever.

After the tubes had been launched they were towed about 50 miles down the river to location and there sunk. In the towing there were no difficulties encountered other than those that would naturally arise in the handling of so large and unwieldly a vessel. The sinking, too, was easily accomplished, though it involved the exercise of great care and skill. In this the river currents played an important part.

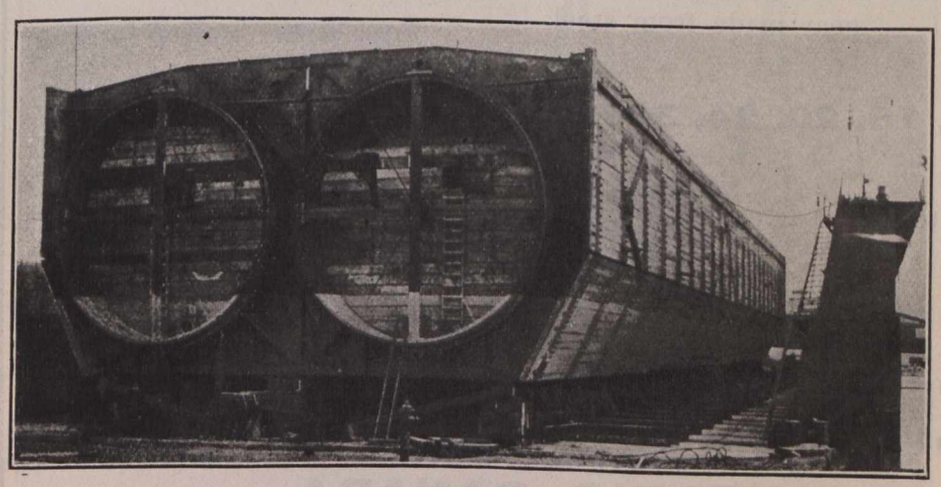


Tubes on ways before sheathing.

It has been found that, in all streams, where accurate current measurements have been made, that the greatest velocity is not at the surface, but a short distance below it, showing that the resistance of the air and the wind sets up a frictional opposition to the flow that modifies it. This was found to be true in a general way in the Detroit River. The current velocities varied from point to point, according to the distances from the bottom and the shore, as well as according to the direction and strength of the wind. The figures given, herewith, can, therefore, only be regarded as approximations. The average surface velocity may be taken at 2.3 ft. per second, increasing to about 2.33 ft. a short distance below the surface and then gradually decreasing to about 1.61 ft. per second at the bottom. It was in this current then of approximately two miles an hour that the tubes had to be sunk. They had to be sunk to a true vertical and horizontal bearing. Their alignment with each other must be exact, and they had to be held accurately in position during the whole process of lowering. No definite measurements were taken of the strain on the holding cables imposed by the current impinging against the exposed sides of the tubes. They were located broadside to the current and the upstream side measured 260 ft. by 29 ft. As velocities of 3.4 ft. per second were observed, this will be taken as the maximum which, if distributed evenly over the whole surface, would produce a pressure of 62,275 lbs., which, with the swaying of the tubes, might well run the load up to from 35 to even 40 tons. As the tubes approached the bottom, the load decreased until at the low velocity of 1.17 ft. per second found in some places it fell to about 7,775 lbs. With these stresses to be carried it is evident that a firm holding was necessary. The ordinary heavy ship anchors were found to be quite inadequate. They were dragged along the bottom by the pull and had to be abandoned. In their place, slabs of concrete from 10 ft. to 12 ft. square and 18 in. thick were formed, fixed in the bottom of the river, and the anchor lines built into them. An ordinary snatch block in these lines with winch engines on anchored and stayed scows was found to be sufficient to hold the tubes in place.

Before starting to sink the tubes grillages were sunk into the trench, and spaced so as to form a bearing and support for the adjacent ends of the tubes. These grillages were formed of 12-in. beams, and were carried on spuds or spurs that were driven into the bottom. They were lowered into place and then tapped with a pile driver until they were slightly below the level that the bottom of the tubes was to occupy.

These preparations made, everything was in readiness for the sinking of the tubes. For floating down the river bulkheads had been built into each end, and every alternate tube was fitted with pressure bulkheads capable of sustaining the pressure due to the head of water. They were towed to location and valves in the two ends were opened and water admitted. As they filled the water naturally accumulated at one end more than at the other and that end settled the faster. The tubes were prevented from up-ending by semi-bulkheads built down from the tops of the tubes into the interior, as indicated on the sketch. Then, as the tubes tilted air pockets were formed in the lower ends, adding to the buoyancy at that point and maintaining an equilibrium. Independent air cylinders were placed on top, so as to keep the whole system on the surface when the tubes had been entirely filled. The balance was very even and the whole was so slightly lighter than the water that it would have floated with only these auxiliary air cylinders just above the surface. The second sinking was



Tubes in dry dock.

done by lowering a grillage of beams or counterweights down on top of the tubes by means of a floating derrick. As the supporting ropes for this were eased off the weight depressed the tubes, and as they were tautened they came up. The weight so supported was about seven tons, so that by carrying a portion of this seven tons on the hoisting ropes, the whole 550 tons in water or 975 tons in air of tubes were fully controlled. The leveling and alignment of the tubes was done by means of masts rising above the surface and by transits and levels on the shore.

As already stated, the supporting grillage at the bottom was driven down to a level slightly below that of the bottom of the tubes. When the latter were lowered to place, a diver was sent down, who placed wedges on the grillage, by which a proper footing for the tubes was formed. The latter were supported at or near the ends only, and so accurate was the leveling of this whole piece of work done that there was no perceptible variation from true from one end of the tunnel to the other.

The alignment was, if anything, an even simpler matter than the leveling. Four heavy projecting pins were fastened into one end of the tubes. At the other end corresponding holes were formed. Then a line was led out from the tube already down and into the one being sunk. As the tube went down this line was overhauled, drawing the tubes together, until the pins on one entered the dowel holes on the other, when the two were drawn forcibly together. This set one end of the new tube in true and perfect alignment, and it was merely necessary to shift the easily-handled outer end of the fresh one into line and the work was done. A curious incident, illustrative of the ease and at the same time the difficulty with which these tubes were adjusted occurred in connection with the sinking of the first one at the Detroit end. It had been brought to a firm abutment with the approach, at the shore end, but the outer end had swung nearly 2 ft. out of line. Tugs were attached and every effort made to drag it along the grillage into place, but to no avail. The next morning the steamboat from Cleveland came up the river at full speed without slowing down and raised such a swell that the tube was lifted from the grillage and, strange to relate, was dropped in exactly true alignment, so that it did not have to be moved, adding another to the unexpected freaks of inanimate things.

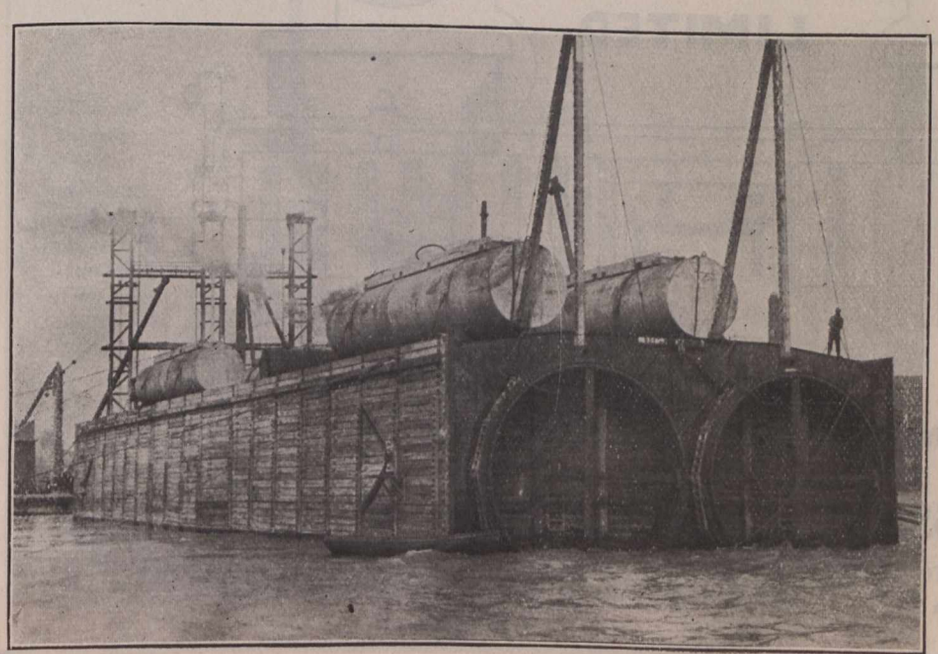
Launching the tubes.

With the tubes down, the first step was to place the connecting bolts through the flanges, and this was done by divers, and involved the only use of compressed air in the subaqueous section. This was easy and quick work, although the men were working in deep water. With the tubes down and bolted, it was necessary to imbed them in their shell of concrete before removing the water for the inside lining. The tubes were carried on the grillage at the ends only; they were clear of the bottom of the trench throughout the central portion, and there was a clear space below them at the grillage at the ends. The concrete was deposited through a long chute from a tremie scow. As a matter of fact, the pressure of the superincumbent water was such that the concrete was very well compacted, and cores taken at a distance from the point of delivery showed that it was fully as dense and strong as that formed in the air, while in the immediate vicinity of the delivery chute, where it was subjected to the direct head of the mixture reaching to above the surface of the water, it was exceedingly hard and was some 50% stronger than the air-formed concrete. Owing to the depth of water and the improbability of interfering with navigation, coupled to the desirability of keeping the approach grades down as low as possible, the top of the tunnel is in some places above the natural bottom of the river. It is protected at such points by rip-rap, so that no anchor grappling it could possibly do any damage.

The forming of the concrete about the tunnels was controlled by the tremie scows above. In the first place a concrete floor of 1-4-7½ mixture was spread beneath the tubes. The excavation had sloping sides and the bottom was readily accessible. The floor A was thus formed up to the bottom of the tubes. This firmly supported the tubes from end to end. Three tremies were then set to work to fill in and build up the concrete around the steel tubes. The sheathing at the sides served as the outer forms and the steel tubes as the core. One chute came down just inside the sheathing and one between the tubes, or at the points B, C and D. The concrete was sent down very wet so that it would flow and find its own level, and the chutes were raised as the space filled up. This formed a block of concrete of practically rectangular section with the two tubes running through it. The space between the sheathing and the slope of the banks was then refilled with clay, so that the tunnel stands embedded in the bottom.

With the concrete laid there was, thus, a column of concrete laid out into the river, abutting against the approach walls and capable of withstanding any end thrust to which it might be subjected. It was lined by the steel tubes and cut up into compartments by the diaphragms in the latter. Then, as the work advanced, a section of the tubing would be freed from water, the temporary bulkheads cut away and the workmen would advance into it and put up the inner lining, or tunnel proper, working in the usual manner with wooden forms and without using any compressed air. When the internal lining was placed a concrete mixing plant was erected on the shore at the head of the shaft, and the concrete sent down through a chute to cars on a temporary track in the tunnel. These cars were then hauled out to the point where the work was in progress. The mixture used was a 1-2-4 and was formed of Portland cement with sand and fine gravel. The leveling of the tunnel was true, while the alignment was out but a fraction of an inch. The last tube dropped into place with exactly the calculated clearance between its end and the Windsor approach walls, which was about 18 in.

As it stands the tunnel is very dry.



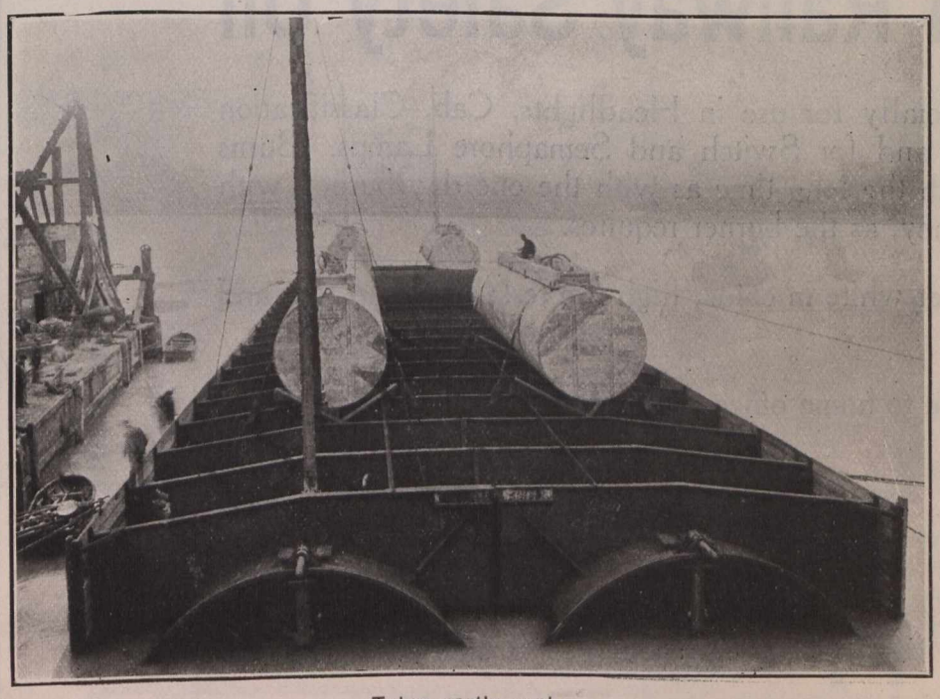
Tubes ready for sinking.

The steel tubes have served as a waterproofing and are tight. In the approach tunnels the minor leakages are drying of themselves, and in but one or two places will any attention be needed from the contractors. The novel method is, therefore, a success, and a similar plan is being used for one of the tunnels under the Chicago river, where a single section will be sunk. Its success, too, is not limited to its engineering features, but touches the financial side of the question, for not only has the cost been more than $2,000,000 less to the railway company than any other type of construction would have been, but it has been a profitable undertaking to the contractors. In finish the section is one of the largest, if not the largest, subaqueous tunnels in existence. The conduit bench is large, roomy and with ample headroom. There is one upon each side and access is obtained by ladders set staggering at 50 ft. intervals, so that the trackmen have an opportunity to seek refuge every 25 ft.

The track construction is permanent and has been tested in service and under observation for more than two years in the open and has been found to be satisfactory in every particular. It is formed by embedding short wooden ties measuring 36 by 11 by 8 in. in the concrete flooring and spiking the rails to them with the intervention of tie plates. The rail used will be of 100-lb. section.

Outside on the Detroit approach the value of the ground is such that the natural slope could not be used, so that vertical concrete retaining walls are resorted to. But in Windsor the work in the approach cut resembles more the finished product of an old and prosperous road than what we are accustomed, in this country, to associate with a newly constructed line. The tendency of the clay to flow and the probability of trouble with a natural bank led to a complete drainage of the slopes. Drains are carried up at right angles to the track, and the whole slope has been sodded; then, at the bottom, there are the tile drains to carry off the water so that no trouble is anticipated, and when the tunnel is opened to the public it will present the finished appearance, in whole and in detail, of an old and well-established line.

In the preparation of this article great assistance was rendered by W. J. Wilgus, the advisory engineer; W. S. Kinnear, the chief engineer, and B. Douglas, the tunnel engineer, by whom the facts and data were contributed. All unite, however, in laying the burden of the credit for the successful completion of the work upon the shoulders of W. Butler, of the Butler Bros. Construction Co., who were the contractors. As the contract was let, the work became a mutual affair. Instead of offering plans for a hard and fast design upon which bids were to be made and in accordance with which the work was to be done, four alternative plans were presented for competition. The contractors were asked to choose the one from among them that they preferred, or to bid on any other plan of their own; the condition only being that a strong watertight tunnel should be delivered to the tunnel company. The Butler Co. chose the one that has been used, and after having made their selection and submitted plans that were approved they were given a free hand to work out the details as they pleased. On them devolved the detail of the construction of the tubes, their sinking into position, the placing of the concrete and the meeting of the thousands of emergencies that were sure to arise, and that did arise with daily and hourly frequency, with all imaginable variations and inconceivable persistency. And it is in the meeting of these unexpected conditions and the resourcefulness shown in overcoming them that the engineers unite in giving the credit to Mr. Butler. —Railway Age Gazette.



Tubes partly sunk.

June Birthdays.

Many happy returns of the day to—

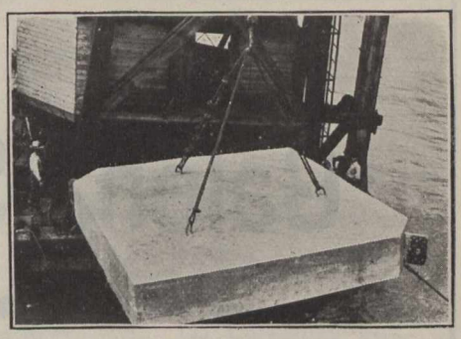
Harry Abbott, ex-General Superintendent C.P.R., Vancouver, B.C., born at Abbotsford, Que., June 14, 1829.

Jas. Anderson, Manager Sandwich, Windsor and Amherstburg Ry., Windsor, Ont., born at Ayr, Ont., June 20, 1851.

W. C. Bowles, General Freight Agent Pacific Division, C.P.R., Vancouver, B.C., born at Montreal, June 3, 1875.

J. H. Boyle, Assistant Superintendent, district 3, Eastern Division, C.P.R., Montreal, born at Waterloo, Que., June 25, 1869.

F. P. Brady, member Government Railways Managing Board and General Superintendent Government Railways, Moncton, N.B., born at Haverhill, N.H., June 22, 1853.



38-ton concrete anchor.

E. Callaghan, Agent Hamilton Steamboat Co., Toronto, born at Kingston, Ont., June 17, 1875.

A. E. Doucet, Division Engineer Transcontinental Ry. Surveys, Quebec, born at Montreal, June 9, 1860.

G. H. Eaton, Assistant Master Car Builder, C.P.R., Western Lines, Winnipeg, born in Staffordshire, Eng., June 9, 1860.

A. A. Goodchild, Auditor of Stores and Mechanical Accounts, C.P.R., Montreal, born at Peckham, London, Eng., June 3, 1866.

H. W. Harding, Local Secretary Canadian Northern Ry., London, Eng., born there June 6, 1869.

F. M. Hawley, city ticket agent G.T.R., Cobourg, Ont., born at Campbellford, Ont., June 22, 1874.

L. R. Johnson, Assistant Superintendent of Motive Power C.P.R. Eastern Lines, Montreal, born at Abingdon, Berks, Eng., June 22, 1855.

L. K. Jones, Secretary Department of Railways and Canals, Ottawa, born at Port Hope, Ont., June 9, 1849.

A. C. Lytle, Assistant Superintendent Orford Branch C.P.R., Eastman, Que., born at Hemmingford, Que., June 6, 1854.

W. R. MacInnes, Freight Traffic Manager C.P.R., Montreal, born at Hamilton, Ont., June 7, 1867.

D. McDonald, Manager Montreal St. Ry., born at St. Thomas de Montmagny, Que., June 17, 1859.

S. J. McLean, Dominion Railway Commissioner, Ottawa, born at Quebec, June 14, 1871.

C. E. McPherson, General Passenger Agent C.P.R., Western Lines, Winnipeg, born at Chatham, Ont., June 7, 1861.

H. J. Maguire, District Baggage Agent, Pacific Division, and B.C. and Pacific Coast Service, C.P.R., Vancouver, B.C., born at Toronto, June 16, 1881.

G. Manson, Assistant to Second Vice President C.P.R., Winnipeg, born at Thurso, Scotland, June 8, 1863.

L. Mulkern, chief clerk General Freight Agent Through Traffic C.P.R., Toronto, born at London, Ont., June 18, 1871.

F. Price, Superintendent Car Service G.T.R., Montreal, born there June 11, 1864.

Allan Purvis, Local Manager B.C. Electric Ry., Fraser Valley Branch, New Westminster, B.C., born at Batavia, Java, June 29, 1864.

D. I. Roberts, General Manager, Quebec, Montreal and Southern Ry., and Napierville Jct. Ry., Montreal, born at Waynesburg, Pa., June 27, 1853.

Jas. Stephenson, ex-Chief Superintendent G.T.R., now of Clevedon, Somerset, Eng., born at Weston Super Mare, Eng. June 2, 1837.

W. Webber, General Agent Passenger Department Atlantic Steamship Service, C.P.R., Montreal, born at Liverpool, Eng., June 10, 1872.

A Railway to Hudson Bay.

The Dominion Parliament May 3, voted $500,000 upon construction account for a railway to Hudson Bay. The Minister of Railways, referring to the vote, said the work as proposed will start at Le Pas, on the south side of the river. It is proposed to utilize this vote, or a portion of it, immediately, to ask for tenders for the erection of a bridge across the river at that point. It was intended to do that specific construction at once. It is a little difficult to say what will be the terminus of the line, but whether it be at Nelson or Churchill, the route for the first 160 miles will be the same. The votes passed for the Marine Department provide for sending a steamer round to Hudson Bay by the straits for the purpose of gaining more information in regard to the two ports. From the railway standpoint the route to Nelson would be the shorter, and would afford the easier construction. There is some difference of opinion as to which is the better harbor. The engineer's report that Nelson has the foundation for a safe and larger harbor, while on the other hand, Churchill has a harbor ready made, but not so large. A further sum of $180,000 has also been voted for surveys. (May, pg. 373.)

Recent Dominion Legislation.

The Dominion Parliament at its recent session passed the following acts affecting transportation interests, in addition to those named in our May issue, which were assented to some time prior to the prorogation ceremonies:—

Alberta and British Columbia Ry.—Amending act.

Alberta, Peace River and Eastern Ry.—Incorporation.

Brandon, Saskatchewan and Hudson's Bay Ry.—Extending time for construction.

Buctouche Ry. and Transportation Co.—Respecting company's powers.

Burrard Inlet Tunnel and Bridge Co.—Defining company's powers.

Cables and Telegraphs.—To control rates and facilities of ocean cables, and to amend Railway Act with respect of telegraphs and jurisdiction of Board of Railway Commissioners in regard thereto.

Canadian Northern Alberta Ry.—Incorporation, and providing aid for construction of railway.

Canadian Northern Ontario Ry.—Respecting company's powers.

Canadian Northern Ry.—Extending time for constructing certain branch lines; authorizing construction of additional lines, and otherwise amending powers.

Dry Docks.—To encourage construction of dry docks.

Essex Terminal Ry.—Extending time for construction, etc.

Gatineau and Ungava Ry.—Incorporation.

Government Railways.—(1) Authorizing Government to acquire by lease railways connecting with Government railways; (2) Providing for adjudication of small claims arising in respect to the operation of Government Railways; (3) Amending Government Railways' Act.

Guelph Junction Ry.—Authorizing City of Guelph to acquire interests of stockholders who are alleged to hold shares in trust for the city.

Hamilton, Waterloo and Guelph Ry.—Authorizing extension into Toronto, and extending time for construction.

James Bay and Eastern Ry.—Incorporation.

Kingston, Smiths Falls and Ottawa Ry.—Extending time for construction.

Montreal Harbor Commission.—Providing for further advances by Government for improvements and additional facilities.

Montreal, Kapitachuan and Rupert's Bay Ry.—Incorporation.

Morrisburg Ferry and Dock Co.—Incorporation.

Naval Service.—Respecting Canadian naval service.

Navigable Waters Protection Act.—Amending existing acts.

Nelson River Ry.—Incorporation.

Northern Quebec Colonization Ry.—Incorporation.

Ontario and Ottawa Ry.—Incorporation.

Ottawa and Montreal Transmission Co.—Incorporation.

Ottawa, Rideau Valley and Brockville Ry.—Incorporation.

Prince Albert and Hudson Bay Ry.—Authorizing extension of time for construction, and extension of line.

Railway Act.—Amending provisions.

Rainy River Radial Ry.—Incorporation.

St. John.—Authorizing erection of wharves and buildings in St. John, N.B., harbor.

St. Lawrence Power Transmission Co.—Incorporation.

Subsidies to Railways.—Granting subsidies in aid of construction of certain railways.

Telegraphs Act.—(1) Amending Telegraphs Act; (2) Correcting error in same.

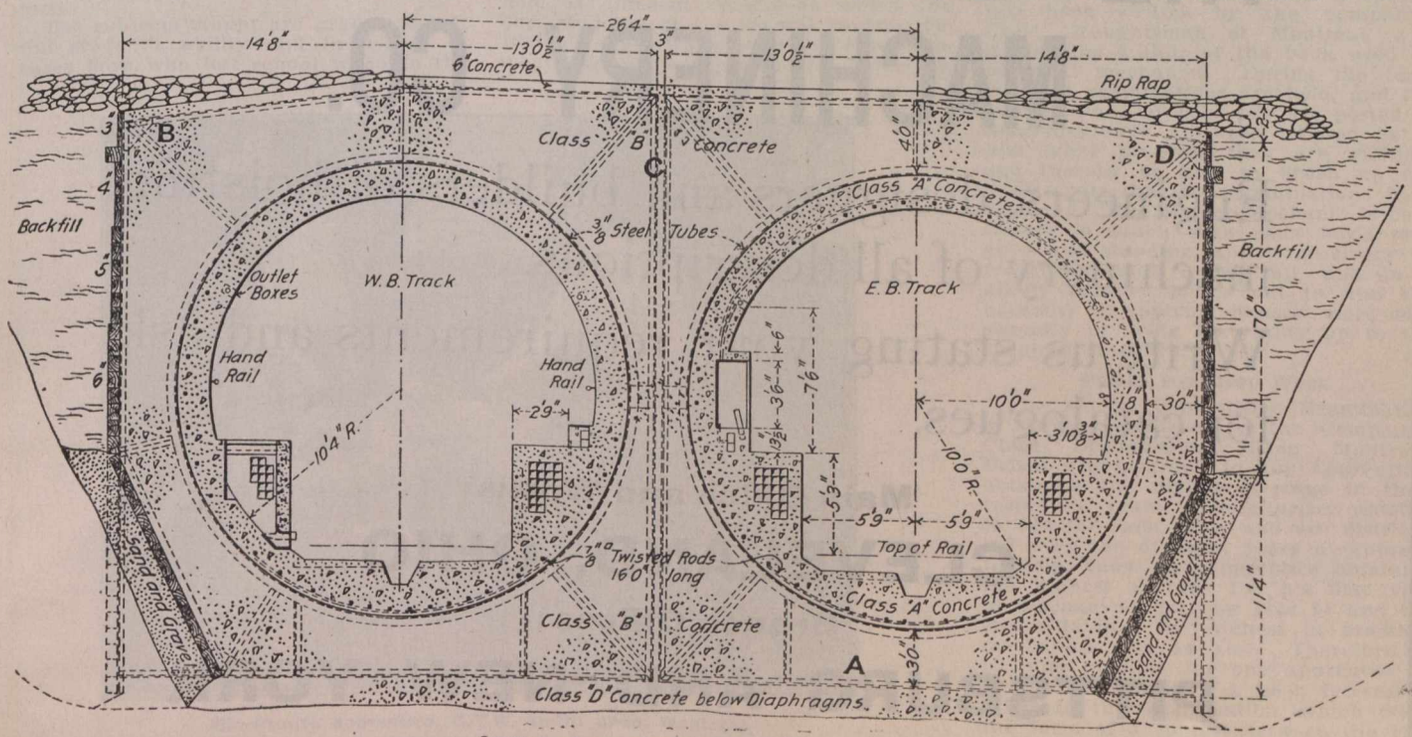
Toronto Eastern Ry.—Incorporation.

Vancouver Island and Eastern Ry.—Extending time for construction.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—Extending time for construction.

Water Carriage of Goods.—Act respecting.

Canadian Railway Club.—The annual meeting was held at Montreal, May 3. The report for the past year showed that there were 650 members, and that there was a balance in hand of $2,905 against $2,287 for the previous year. Some discussion took place as to the advisability of utilizing this surplus, and it was decided to appoint a committee to enquire into the question of establishing a reference railway library, and to report to the next general meeting. H. H. Vaughan, Assistant to the Vice President C.P.R., on retiring from the presidency, was presented with an engraved gold ornament, and the formal proceedings were concluded by an address by Grant Hall, Superintendent of Motive Power C.P.R., Winnipeg, President of the Western Canada Railway Club. The following were elected for the current year:—President, A. A. Maver, Master Mechanic Motive Power G.T.R., Montreal; Vice President, A. A. Goodchild, Auditor of Stores and Mechanical Accounts, C.P.R.; Second Vice President, J. Coleman, Superintendent Car Department G.T.R.; Secretary, J. Powell; Treasurer, S. S. Underwood; Executive Committee, A. L. Grayburn, R. W. Burnett, H. C. Butler, C. Kyle, W. McNab and F. Ditchfield; Auditors, H. A. White, J. S. Johnstone and G. I. Evans.



Section of completed Detroit River tunnel.

The G. T. R. Apprentice System.

The problem of effectually supplying the ever-increasing demand for skilled and thoroughly trained mechanics has been constantly in the foreground and for some years past has caused a great deal of anxiety to the heads of all large industrial corporations, and everywhere was heard sighs of regret that the ranks of the good mechanics were being rapidly depleted. Realizing that this was in part correct, the G.T.R. some years ago endeavored to fill the breach and pioneered a movement for the technical training of its apprentices. The average boy, who from force of circumstances had to leave school in the early stages of his education and take up his life work, had little to look forward to in the matter of education, except by years of unremitting toil, unassisted, unrewarded, and finally arriving at a smattering of a few primary subjects imperfectly learned. Night schools filled in part some of the requirements, but attendance whilst beneficial was mostly drudgery, owing to the subjects taught not bearing directly on their daily work. With this problem before it, the G.T.R. several years ago started a class for its apprentice boys, who were eager to learn; commenced to teach subjects which at once aroused interest among the boys, bearing as it did on the everyday needs of mechanics. In a surprisingly short time, the desire for knowledge being whetted, it was found necessary to increase the scope of the teaching, as the apprentice boy of the day saw within his grasp the very highest position of responsibility in the management and operation of the road. He realized that here was an opportunity to obtain an education little short of a college course, with a minimum exertion on his part and at the same time be independent and self-supporting. From the commencement on a small scale, the system has grown until at present these technical schools are spread at all important centres throughout the entire G.T. system and hundreds of scholars are enrolled, whilst every large railway system of this continent boasts several graduates of the G.T. training schools as their chief mechanical engineers, and more than one of Canada's largest industrial concerns have graduates as their chief draughtsmen.

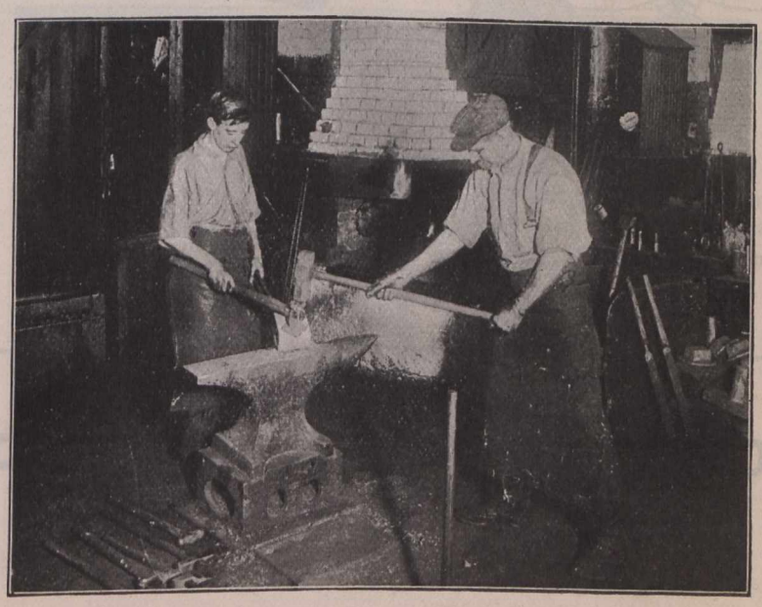
The subjects taught are graded to suit the student's ability and in dozens of cases boys who left school when in the second book can now do problems which would tax the powers of a high school graduate to the utmost. The subjects taught comprise everything from simple arithmetic to higher mathematics, mechanics, machine design and mechanical drawing, and so well has the course been graded that numerous requests from mechanics' institutes and even the largest technical colleges have been received for complete sets of instruction boks. The entire cost of education at these training schools is borne by the G.T.R., which furnishes all the equipments and engages the instructors, who must themselves have had a thorough technical and practical training, so as to enable them to anticipate the needs of the apprentices. Further encouragement is given the boys to learn by the large number of prizes donated annually, open to competition to all classes on the system, and include free scholarships in engineering at McGill University, as well as handsome cash prizes. These prize competitions are held at different centres to which the best students at the several centres are invited, free transportation, entertainment and all expenses being borne by the company. The appreciation of individual promotions forms one of the strongest features in the system and serves to keep alive the keenest interest in the classes, as the boys realize that as soon as they arrive at a certain standard of excellence, increased pay is their reward, and many of our foremost students of political economy, see in this system, as it is being carried out, the future supply of skilled mechanics, master mechanics, superintendents, etc., being carefully husbanded, and an effective solution to the labor problem, namely, the prompt recognition of individual merit.

Pattern maker apprentice, G.T.R. Pattern Shop, Montreal.

For two evenings a week during the fall and winter months the apprentice must attend mechanical drawing classes, study of practical mechanics and elementary electricity, the most competent instructors procurable being provided. On the staff are two graduates of Canadian and U.S. engineering colleges, McGill and Purdue. The work in the drawing class is outlined in a special text book written by the company's Chief Draughtsman at Montreal, who is also the author of the book used on practical mechanics. During the term frequent examinations are held, and the points gained by each boy are posted so that they may all keep advised as to just what progress they are making, and thereby be able to brush up the weak spots that the examinations have disclosed. The Master Mechanic is constantly in touch with each boy's progress and standing, and if necessary he frequently calls a boy up, and in a kindly manner points out to him the necessity of applying himself more consistently to bring his rating up to the required standard.

PRIZES FOR BEST WORK.

The annual Competitive Examination is always conducted by the Company's Chief Draughtsman from Montreal. Prizes are awarded to the apprentices obtaining the highest average in their respective years. These prizes amount to $40 for each shop, and are distributed over the different years of apprenticeship, thus: the apprentice obtaining the highest average for his first year in mechanical drawing gets $4 and the one obtaining the highest in practical mechanics gets $4 also. Therefore, it is quite possible for one apprentice to obtain both prizes. A keen interest is taken in this examination, which takes the form of a contest between the var-

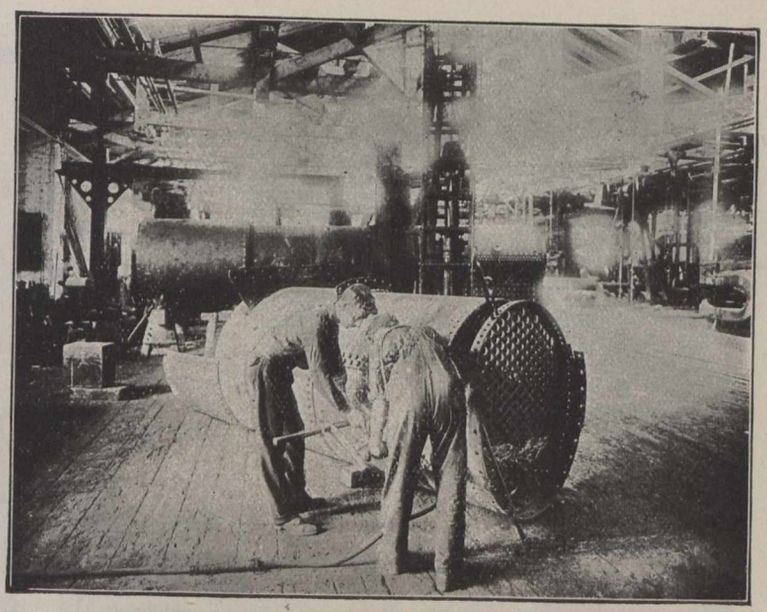


Blacksmith apprentice, G.T.R. Smith Shop, Montreal.

ious shops. In addition to the prizes as stated above there is a capital prize offered of $25 for each subject. This is competed for by the apprentices obtaining the highest averages in drawing and practical mechanics at their respective stations. These apprentices are given a trip to some point on the system where the final examinations are held, and the one receiving the highest number of points in each subject receives the amount stated. This, in addition to what he has already received at his station, will make a total of $29, $33 or $58, if he has been succcessful in all subjects. After the season has closed, the boys at some of the large shops hold what is termed "Apprentice Night." This is the social event of the season. Each one makes a drawing, which is neatly got up and inked in. This is placed on exhibition, and the prizes are awarded for each year of apprenticeship. These prizes are $2.50 for the first, and $1.50 for the second. There are also prizes offered for special colored drawings, $3 for first, and $1.50 for second. This may be competed for by any apprentice, irrespectively of his year, and considerable interest is manifested by those of artistic ability.

The form of apprenticeship which has been adopted by the G.T.R. has been in successful operation for a number of years and has been the means of supplying that company with skilled mechanics in the most satisfactory manner. All apprentices are indentured to machinist's trade for five years, and to blacksmith's, boilermaker's, or other trades for four years. Five cents per day is deducted from the wages of each apprentice, and the total amount is returned to him at the expiration of his apprenticeship with an addition of $25 as a bonus if services have been entirely satisfactory. The first requisite in employing an apprentice is to know that he is morally, physically and mentally capable of filling the requirements of a mechanic. To ascertain this the apprentice is required to make his application direct to the Master Mechanic or the General Foreman, and to be not under 15 or over 18 years. He is required to undergo a medical examination so as to assure the head of the department that he is healthy and likely to be able to follow up the trade after he has completed the term of apprenticeship.

This information being satisfactory, he has to pass an examination in the Master Mechanic's or General Foreman's office. This is usually conducted by the chief clerk or some person specially appointed for that purpose, as follows:—



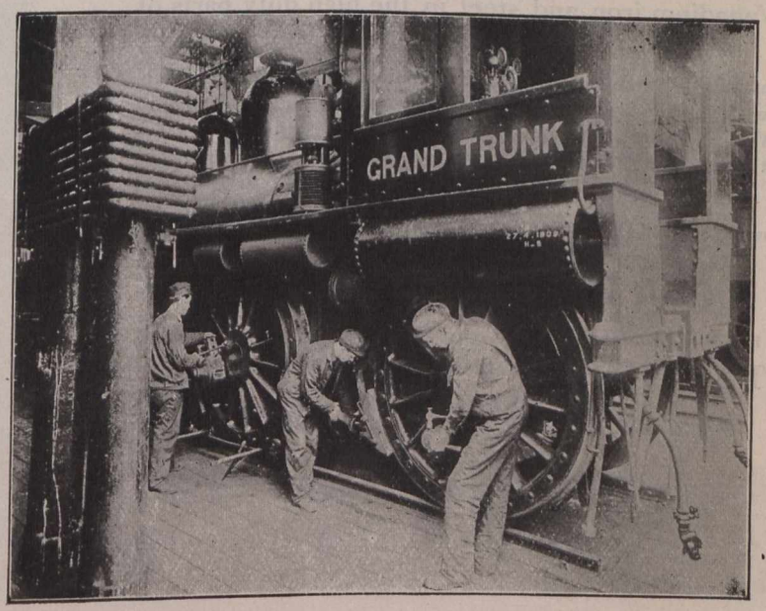
Boiler maker apprentices, G.T.R. Erecting Shop, Montreal.

To be able to read extracts from instructions from end of employes' train time-table, standing 30 inches from same; to be able to hear the ticking of an ordinary open-face watch at a distance of 4 ft.; by writing a letter, from dictation, applying for employment in the shops; to be able to work out correctly similar examples in arithemetic, to the following:—

Multiply 122,983,672 by 527,001.
Divide 723,643,978 by 365.

The applicant is required to write this examination out on foolscap paper, and if satisfactory it is copied by him into the record book kept in the Master Mechanic's or General Foreman's office, so that a complete record of the boy's ability is on file from the day he first enters the service. The apprentice after having passed a successful examination is provided with a text-book for his instruction and guidance. This book contains examinations for the apprentice for each promotion he takes while serving his apprenticeship, and if he fails in any of these examinations he is set back to his old position for another term and the next apprentice in turn is promoted ahead of him, provided the next apprentice passes a satisfactory examination. When another promotion is necessary the apprentice who failed is given another opportunity to qualify. If he fails the second time he is either dismissed from the service or given some minor position he is capable of filling outside of the trade, as it is concluded that he is either not sufficiently intelligent or too indifferent to make a mechanic.

After passing the first or entrance examination in the Master Mechanic's or General Foreman's office the apprentice is sent out to the boiler, blacksmith or coppersmith shops, or other shop as may be required. He stays there from six to nine months, and is taught to be active and obedient, and to prepare himself for future promotions. When a boy is to learn one branch of the business only, for instance, boilermaking, blacksmithing, steam-fitting, etc., he is only required to serve four years, but if he is to learn the machine work and fitting, he is required to serve five years and all the machinists' apprentices are indentured for five years. In the case of any apprentice learning the boilermaking or blacksmithing he is required to pass an examination in the Master Mechanic's office and the first examination in the apprentices' rule book, as it is deemed necessary to have the information contained therein for any branch of the service, and in the case of these four-year apprentices being few in number after the first examination, in comparison to the machinist's apprentices, they are instructed in their business by the foreman in charge, and each year they are required to pass an examination in drawing before receiving their advance in wages, the same as machinists' apprentices.



Machinist apprentices, G.T.R. Erecting Shop, Montreal.

MAKE THE APPRENTICE THINK.

The object of the text book is to have the boy theoretically conversant with the work that is going to be done by him after his next promotion. For instance, a boy going from the blacksmith to machine shop has to pass his examinations before he is accepted in the machine shop, which is called "Examination for promotion of apprentices from other shops to the machine shop." As he is usually put on a drill to commence with, by studying his text book, he learns considerable about it, and also the tools he is to use in connection with

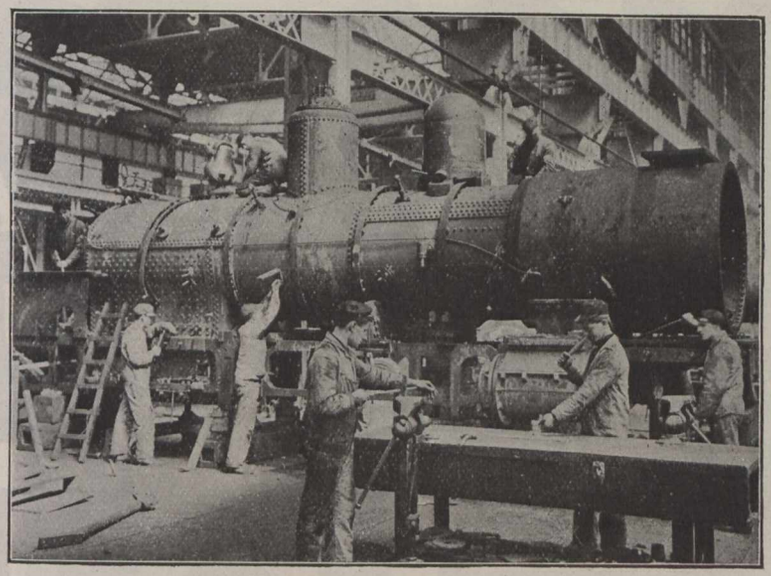
it. The same practice is followed throughout the whole term of apprenticeship, and while the apprentice is working at one machine he is studying as much as possible about the machine he is to go on next. One of the great advantages of this system is that it gets the apprentice thinking, and leads him to reading up in line with his work.

The indenture system has been found of great advantage both to the company and the apprentice. It has a tendency to keep the apprentice satisfied, and steady his energies along the required lines. It also prevents him from being tampered with by outside firms or corporations who desire to obtain the services of the boy as soon as he has become useful to the company who has instructed him. At the completion of his term each apprentice receives a certificate showing that he has served as an apprentice and as a mechanic in the branch of trade that he was apprenticed to. An apprentice is required to serve five years at the following rates: 8c, 10c, 12c, 15c and 17c per hour. Before he is granted each years' advance he is required to pass a written examination on shop work, also make a drawing of some detail part of a locomotive, as specified in the apprenticeship book, which examination and drawing must have the approval of the Master Mechanic, and the Superintendent of Motive Power before his advance is allowed.

This system insures thorough education in all details of the trade, and while some of the work may be specialized it is not done by the apprentice until he becomes a journeyman. For instance, the apprentice comes from the boiler shop to the machine shop, from the machine shop to motion bench, to the side rod bench, to the axlebox gang, to the steam pipe gang, to the valve gang, and finally to the erecting gang, so that after an apprentice is out of his time he is a specialist in any one of these branches.

This system of apprenticeship on the G.T.R. has also been found to be the means of parents giving their sons who desire to enter the service, a better education than formerly. Before its adoption the only requirement was that the boy had to be 15 years of age. It was found that parents took their boys away from school at 12 or 13 years of age, and put them at some other work until old enough to enter the G.T.R. shops. When the examinations were first inaugurated quite a number of the boys were rejected, and had to go back to school again before they could qualify to enter the service. This has not only resulted in prospective applicants getting a better education, but has elevated the moral standing of the apprentices' work, and made the system attractive to boys who have passed the high school entrance examination, and who, although well advanced along the lines of school education, adopt the mechanic's trade in preference to other pursuits. The success of the apprenticeship system is imperatively dependent upon the careful management of the examinations, and the compulsory attendance at the classes provided by the company.

An apprenticeship record is kept. This is filled out by the chargeman under whom the apprentice is working, is scrutinized by the foreman, and then forwarded to the master mechanic.



Apprentices working on a rebuilt engine in charge of one who has recently completed his apprenticeship, G.T.R. Stratford Shops.

G. B. Wyllie, Travelling Passenger Agent, Illinois Central Rd., Buffalo, N.Y., has removed his office from 305 Main St., to room 220 Ellicott Square, on the balcony of the rotunda.

Apprentices' drawing class, G.T.R. Montreal Shops.

Great Northern Ry. Lines in Canada.

Midland Ry. of Manitoba.—After several meetings between representatives of the company and the Winnipeg City Council, a comprise was reached in regard to the route which the company will follow in entering the city, and an agreement is being drawn up for signature. The arrangement was concluded by the Assistant to the President of the G.N.R., and the agreement is being prepared by J. Fisher, K.C., the company's legal representative in Winnipeg. The line proposed to be constructed will start from the terminus of a G.N.R. branch south of the International boundary near Emerson and makes an over line into Winnipeg. It is stated that construction will be started immediately after the agreement is signed. It is also stated that work will be started immediately building a second track on the company's line from Gretna, at the International boundary to Portage la Prairie.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—Construction is being proceeded with on the section between Abbotsford and Hope, B.C., the contractors being J. W. Stewart & Co. A sub-contract for 20 miles from Abbotsford to Chilliwack has been let to M. Welch & Co. and sub-contracts will, it is said, be let at an early date for the mileage between Chilliwack and Hope. It is expected that the work will be completed in about a year and a half. East of Hope Mountain construction gangs are at work between Princeton and Otter Tail, 18 miles. The route between Otter Tail and Hope has not been decided on, the question of tunnel or open construction being still under consideration.

A large force of men is engaged ballasting the line between New Westminster and Port Guichon, New Westminster and Cloverdale, and Port Guichon and Cloverdale.

Negotiations are being carried on with a view of bringing about a sett'ement of the differences between the B.C. Government, the company and the New Westminster City Council, as to the new station at the Fraser River bridge.

Speaking at Vancouver, April 30, J. J. Hill, who was accompanied by his son, L. J. Hill, President G.N.R., said it would be only a few years before his company would have a direct Canadian line between Vancouver and Winnipeg, tapping Calgary and other centres. (May, pg. 361).

Decision re Pullman Car Charges.

The Interstate Commerce Commission decision in the case of G. S. Loftus v. Pullman Co., et al, is of sufficient importance to warrant its publication in full. Commissioner Lane delivered the Commission's judgment as follows:—

In view of the similarity between the issues involved in these cases, it seems proper to dispose of them in a single report. In number 1084 the complainant challenges the lawfulness of the standard charge of $2 exacted by the Pullman Co. for the use of a berth in a first class sleeping car from St. Paul, Minn., to Chicago, Ill., via the Chicago, St. Paul, Minneapolis & Omaha and the Chicago & North-Western Ry. Request is made that the rate for the lower berth be fixed at $1.50 and the rate for the upper berth at 75c.

In number 1085 the petition puts in issue the lawfulness of the standard charge of $1.50 exacted by the defendants for the use of a berth in a first class sleeping car from St. Paul, Minn., to Superior, Wis. Request is made that the rate for the lower berth be fixed at $1 and the rate for the upper at 50c. It appearing that sleeping cars are not operated over the Chicago, St. Paul, Minneapolis & Omaha Ry. between St. Paul and Superior, as to that carrier the case will be dismissed.

In number 1086 the lawfulness of the first class sleeping car rates from St. Paul, Minn., to Seattle, Wash., and from St. Paul to Fargo and Grand Forks, N. Dak., is called in question. Request is made that the rate for the lower berth from St. Paul to Seattle be reduced from $12 to $8 and the rate for the upper berth from $12 to $4, the rate for the lower berth from St. Paul to Fargo from $2 to $1.25, and for the upper berth from $2 to 75c, the rate for the lower berth from St. Paul to Grand Forks from $2 to $1.50, and for the upper from $2 to 75c.

All the rates of which complaint is made are alleged to be unreasonable, and the exaction of the same charge for the use of an upper berth as is made for the use of a lower berth is alleged to be unduly discriminatory. The defendants answer generally, denying that the rates which are the subject of attack are unreasonable or discriminatory or otherwise in violation of the act.

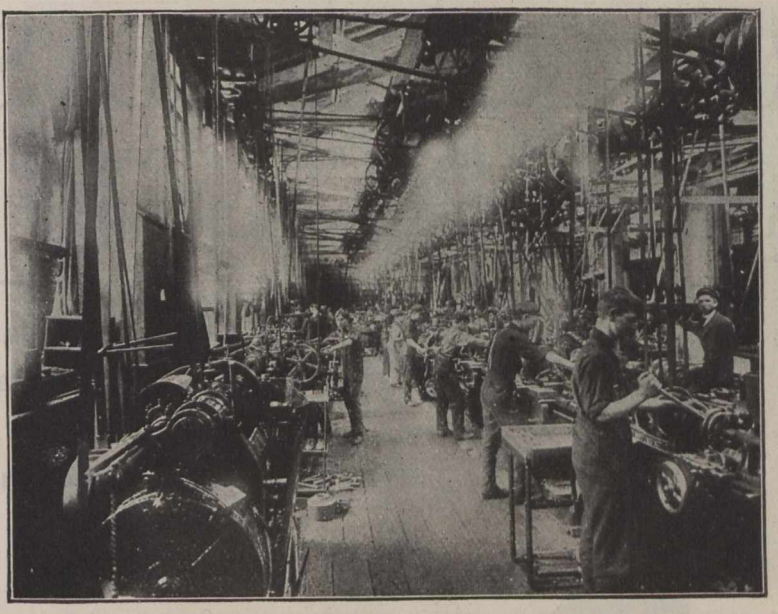
The Pullman Co. is engaged primarily in the business of operating sleeping cars over various lines of railway throughout the United States, Canada, and Mexico. It is also a large manufacturer of cars, but this phase of its business need not be considered at this time. According to figures submitted by the Pullman Co. the initial cost of the standard sleepers built within the last four years ranges approximately from $17,500 to $19,500 per car. The title to most of this rolling stock is vested absolutely in the Pullman Co., but there are one or two exceptions to the rule. The sleeping cars which are operated over the Northern Pacific Ry. are owned by the railway company and the Pullman Co. jointly, through the medium of a so-called "Association," the revenues being shared upon an agreed basis. The sleeping cars running over the Atlantic Coast Line Rd. have a similar status. The Great Northern Ry. Co., a co-defendant with the Pullman Co. in cases 1085 and 1086, owns and operates its own sleeping cars. The cost of the Great Northern standard sleepers ranges from $13,500 to $16,500.

The Pullman Co. has contracts for the operation of its cars over virtually every important railway system in the country, with the exception of the Great Northern Ry., the Chicago, Milwaukee & St. Paul Ry., and the New York, New Haven & Hartford Rd. The contracts originally entered into by the Pullman Co. and the various railways were so-called "scaled mileage" contracts—that is, they provided that a certain mileage payment should be made to the Pullman Co., the rate varying with the amount of the earnings. The revenue from the sale of seats and berths accrued of course to the Pullman Co. In some of these earlier contracts the mileage payment was at the rate of 3c per mile. A representative modern contract provides that if the average earnings of the sleeping cars operated are less than $5,000 per car-year the railway shall pay mileage at the rate of 2c per mile. If the car earnings average more than $5,000 but less than $6,000 per car-year the mileage payment is at the rate of 1c per mile. If the earnings are in excess of $7,000 per car-year, the railway is exempt from the payment of mileage. It is provided further that if the earnings per car-year fall short of the stipulated amount the railway company may at its election make up the difference in lieu of paying mileage. Other contracts exempt the railways altogether from the payment of mileage, and still others provide that the Pullman Co. shall share with the railway company the earnings from the sale of seats and berths in excess of a certain figure.

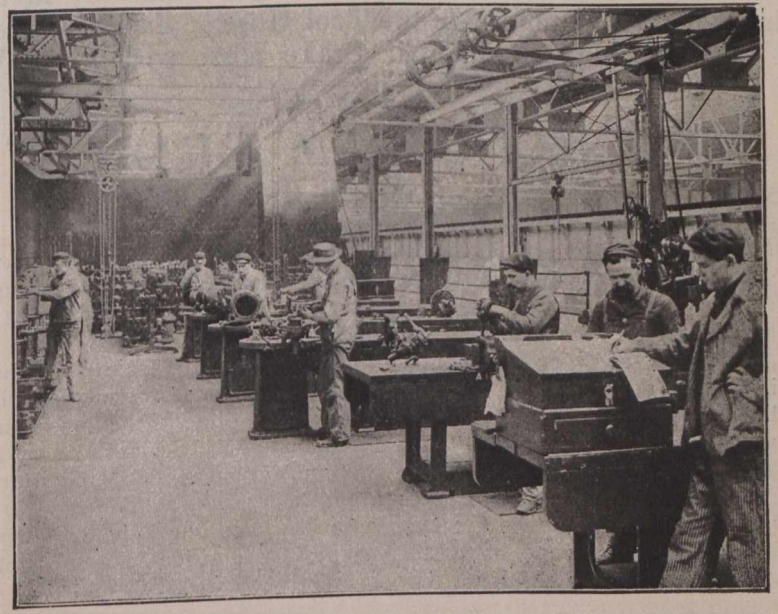
For the purposes of this report an extended review of the results of our investigation into the lawfulness of the rates complained of is unnecessary. Suffice it to say that our enquiry has been thorough and that it has led to the following conclusions:—

The present rate of $2 exacted by the Pullman Co. for the use of a lower berth in a first class standard sleeper from St. Paul to Chicago over the Chicago, St. Paul, Minneapolis & Omaha Ry. and the Chicago & North Western Ry. is not found unreasonable, but the rate for the use of an upper berth is unjust and unreasonable to the extent that it exceeds $1.50.

The present rate of $1.50 exacted by the Pullman Co. and the Great Northern Ry. for the use of a lower berth in a first class standard sleeper from St. Paul to Superior, Wis., is not found unreasonable, but the rate charged for the use of an upper berth is unjust and un-



Machinist apprentices, G.T.R. Shop, Montreal.



Air Brake Department, showing four apprentices at work and chargeman, who has just completed his apprenticeship, G.T.R. Stratford Shops.

reasonable to the extent that it exceeds $1.10.

The present rate of $12 exacted by the Pullman Co. and the Great Northern Ry. Co. for the use of a lower berth in a first class standard sleeper from St. Paul to Seattle is unjust and unreasonable to the extent that it exceeds $10. The rate for the use of an upper berth is unjust and unreasonable to the extent that it exceeds $8.50.

The present rate of $2 exacted by the Pullman Co. and the Great Northern Ry. for the use of a lower berth in a first class standard sleeper from St. Paul to Fargo, N. Dak., is unjust and unreasonable to the extent that it exceeds $1.50. The rate for the use of an upper berth is unjust and unreasonable to the extent that it exceeds $1.10.

The present rate of $2 exacted by the Pullman Co. and the Great Northern Ry. for the use of a lower berth in a first class standard sleeper from St. Paul to Grand Forks, N. Dak., is not found unreasonable. The rate for the use of an upper berth is unjust and unreasonable to the extent that it exceeds $1.50.

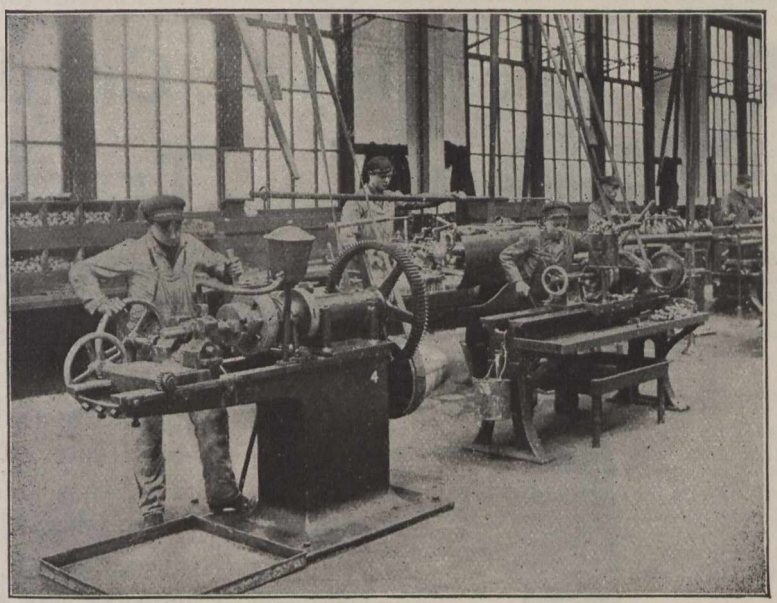
An order will be issued in accordance with these findings.

Chairman Knapp delivered the following dissenting judgment:—

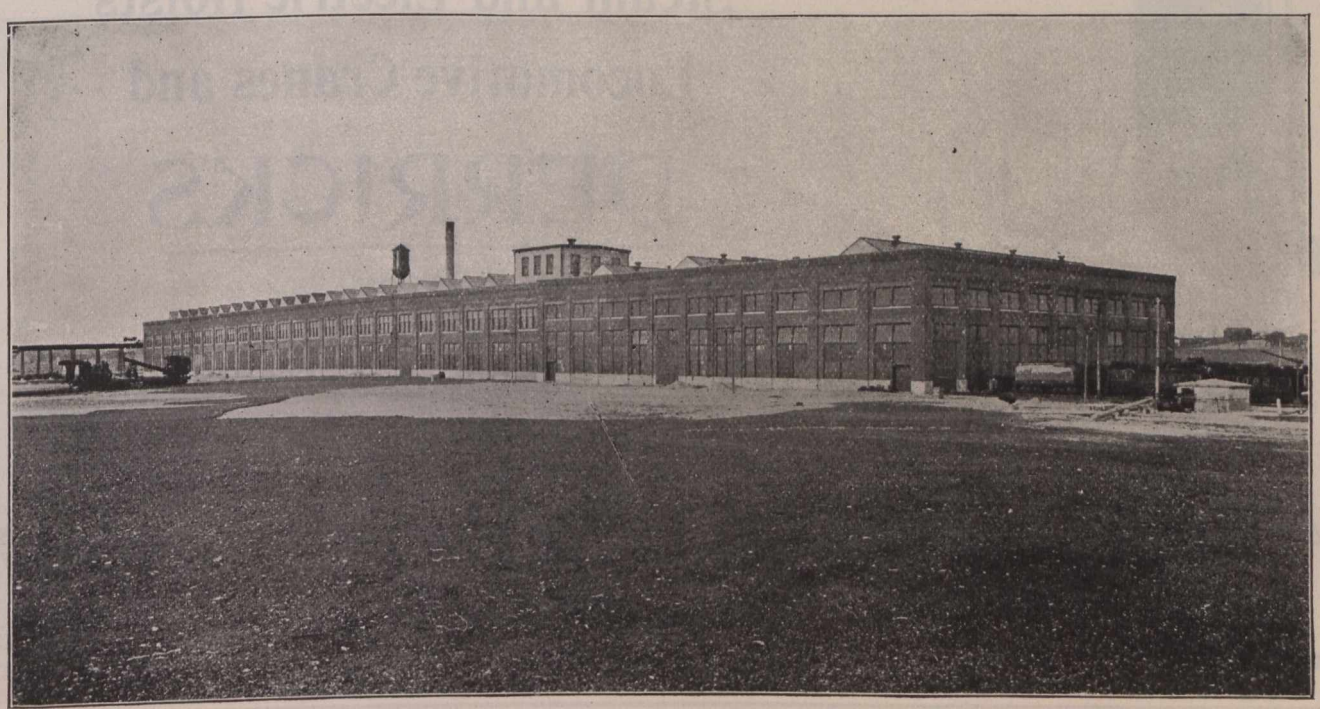
I am unable to concur in the foregoing report and will briefly indicate my reasons for dissenting. Without discussing whether the profits of the Pullman Co. have heretofore been excessive, but expressing my serious disbelief that its current earnings yield more than a reasonable return upon the present value of its property, especially in view of the risks and uncertainties of its business future, I base my objections to the majority report upon altogether different grounds.

The fact that sleeping-car accommodations are furnished by an independent company, which has had an extremely profitable career and may continue prosperous for an indefinite period, seems to me wholly immaterial, except as sleeping-car earnings may properly be taken into account in determining whether the entire revenue from passenger transportation is excessive. In other words, the question presented in these cases is precisely the same, in my judgment, and should be determined by the same considerations as would govern if sleeping cars were provided in all cases by the railroads themselves and not, as is the general rule, by an outside company. Nor does it matter, save to the same extent, that the few roads which operate their own sleeping cars, as do the Great Northern and the Milwaukee, realize handsome profits from this branch of their business. It is of no appreciable concern to the passenger, either in sleeper or day coach, whether the car he rides in belongs to the road over which he is traveling or to some other company, and he is equally unconcerned as to which of them gets the money paid for his passage. The real question in all cases is whether unreasonable charges are exacted from the public for any service or facility which a railway is bound to provide or undertake to provide; and this question, as applied to sleeping-car rates, must be determined almost wholly by comparison, because there is no other helpful or even available test. What sleeping cars cost, or how much they earn, or what profits are derived from their operation, seems to me of little bearing upon the reasonableness of the charges in question. The facts of controlling weight and the only fair basis of judgment, as I think, are found by comparing sleeping-car accommodations with day-coach accommodations and what it costs to travel in sleeping cars with what it costs to travel in day coaches. When this comparison is made it becomes evident, to my mind at least, that the transportation charges now paid by passengers in sleeping cars are relatively lower than the charges paid by other passengers. The difference in the value of the service is greater than the difference in charge.

The railways in effect furnish two kinds of passenger cars, differing very materially in comfort, convenience, and safety, and passengers may take one kind or the other, as they choose, at the different rates provided. Now, what ought to be paid by passengers who elect



Apprentices at work in Bolt Department, G.T.R. Stratford Shops.



General view, G.T.R. Shops, Battle Creek, Mich.

to take the superior car in comparison with what must be paid by passengers who take the inferior car because, for the most part, they feel obliged to travel as cheaply as possible? Holding, as I do, that the relation between sleeping-car and day-coach rates is the vital matter of concern to the public, and believing that the present differences are of doubtful justice to the day-coach passenger, I cannot vote to reduce sleeping-car charges, particularly lower-berth charges, and thereby increase the relative advantages now enjoyed by sleeping-car passengers.

A concrete case from the record, which is typical of conditions generally, may serve to illustrate my point of view. The first class fare from St. Paul to Seattle is $48.90. For this sum the passenger can make the journey in a standard day coach and have such conveniences as are ordinarily found in passenger cars of that class. By paying $12 more, or slightly less than 25%, he may travel in a sleeping car so much superior to the day coach as hardly to permit comparison. This car may fairly be called a hotel on wheels, and a hotel of attractive and even luxurious appointments. It is much heavier than the day coach and easier to ride in; its greater strength makes it very much safer. It carries comparatively few passengers, less than half the number that may be crowded into an ordinary car, and its occupants are usually persons of good appearance and unobjectionable manners. In addition to its sleeping accommodations, which are generally excellent in point of comfort and cleanliness, it has commodious toilet and smoking rooms, with other features of convenience and desirability, including the more or less attentive porter. In such a car the journey is made with little fatigue and often with positive enjoyment. Surely all this is cheap by comparison at the cost of only 25% above the day-coach rate. Is not the discrimination in fact against the day-coach passenger?

On many roads there are trains composed exclusively of sleeping cars and parlor cars, which fall in the same category. Such trains often include observation and buffet cars, supplied with books, magazines, and papers, to say nothing of bodily refreshments, and not infrequently carry a stenographer, lady's maid, and barber to wait upon the passengers. For all these conveniences and satisfactions the additional charge appears to me extremely moderate in comparison with the accommodations provided for and rates paid by day-coach passengers, and I fail to see upon what ground these additional charges can be found unreasonable.

If the undisputed facts of comparison and the argument based thereon are given due weight, and they seem to me peculiarly applicable and convincing in these cases, they lead to the conclusion that the sleeping-car charges in question, certainly the lower-berth charges, are not shown to be unreasonable. To reject these facts and their legitimate inferences is, in my opinion, to ignore the element of the value of the service and to leave the conclusions of the majority with little support, except the fact that the Pullman Co. has made a great deal of money, and that the defendant roads which operate their own sleeping cars have found the business profitable, or at least have so kept their books as to indicate that result. In my judgment, the deduction is wholly unwarranted.

It is a matter of common knowledge that the number of sleeping-car passengers compared with the number of day-coach passengers is relatively small. Leaving out all short-distance travel and taking into account only journeys of, say, 100 miles and upward, much the greater number of travelers ride in ordinary coaches. The remaining minority patronize sleeping and parlor cars, paying the additional charge therefor, as most of them are well able to do. It does not accord with my sense of justice or my understanding of the law which the Commission is appointed to administer to reduce the charges voluntarily paid by the limited number of persons who travel in sleeping cars, and I regret a decision which, as I view the matter, will operate unjustly, not perhaps to the Pullman Co., but to the public at large.

On broad grounds of social welfare I have long believed in low passenger fares for everybody, and I shall welcome a material reduction from present rates as soon as it can be made without injustice to the railways. But I would bring this about, if I could, before reducing the extra cost of sleeping-car accommodations for the benefit of a comparatively few persons who, in my estimation, are now distinctly favored.

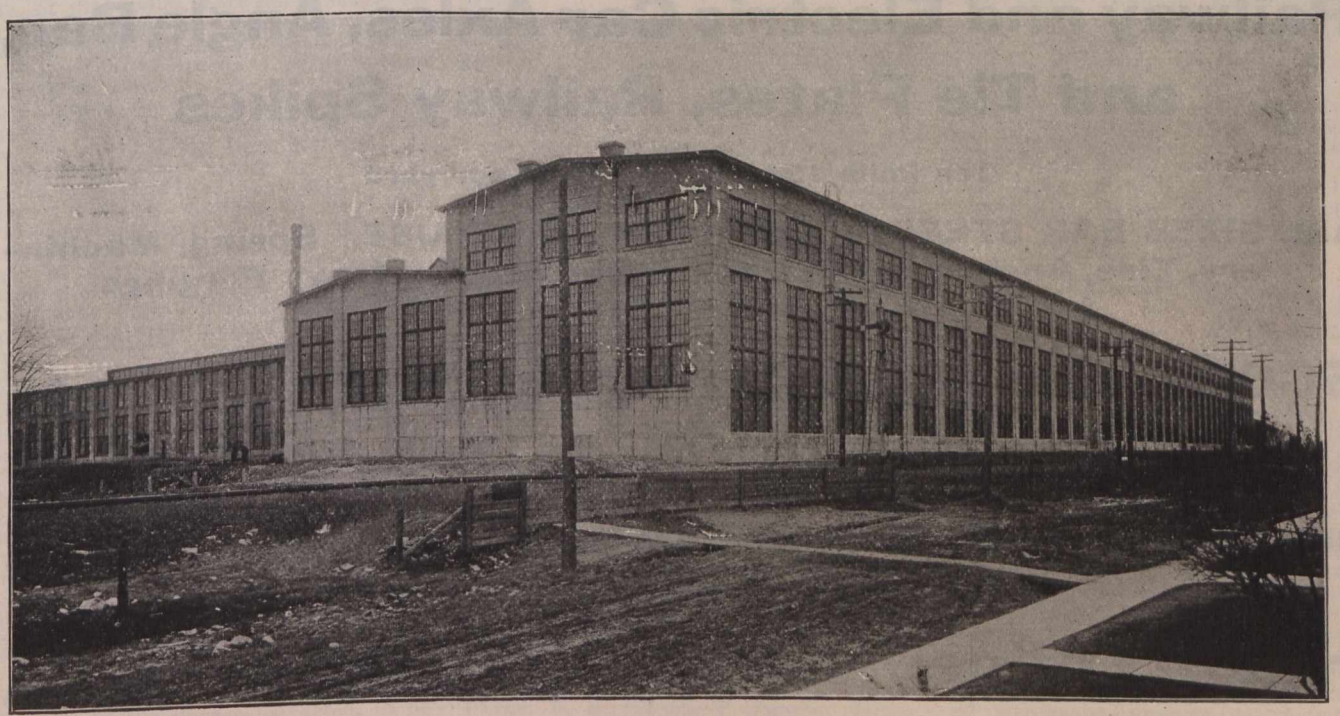
It is evident that the upper berth is less desirable to a substantial degree than the lower berth, and I would agree to some reduction of the upper-berth charges, not because there is any evidence that they are unreasonable per se, but because the same charge for both may be fairly regarded as an unjust discrimination against the upper-berth passenger. I am of the opinion, however, that the difference fixed by the majority report is in some cases too great. For example, when the lower-berth rate is not more than $1.50, I think a charge of $1.25 for the upper berth should be allowed.

Commissioner Harlan also dissented, and said:—

I am unable to assent to the conclusions announced in this proceeding in the report of the majority. While concurring in some of the views expressed by the Chairman in his dissenting report, I place my own dissent upon the general ground that the order directed to be entered is not justified by the record.

Canadian Collieries (Dunsmuir), Ltd., has been incorporated under the Dominion Companies Act, with a capital of $20,000,000 and office at Victoria, B.C., to acquire and operate coal, mineral and other lands, and in connection therewith to own and operate steam and other vessels, wharves, dry docks, bridges, yards, and tracks of every description for the storing and handling of the company's products. The main object is to take over the coal mining, railway and other properties, recently purchased from J. Dunsmuir and Sons, owners of the Wellington Collieries. The provisional directors are:—F. H. Phippen, K.C., G. G. Ruel, G. F Macdonnell, R. H. M. Temple and J. H. Phippen, Toronto, all of whom are connected with the Canadian Northern Ry.

The Board of Railway Commissioners' Secretary has issued a circular requesting that railway equipment reports heretofore addressed to J. Ogilvie, Inspector of Railway Equipment, be in future sent to A. J. Nixon, Chief Operating Officer at Ottawa.



Exterior view, G.T.R. Locomotive Shops, Stratford.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and British Columbia Ry.—The Dominion Parliament has extended the time for building the projected line. (April, pg. 271.)

Alberta Central Ry.—We are officially advised that the route of this projected railway from Red Deer to Rocky Mountain House, Alta., approximately 63 miles, has been approved by the Board of Railway Commissioners. The route, as laid out across the Red Deer River, about six miles southwest of Red Deer, by a steel viaduct approximately 2,000 ft. long and 130 ft. above low water. Proceeding north-westerly from the Red Deer River, it crosses the summit of the valley at Burnt Lake passes in the vicinity of Sylvan Lake, about 20 miles from Red Deer. The line crosses the valley of the Medicine River between Evarts and Eckville, and emerges from the Medicine and Horseguard Valleys about 10 miles further on, after which it traverses the plateau which extends from this point to the east bank of the Saskatchewan River. It will cross this river by a steel viaduct 800 ft. long and 75 ft. above low water. The line has been projected with low gradients, the maximum for both east and westbound traffic being not more than 0.40%, and the sharpest curve not more than 3 degrees. The character of the country through which the line will run is, generally speaking, open park prairie country, almost entirely settled. It is expected that construction will be started some time this year. J. G. MacGregor, Red Deer, Alta., is chief engineer. (May, pg. 349.)

Alberta, Peace River and Eastern Ry.—The Dominion Parliament has incorporated a company with this title to build the lines mentioned in the notice of application. The provisional directors are:—A. J. Miller, Pembroke, Ont.; E. Hutton, Montreal; R. L. Snowball, O. E. Culbert, J. O. Carss, Ottawa. (April, pg. 271.)

Algoma Central and Hudson Bay Ry.—We are officially advised that a contract has been let to O'Boyle Brothers, Ltd., Sault Ste. Marie, Ont., to build a spur line, of nine miles, between mileage 7.5 on the Josephine branch and the Magpie Iron Mining location. Work has been commenced and will be pushed forward as rapidly as possible, the contract calling for the completion of the line by Sept. 13. A contract has also been let to O'Boyle Brothers, Ltd., to build the line from Hawk Lake Jct., to Hobon, about midway between White River and Dalton stations on the C.P.R. Transcontinental line, 36 miles. Tenders were received to May 16 for clearing right of way, construction of bridges, cleaning of cuts, and making up of embankments on the portion of the company's line already graded, between the present end of steel, mileage 69, from Sault Ste. Marie and Hawk Lake Jct., approximately 100 miles. The grading on this part of the line which will connect Sault Ste. Marie with the Michipicoten branch, was done in 1902-03.

The company's construction programme involves the expenditure of over $3,000,000 and arrangements for financing this work were completed at a meeting of the shareholders of the Lake Superior Corporation at Camden, N.J., May 6. A meeting of the A.C. and H.B. shareholders was held May 14, to authorize the issue of 5% 50 year gold bonds on mileage constructed, and authorized to be constructed to the amount of $30,000 a mile, the bonds to be secured by a first mortgage of the lines constructed, to be built, or hereafter to be acquired.

The Dominion Parliament has granted subsidies to aid in building the following lines:—From Sault Ste. Marie to C.P.R. between White River and Dalton stations, Ont., not exceeding 200 miles; from Michipicoten harbor towards C.P.R., not exceeding 25 miles; from C.P.R. Transcontinental line northerly towards the National Transcontinental Ry., not to exceed 50 miles.

In connection with press reports to the effect that it was proposed to extend the line across the St. Mary's River into Michigan, we are officially advised that there has not been any discussion among the company's officials on the subject, other than the comment frequently made that there should be a connection with the lines to the south of the International boundary. (May, pg. 349).

Atlantic, Quebec and Western Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Paspebrae, as near the shore as practicable, to Gaspe, Que., not to exceed 102 miles.

An inspection of the line between Port Daniel and Pabos, has been made by the inspecting engineer of the Department of Railways and Canals, and the section passed for traffic. A regular train service will be put on, and it is expected that a further section between Pabos and Grand River will be ready for traffic by the end of July. Instructions have been received from the director of the company in England to push forward the completion of the line to Gaspe, as fast as possible. (April, pg. 271).

Bracebridge and Trading Lake Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Bracebridge to Baysville, Ont., 16 miles. (May, 1908, pg. 329.)

Buctouche Ry. and Transportation Co.—The provisional directors named in the Act passed by the Dominion Parliament incorporating a company with this title are:—C. T. Roe, New York; A. P. Barnhill, W. A. Ewing, C. F. Sanford, and J. J. Porter, St. John, N.B. The railway authorized to be constructed is as described in the notice of application. The company is authorized to enter into agreements with the Kent Northern Ry., the Buctouche and Rexton Ry., the Buctouche and Moncton Ry., and the Dominion Government in respect of the Prince Edward Island Ry. (April, pg. 271.)

Burrard Inlet Tunnel and Bridge Co.—The Dominion Parliament has incorporated a company with this title, with the powers mentioned in the notice of application. (Mar., pg. 185.)

Canadian Western Ry.—We are advised that it is very doubtful whether any construction will be done on this projected line this season. The company thought there would be no difficulty in the way of obtaining aid by way of a guarantee of bonds from the province of Alberta, but the Government decided not to do anything, and as a result all work in the way of preparing for building was stopped. So far as the company is concerned the matter of construction is in abeyance. This line is projected in the Chicago, Milwaukee and St. Paul Ry.'s interest, to connect with a branch of that line at the International boundary and give access to Alberta coal fields as a source of supply for the C.M. & St. P. R.'s western lines. (Nov., 1909, pg. 829).

The Canadian Western Lumber Co. is the title taken by the Fraser River Co. on its reorganization. Among the properties taken over are the Comox Ry. and Logging Co.'s line. The officers and directors are:—President, A. D. Davidson; Vice President and General Manager, A. D. McRae; other directors, W. Mackenzie, D. D. Mann, R. M. Horne-Payne, D. B. Hanna, P. Jansen; Secretary, J. D. McCormick. (May, pg. 349, see also Fraser River Lumber Co., same page.)

Comox Ry. and Logging Co.—We are officially advised that the railway which is being built in Vancouver by this company, under the authority of an Act passed by the B.C. Legislature, is for the Canadian Western Lumber Co., heretofore the Fraser River Lumber Co. The line as projected will be about 60 miles long, but at present only 17 miles is under construction, which it is expected to have in operation by Sept. 1. The maximum gradient is 0.6%, and the maximum curvature 6 degrees. The line will be used for bringing out logs from the company's timber limits to Comox, at which point boomage facilities capable of holding 10,000,000 of logs are being provided. It is expected that 150,000,000 of lumber will be handled over the line annually. No further extension of the line is contemplated for at least two years.

Connors to Beau Lake, N.B.—The Dominion Parliament has voted a subsidy for a line from Connors, at the terminus of the Temiscouata Ry., to the foot of Beau Lake, on the boundary line between Quebec and New Brunswick.

Dominion Atlantic Ry.—The Nova Scotia Legislature has passed three Acts having reference to the D.A. Ry., two of them having dealings with the company's powers generally, and the third referring to the building of the North Mountain branch. Of the two general Acts the more important is the one authorizing the provincial guarantee to be placed on certain unsold debenture stock of the company, which it is proposed to dispose of in the British market, the control of the money so raised to be in that Government's hands.

The company proposes to carry out a number of betterments on the existing line, to improve the bridges near Digby, and to increase the efficiency of its steamship service, as well as to go on with the building of new lines. The North Mountain branch, starting from Centreville, is one of the lines proposed to be constructed, and the Act passed granted an extension of time for building it.

The Dominion Parliament has voted subsidies as follows:—For a line to the Government pier or wharf at Canning, N.S., not exceeding one mile; for a line from Brazil Lake to Kemptville, N.S., not exceeding 11 miles, and for a line from Centreville, westerly to Weston, N.S., not exceeding 15 miles. (May, pg. 349.)

Eastern Townships Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from the Intercolonial Ry. at St. Leonard's Jct., to Dudswell, Que., 36 miles. Dudswell is the terminal of the Hereford Ry. (operated by the Maine Central Rd.), and is a station on the Quebec Central Ry. (May, pg. 349.)

Erie, London and Tillsonburg Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Port Burwell to London, Ont., not to exceed 35 miles. (May, pg. 349.)

Essex Terminal Ry.—The by-law passed by the taxpayers of Windsor, Ont., May 2, authorized the raising of $20,000 by debentures to purchase 40 acres of land along MacDougall St., on the southwesterly side of the city, for factory sites. The E.T.R. proposes to build a spur 1.25 miles from its main line, either along MacDougall St. or further west, to tap this site and furnish railway connections with the trunk lines running into Windsor. The company's line is at present in operation from the G.T.R., east of Walkerville, to the C.P.R., three miles, and crosses the Pere Marquette Rd. at Walkerville. The right-of-way is all purchased, grading completed, and material on the ground for the exten-

sion of the line from the C.P.R. to the Michigan Central Rd. tunnel, about 1.25 miles. This portion of the line will be put in running order as soon as the point of connection with the M.C.R. track has been decided on. The company has begun the construction of an interlocking plant at the crossing of the P.M.R. at Walkerville, and another near the crossing of the C.P.R. and the Windsor, Essex and Lake Shore Rapid Ry.

The Dominion Parliament has passed an Act amending the company's Act in several details. The capital is increased to $400,000, the date of the annual meeting is altered to the third Tuesday in Jan.; it is authorized to issue bonds to the amount of $40,000 a mile, and to an additional $10,000 a mile in case of double track line. A new section authorizes the company to acquire steam and other vessels, and to operate the same, and to carry on business as forwarding agents, wharfingers and warehousemen.

The Board of Railway Commissioners has issued an order authorizing the company to open for traffic the portion of its line from the junction with the G.T.R. in Sandwich East tp., to its junction with the C.P.R. in Sandwich West tp. (July, 1909, pg. 477.)

Gatineau and Ungava Ry.—The Dominion Parliament has incorporated a company with this title to build a railway from the National Transcontinental Ry. at the crossing of the northwest branch of the Gatineau River to Lake Chibougamau, 140 miles, thence to Lake Mistassini, 60 miles, thence to Homani or Summit Lake on the Quebec-Ungava boundary, 450 miles from the starting point, thence round the sources of Big River to Lake Kaniapiskan and on by either of two routes to Leaf Lake, on Ungava Bay, a total distance of 900 miles, with a branch from Lake Minto to Payne Lake, Ungava, about 200 miles. The provisional directors are:—A. T. Genest, E. B. Devlin, Ottawa; R. B. Masson, Terrebonne, Que.; S. T. Green, Quebec; F. W. Rous, Montreal. (Jan., pg. 19.)

Great Northern Mining Co.—The Nova Scotia Legislature has authorized this company to build from its mill at Cheticamp to Eastern Harbor, on Cape Breton Island. (May, pg. 351.)

Ha Ha Bay Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Jonquieres, via Laterriere, to Baie des Ha Ha, 24 miles. (Feb., pg. 109.)

Halifax and Eastern Ry.—Subsidies have been voted as follows by the Dominion Parliament:—For a line from the Intercolonial Ry., near Dartmouth, to Dean's Settlement, N.S., not exceeding 80 miles; for a line from Dean's Settlement to Melrose, not exceeding 52 miles, and for a line from New Glasgow to Melrose, thence to Guysborough, with a branch to Country Harbor, not exceeding 116 miles. These subsidies are voted to any company which will build the lines. The H. and E. Ry. Co. had been in negotiation with the N.S. Government in reference to them, as had also the Halifax North Eastern Ry. and its predecessor, the Musquodoboit Valley Ry. (April, 1909, pg. 247.)

Halifax and South Western Ry.—We are officially advised that it is expected to have the branch line from Nictaux to the Torbrook Iron Mines, and the ore shipping plant at Port Wade, N.S., completed early in June. The grading and tracklaying on the branch line was completed last fall, and the ballasting was done this spring. The Canada Iron Corporation has a large ore crushing plant, capable of crushing over 1,000 tons of ore a day, in operation at the mines, and as soon as the branch is opened it will begin shipping the ore to Port Wade, where it will be passed through the ore bins and loading plant to special steamers, which will carry it to the furnaces. As soon as the ballasting on the branch from Nictaux has been completed the ballasting gang will start work on adding additional ballast to the Middleton and Victoria Beach section.

A subsidy has been voted by the Dominion Parliament in aid of the building of a branch railway from Lunenburg to Upper La Have, N.S., not to exceed 12 miles. (Oct., 1909, pg. 743.)

Howe Sound and Northern Ry.—A press report from Vancouver, May 10, states that it is expected to have the first section of this railway completed and ready for operation in about six weeks. The report says:—With the bridging of the south fork of the Squamish river, a little more than a mile from Newport, the southern terminus of the line, and the grading of the gap between that place and the bridge the road will be practically completed. (May, pg. 351).

Hudson Bay and Pacific Ry.—Press reports state that L. Taylor has started work on the north side of the Saskatchewan River, and is proceeding with the work of making a survey in the direction of Fort Churchill, and that L. T. Grice, in charge of a second party, has left to take up the work at another point. The object of these surveys is to find a better route than the one previously surveyed by J. B. Tyrrell, which was via Pas Mission. The route to be followed by the first party will be southeast of Candle Lake, thence to Goose Lake, and will touch the survey for the Government line to Hudson Bay, about 150 miles north of the Pas. The second party will work round the north east of Candle Lake, and thence by an air line to Frog Portage and on to Fort Churchill. H. Spicer, who is stated to be the managing director of the company, is quoted as having stated in an interview at Prince Albert, May 3, that the building of the line will be started this summer, and that there are no financial difficulties in the way of the work being gone on with. He also stated that the headquarters and terminus of the line would be at Prince Albert, and that it was possible the line would be operated in connection with the Government line to Hudson Bay.

We are advised from an independent source that the surveys made during last winter by Mr. May were of a preliminary character, and that the present surveys are for the location of the line northerly. The intention is to obtain a route away from the muskegs in the vicinity of Pas Mission. The company is an English one, its object being stated by a representative of the company to build the road, and that it is not seeking favors from any source. (May, pg. 351.)

Intercolonial Ry.—We are officially advised that the contract with D. G. Kirk for building the division between George's River and Sydney Mines, N.S., calls for its completion by Nov. 30. The construction is light, the maximum gradient 1% and the maximum curvature 5 degrees. There is only one bridge of any size on the line, viz., that across George's River, which will consist of four spans, through plate girders of 86 ft. over all, on masonry abutments and piers. Local press reports state that Wm. McDonald, New Glasgow, has a subcontract on the line.

A new survey has been made for the proposed extension from North Sydney to Leitche's Creek, about seven miles. The first survey was along the shore road, but it was feared that the land damages would be heavy, consequently a new survey at the back of the town has been made.

The Dominion Parliament has voted $1.800 to divert a highway in order to eliminate a crossing at rail level between St. Cyrille and Drummondville, Que.

The Government Railways Managing Board is making an inspection of several of the branch lines in Nova Scotia and New Brunswick, which it is proposed to acquire and operate under lease as I.C.R. branches.

A contract is reported let to F. A. Ronnan & Co., for building a siding from near Rocky Lake, N.S., to the Acadia Powder Co.'s dynamite works, about one mile. (May, pg. 351).

International Ry. of New Brunswick.—The Dominion Parliament has granted a subsidy for 3.5 miles of line between Campbellton and St. Leonards, this being the difference between the mileage actually constructed, and the mileage previously subsidized. A subsidy of $9,375 was also granted towards building a bridge across the St. John River between St. Leonards, N.B., and Van Buren, Me., the State of Maine contributing an equal amount. This bridge will form the connecting link between the I.R. of N.B. and the Bangor & Avoostook Ry. terminating at Van Buren. The press reports state that construction will be started on the bridge at an early date.

The Dominion Parliament also voted $12,500 towards the construction of a railway bridge across the Restigouche River at Metapedia, the provinces of Quebec and New Brunswick to contribute $5,000 each; and $6,250 to pay the Department of Railways and Canals for original superstructure of Restigouche railway bridge. This bridge when constructed will give connection between the I.M. of N.B.'s line at Campbellton, and the Atlantic and Lake Superior, what will in future be known as the Atlantic, Quebec and Western Ry. (May, pg. 351).

Inverness Ry. and Coal Co.—The Dominion Parliament has voted a subsidy for an extension of the company's existing railway from Broad Cove to Cheticamp, N.S., 37 miles. (Sept., 1908, pg. 617.)

Joliette to Lake Manuan.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Joliette to Lake Manuan, Que., 60 miles. Press reports states that the Joliette and Lake Manuan Ry. Co. has opened an office in Joliette, Que., and that—Patton, its Chief Engineer, is making surveys for a route between that town and Lake Manuan. The line, as projected will, it is said, start from L'Assumption River, run to St. Jean de Matha, thence through the mountainous country north of St. Emilie de l'Energie, along the Black River to St. Michel de Saints. The reports state that the necessary capital for the line is being found in England. (July, 1908, pg. 403).

Kettle Valley Lines.—Subsidies have been voted by the Dominion Parliament to aid the Kettle River Valley Ry. to build the following lines:—From Midway to a junction near Merritt, B.C., with the Nicola, Kamloops and Similkameen Ry., 250 miles; from near Coldwater River to the Fraser River, not exceeding 50 miles.

W. P. Tierney stated in Phoenix, B.C., April 28, that his firm had a contract to build a 10-mile extension of the line up the north fork of the Kettle River to the Franklyn camp; to complete certain work along the west fork of the Kettle River, to extend the line a further distance of 10 miles up the valley to Beaverdell, and beginning at the other end to build 30 miles from Merritt up the Coldwater Valley. He expected that work would be started on these lines May 15. (May, pg. 351.)

Lac Seul, Rat Portage and Keewatin Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Kenora, Ont., to the National Transcontinental Ry., 22 miles. The subsidy voted in 1908 was for 18 miles only. (April, pg. 271.)

L'Avenir and Melbourne Ry.—The Do-

minion Parliament has granted a subsidy to aid in building a line from Melbourne to Drummondville, Que., 28 miles. A press report states that preparations are in progress for beginning construction, and that as soon as the line is completed the G.T.R. will take it over. (June, 1908, pg. 403).

Little Nation Ry.—A subsidy has been voted by the Dominion Parliament to aid in building an extension of this line southerly from near Lyster to Lime Ridge, Que., 50 miles. Lime Ridge is the terminus of the Dudswell-Lime Ridge branch of the Hereford Ry. (constructed by the Dominion Lime Co.) which is operated by the Maine Central Rd. A subsidy has also been voted to aid in building a line from some point on the existing line in Inverness tp. to the Quebec Bridge, not to exceed 30 miles. (See Quebec Eastern Ry., Oct., 1909, pg. 745.)

Mabou Coal and Ry. Co.—The Nova Scotia Legislature has extended the time within which the company may complete its projected line. (June, 1908, pg. 405.)

Manitoulin and North Shore Ry.—Subsidies have been voted by the Dominion Parliament in aid of the following lines:—From the line between Little Current and Sudbury, westerly towards the Algoma Central and Hudson Bay Ry., not exceeding 76 miles; from Little Current, crossing the C.P.R. at Stanley, to Sudbury, not exceeding 88 miles; from Sudbury northerly, 30 miles. (May, pg. 351.)

Margaree Coal and Ry. Co.—Subsidies in aid of the building of 50 miles of the projected lines of this company have been voted by the Dominion Parliament, as follows:—From near Orangedale, on the Intercolonial Ry., by the east side of Lake Ainslie, and St. Rosa to Chimney Corner Cove, 46 miles; and from the I.C. Ry. between Orangedale and Point Tupper to Caribou Cove, on Inhabitants River or Bay, N.S., four miles.

The Nova Scotia Legislature has extended the time, and otherwise amended the conditions of the agreement under which the Government was to aid in the construction of lines, for which the Dominion Parliament has revoted the subsidies mentioned above. (Jan., pg. 21.)

Maritime Coal and Ry. Co.—The Nova Scotia Legislature has granted an extension of time for the construction of the lines authorized to be built.

New ties are being put in along the company's line between Maccan and Joggins Mines. Other betterments will be done during the summer. (Dec., 1909, pg. 883.)

Michigan Central Rd.—Two train loads of 100 lb. steel rails have been delivered, one at Essex and the other at Courtright, Ont., for use in relaying the tracks between Essex and Tilbury, 23 miles. The track is being raised several inches in connection with the laying of this heavier track. The 80 lb. rails taken up are being relaid on other portions of the company's lines. (April, pg. 271).

Montreal, Kapitachuan and Ruperts Bay Ry.—The Dominion Parliament has incorporated a company with this title. The projected route of the line, as laid out, on paper, from the Back River to Lake Kapitachuan, on the National Transcontinental Ry., is 194 miles long. Surveys are being made by E. J. Reambooth, and it is stated that so far as the route has been examined there are no difficulties in the way of construction, although several large bridges will have to be built. The point of junction with the N.P. Ry. is 140 miles west of that proposed for the Joliette-Lake Manuan Ry., and 63 miles east of the route said to be preferred by the G.T.R. (Mar., pg. 187; see also Montreal northerly; and Joliette and Lake Manuan Ry.)

Montreal Northerly.—The Dominion Parliament has voted a subsidy to aid the building of a line from Montreal to the National Transcontinental Ry., not to exceed 200 miles.

A Montreal dispatch states that the granting of this subsidy was arranged for after an interview between the Minister of Railways and C. M. Hays, President G.T.R. and G.T. Pacific Ry. It is stated that three routes have been considered by the company and submitted to the Department. The first is via Joliette and St. Gabriel to join the National Transcontinental Ry. at Ribbon River, a tributary of the St. Maurice. Another goes directly north-westerly parallel with the C.P.R. Nomininge branch, continuing north-east from Nomininge to the N.T.R. about midway between Lake Abitibi and La Tuque. The third route would give Montreal connection via Ottawa to the N.T. Ry., a little to the west of Obaska Lake. The first of these lines, from Joliette, is that being surveyed by the Joliette and Lake Manuan Ry., and its total length from Montreal would be about 157 miles. The second route is 225 miles long and is the one favored by the G.T.P.R., its point of junction with the N.T.R. being 203 miles west, which would be of advantage in bringing grain into Montreal for ocean shipment. (See also Joliette and Lake Manuan Ry.; and Montreal, Kapitachuan and Ruperts Bay Ry.)

Nelson River Ry.—The Dominion Parliament has incorporated a company with this title in the terms of the notice of application. (Jan., pg. 21.)

New York and Canadian Pacific Rd.—The people who are endeavoring to keep alive this company incorporated under the laws of the State of New York, are working on a new tack. For some years the Governor has refused to sign the acts passed by the Legislature permitting the company an extension of time for completing the line. On May 11, a resolution was referred to the Senate Judiciary Committee, authorizing the company to take any and all steps necessary for the completion of its railroad and approaches and connections, and the public service commissions are directed to issue such certificates as shall facilitate the construction of the road. Power and authority is given the Supreme Court to hear orders upon the application of the railroad company to enforce this resolution of the Legislature.

Ontario, Northern and Temagami Ry.—A subsidy has been voted by the Dominion Parliament for a line from Sturgeon Falls north-westerly to the westerly shore of Lake Timagami, not to exceed 50 miles. (Sept., 1908, pg. 617.)

Owen Sound and Meaford Ry.—An unconfirmed local press report states that Cleveland, Ohio, capitalists are looking over the district with a view of financing the construction of this projected railway. It is stated that if they take up the project the line will be extended from Meaford, via Collingwood to Orillia, there making a connection with the C.P.R., the G.T.R., and the Canadian Northern Ry. (Nov., 1909, pg. 829).

Port Hood-Richmond Ry.—The Nova Scotia Legislature has extended the time within which the company's authorized lines of railway may be built. (April, 1908, pg. 245.)

Prince Edward Island Ry.—A statement was recently made in the House of Commons by the Minister of Railways that a survey was made in 1908 for a branch line from Montague to the Murray Harbour branch in Queen's county, and plans and estimates for the line are under the consideration of the Department. Surveys were made over two routes, one direct, the other by way of Kinross.

A return made to the House of Commons as to surveys made for the proposed branch line between London and north shore point, shows that the estimates for the various routes and sections were as follows:—West side of Stanley River to main line, at or near Bedford, 31.4 miles, $1,257,618.14; Royalty Jct. to junction with last mentioned route at Brackley Point road, $210,003.95. (This may be made part of the main loop line which would then be from the west side of Stanley River to Royalty Jct.) West side of Stanley to Kensington, via French River, 19.48 miles, $713,281.75; west side of Stanley River to Kensington, via Long River, 16.88 miles, $601,645.54; west side of Stanley River to Kensington, via Malpeque, 28.34 miles, $976,496.78; Emerald Jct., via Clinton and Clinton, 13.5 miles, $446,787.78; Emerald Jct., via Granville and Stanley Bridge to Clifton and Clinton, 13 miles, $490,000. (April, pg. 273).

Quebec and New Brunswick Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Chaudiere Jct., on the Intercolonial Ry. for 62 miles to the international boundary between Quebec and Maine. (July, 1909, pg. 481.)

Queen's Central Ry.—The Nova Scotia Legislature has incorporated a company with this title to build a line through the centre of Queen's County.

Reid Newfoundland Co.—Construction has been started on the 70 mile branch from Shoal Harbor to Bonavista, Nfld., several gangs having been sent out from St. John's at the beginning of May. H. Burton, Perth, Ont., who was with the late Sir Robt. Reid on his C.P.R. and other contracts, is in charge of construction. (May, pg. 359).

Roberval, towards James Bay.—A subsidy has been voted by the Dominion Parliament for a line not to exceed 100 miles, from Roberval, Que., the present terminus of the Quebec and Lake St. John Ry., westward for 100 miles in the direction of James Bay.

St. Agathe, Que., Southerly.—A subsidy has been voted by the Dominion Parliament in aid of the construction of a line from St. Agathe des Montes station, on the Laurentian branch of the C.P.R., passing Lake St. Joseph and St. Mary, not exceeding 15 miles.

St. Joachim to Seven Islands.—The Dominion Parliament has granted a subsidy to aid in building a line from St. Joachim towards Seven Islands, with branches to Murray Bay and Baie St. Paul, Que., not to exceed in all 170 miles.

St. John River Valley Ry.—A subsidy has been voted by the Dominion Parliament for a line from Grand Falls to St. John, N.B., not exceeding 228 miles. The New Brunswick Legislature has authorized a guarantee of bonds to aid in the building of a line between the same points, and the Premier recently stated that surveys will be proceeded with at once. Two survey parties are being equipped for the field, one to work from Fredericton to Welsford, and the other between Woodstock and Andover. All the necessary data are available for the route between Fredericton and Woodstock. It is expected that the surveys will be completed during the summer, and that a decision will be reached as to building the line—either by the Provincial Government, or by a private company—in the fall. (May, pg. 353).

St. Lawrence and Ungava Ry.—The application to the Dominion Parliament for an Act incorporating a company

with this title did not pass. It was sought to obtain power to build a railway from the St. Lawrence River, in Berthier County, north-easterly to Ungava Bay, the persons named as provisional directors in the application being G. D., W. M. and J. K. Condie, R. Bickerdike, and F. Munro, Montreal.

Sharbot Lake to Carleton Place.—The Dominion Parliament has voted a subsidy to any railway company building a line from Sharbot Lake or Bathurst station, on the C.P.R. Toronto-Montreal line, via Lanark Village, to Carleton Place, Ont., on the C.P.R. transcontinental line, 41 miles.

Southern Central Pacific Ry.—Subsidies have been voted by the Dominion Parliament to aid in building the following lines:—From two miles west of Pincher station on the C.P.R. Crow's Nest Pass branch, north-easterly for 10 miles, and for another line from the same point south-westerly for 40 miles. (July, 1909, pg. 481.)

Sydney and Louisburg Ry.—The Nova Scotia Legislature has incorporated a company with this title with power to build lines on Cape Breton Island. We are advised that the line known as the Sydney and Louisburg Ry., now owned and operated by the Dominion Coal Co., will still continue to be an integral part of the enterprise, which now also includes the Dominion Iron and Steel Co., but will be operated separately under this new charter.

The company has under consideration the building of a spur line from the proposed North Sydney-Leitches Creek line of the Intercolonial Ry. to new collieries at Point Aconi. (Feb., 1909, pg. 105.)

Temiskaming and Northern Ontario Ry.—Tenders are under consideration for the erection of three standard houses for section men at Gillies' Depot, Uno Park and Charlton, Ont.; and for additional sectionmen's houses "for bachelors" at various points on the line.

Tenders are to be asked at an early date for the building of a permanent general traffic road from Charlton to Elk Lake. The settlers and prospectors in the Gowganda districts are petitioning for a railway into the country, but at present the Commissioners will not undertake anything more than an ordinary roadway, as far as Elk Lake. Plans are being prepared for the general improvement of the yard and station at Cobalt.

Replying to a question in the House of Commons, April 30, the Minister of Railways said there was at present no intention of granting a subsidy in aid of this railway. If the Dominion Parliament voted a subsidy, he would be inclined to say that the line should come under Dominion jurisdiction—under the Board of Railway Commissioners—and the Ontario Government would not care to permit that. (May, pg. 353).

Toronto, Lindsay and Pembroke Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Golden Lake to Bancroft, Ont., not exceeding 51 miles. (Jan., 1904, pg. 9.)

Tusket Wedge to Riverdale, N.S.—The Dominion Parliament has revoted a subsidy to aid in building a railway from Tusket Wedge to Riverdale station, on the Halifax and South Western Ry., not exceeding eight miles.

The Halifax and South Western Ry. has power to construct branch lines, and the Nova Scotia Legislature has incorporated the Tusket Wedge Ry. Co. to build a line between the points named.

Vancouver, Fraser Valley and Southern Ry.—The location plans of this projected railway have been approved by the Board of Railway Commissioners for the portion of the line from the east boundary of Vancouver to the northwest boundary of New Westminster, B.C. (July, 1909, pg. 481).

York and Carleton Ry.—The Dominion Parliament has voted a subsidy for a line from its present terminus to the National Transcontinental Ry., not exceeding nine miles. (Mar., 1909, pg. 177.)

Western Canada Power Co.—The Board of Railway Commissioners has approved location plans for the company's projected railway from Ruskin station on the C.P.R., to Stave Falls, B.C. (Mar., pg. 187).

Canadian Northern Ry. Earnings, Etc.

Gross earnings, working expenses, net profits, increases or decreases from 1908-09, from July 1, 1909:

	Earnings.	Expenses.	Net Earnings.	Net Increase or Decrease.
July	$ 843,500	$613,900	$229,600	$26,700+
Aug.	807,100	602,700	204,400	18,300+
Sept.	1,076,800	765,300	311,500	60,400+
Oct.	1,384,200	903,500	480,700	60,600+
Nov.	1,517,600	970,100	547,500	134,000+
Dec.	1.160,300	825,900	334,400	49,300+
Jan.	792,200	669,700	122.500	22,200+
Feb.	698,900	567,400	131,500	3s,100+
Mar.	934,100	661,800	272,300	67,800+
	$9,214,600	$6,580,300	$2,634,300	$478,200+
Inc.	$ 1,812,000	$1,333,800	$478,200	.....

Approximate earnings for Apr. $1,153,100, and for two weeks ended May 14, $579,000, against $741,200 and $335,300 for same periods 1909.

C.P.R. Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases over 1908-9, from July 1, 1909:

	Earnings.	Expenses.	Net Profits.	Net Increase or Decrease
July	7,140,029.93	4,660,159.20	2,479,870.73	205,297.48+
Aug.	7,426,984.62	4,462,926.75	2,964,057.87	385,159.16+
Sept.	8,323,178.03	4,891,288.86	3,431,889.17	1,317,281.40+
Oct.	9,744,596.87	5,358,299.68	4,386,297.19	1,731,030.48+
Nov.	9,075,963.93	5,383,625.98	3,692,337.95	1,471,258.60+
Dec.	8,214,758.04	5,099,334.94	3,115,423.10	918,671.53+
Jan.	6,104,426.90	4,787,830.51	1,316,596.39	926,846.56+
Feb.	5,992,052.14	4,505,032.90	1,487,019.24	724,874.46+
Mar.	7,796,337.54	5,085,164.15	2,711,173.39	907,465.26+
	$69,818,328.00	$44,233.662.97	$25,584,665.03	$8,587,884.93+
Inc.	$12,859,839.08	$4,271,954.15	$8,587,884.93	.....

Approximate earnings for Apr., $7,830,000, and for two weeks ended May. 14, $3,649,000, against $6,260,000 and $2,702,000 for same periods 1909. Mileage operated increased to 10,276.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—Operating revenue for March, $276,893.18; operating expenses, $175,047.59; net revenue, $101,845.59, against $217,138.07 operating revenue; $153,169.32 operating expenses; $63,-968.75 net revenue for March, 1909. Aggregate operating revenue for nine months ended Mar. 31, $2,421,665.56; operating expenses, $1,648,-929.79; net revenue, $772,735.77, against $1,-993,583.83 aggregate operating revenue; $1,-456,795.24 operating expenses; $536,788.59 net revenue for same period 1908-09. Approximate earnings for April, $276,763, and for two weeks ended May 14, $134,889, against $224,968 and $109,312 for same periods, 1909.

MINERAL RANGE RD.—Operating revenue for March, $68,453.92; operating expenses, $64,-115.66; net revenue, $4,338.26, against $70,-918.16 operating revenue; $60,183.23 operating expenses; $10,734.93 net revenue for March, 1909. Aggregate operating revenue for nine months ended Mar. 31, $640,124.27; operating expenses, $553,409.98; net revenue, $86,714.29, against $622,173.17 aggregate operating revenue; $518,758.08 operating expenses; $103,415.09 net revenue for same period, 1908-09. Approximate earnings for April, $60,816, and for two weeks ended May 14, $28,279, against $67,785 and $31,247 for same periods, 1909.

MINNEAPOLIS, ST. PAUL AND SAULT STE. MARIE RY.—Operating revenue for March, $1,132,-994.49; expenses and taxes, $725,914.01; net operating income, $407,080.48, against $1,022,-015.65 operating revenue; $643,168.89 expenses and taxes; $378,846.76 net operating income for March, 1909. Aggregate operating revenue for nine months ended Mar. 31, $11,781,611.73; expenses and taxes, $6,635,588.88; net operating income, $5,146,022.85, against $9,600,109.53 aggregate operating revenue; $5,690,139.49; expenses and taxes, $3,639,970.04 net operating income for same period, 1908-09. Approximate earnings for April, $1,827,945, and for two weeks ended May 14, $838,168, against $1,-521,236 and $701,066 for same periods, 1909.

CHICAGO DIVISION.—Operating revenue for March, $868,915.81; expenses and taxes, $554,-764.04; net operating income, $314,151.77, against $666,544.69 operating revenue; $482,-395.79 expenses and taxes; $184,148.90 net operating income for March, 1909. Aggregate operating revenue for nine months ended Mar. 31, $6,522,178.89; expenses and taxes, $4,554,-449.90; net operating income, $1,967,228.99, against $5,669,430.00 aggregate operating revenue; $4,088,326.34 expenses and taxes; $1,-581,103.66 net operating income for same period, 1908-09.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. and M. Ry., separately, for March, as compared with March, 1909:—

GRAND TRUNK RAILWAY.

	1910.	1909.
Earnings	$2,887,400	$2,423,200
Expenses	2,088,200	1,743,100
Net earnings	$ 799,200	$ 680,100

CANADA ATLANTIC RAILWAY.

	1910.	1909.
Earnings	$165,000	$129,200
Expenses	125,000	127,600
Net earnings	$ 40,000	$ 1,600

GRAND TRUNK WESTERN RAILWAY.

	1910.	1909.
Earnings	$582,650	$528,882
Expenses	399,400	364,500
Net earnings	$183,250	$124,500

DETROIT, GRAND HAVEN AND MILWAUKEE RY.

	1910.	1909.
Earnings	$158,100	$126,000
Expenses	122,600	109,200
Net earnings	$ 35,500	$ 16,800

Approximate earnings for April, $3,570,367, and for two weeks ended May 14, $1,672,673, against $3,142,748 and $1,456,700 for same periods, 1909.

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from Jan. 1 to Apr. 30:—

	1910.	1909.	Incr.
Grand Trunk	£2,097,064	£1,799,139	£297,925
Can. Atlantic	119,710	100,252	19,458
G.T. Western	427,198	360,114	67,084
D.G.H. & M.	125,756	99,416	26,340
Totals	£2,769,728	£2,358,921	£410,807

Requirements for Dominion Railway Legislation.—A sub-committee of the Railway Committee of the House of Commons prepared a report, April 8, recommending a number of changes in the procedure to be observed by promoters of bills. The report recommends that hereafter all private bills proposing to amend an Act of Parliament shall not merely refer to but recite in full any section or clause to be amended. All bills introduced for time extensions must be so framed as to recite not only the powers existing but shall also define the route, mention the terminal points and branches and indicate the principal places through or near to which the line is to pass. When it is proposed to repeal any section or clause of an act such section or clause must be recited. The same rule is to apply to any bill proposing to empower a corporation to give effect to powers contained in any provincial statute, letters patent or municipal ordinance. Where it is proposed to extend or renew an Act of Parliament of ten years' standing an absolutely new bill will be required, setting forth all the privileges sought except in cases where substantial progress has been made in the exercise of the original powers.

G.T.R. locomotive drivers and firemen have been conferring with the company's officials, with a view to rearranging the wage schedule, on the expiry of the existing one in July.

The G.T.R. building and exhibit at the International Exposition at Brussels, Belgium, contains a number of things chiefly relating to the G.T.P.R., including oil paintings of scenes in the Yellowhead Pass and along the Skeena River, with a cinematograph of western scenes.

C. P. R. Mallet Articulated Locomotive.

In our March issue we published a very important paper by G. I. Evans, describing the experimental Mallet articulated locomotive built by the C.P.R. In the discussion which followed the reading of the paper before the Canadian Railway Club, H. H. Vaughan, Assistant to the Vice President C.P.R., said in part:—

On the C.P.R. our bridge strengths do not admit of our running a heavy engine, such as those recently introduced into the U.S., of from 200 to 225 tons. Our engineering department is exceedingly particular about the weights of locomotives running over the bridges, and holds the mechanical department to the limits set. Of course, there is nothing novel about the arrangement of these cylinders, but when the arrangement was gone into, it was found that the long wheel-base allowed the engine had a total weight about 5% larger than the regular American Locomotive Co.'s Mallet design. Whether the feeling we had 5% made us want 10%., I don't know, but the engine was that much heavier than estimated, and this was the reason of some unpleasant remarks in the papers at that time. Another thing was, a Mallet engine could be made of the six-wheeled coupled type, and yet be turned on a 70 ft. turntable and housed in an 80 ft. roundhouse. The other arrangement was about 77 ft. over all, which was larger than could be handled in our present roundhouses and as this meant extra expense, it was decided to try and avoid this, hence the alteration referred to. In regard to the spreading of trucks, we went into this question carefully as to the action of the flange stress on a curve with a given amount of pressure between boiler and front of engine, or with a given action of centrifugal force tending to throw the boiler outwards, and we found in either case the pressure is exactly the same whether the trucks are 10 or 15 ft. apart. The pressure on the rail, of the boiler has a tendency to lurch, is also independent of the distance between the trucks. As Mr. Evans has described, the location of the cylinders in the centre certainly reduced the amount of movement in each of the pipe joints, and practically reduced the number on account of the small movement allowing the telescopic joint to be done away with. The objections evident were that, in this engine, the weight of the boiler is transmitted to the front truck at a point between the first and second pair of wheels, whereas in the usual design of Mallet it is transferred between the second and third pair of wheels, which means that the friction caused by the weight of boiler resting on the truck is acting on a longer bow arm than the ordinary type. This difficulty was overcome by the arrangement described in the paper, in which only a part of the weight of the boiler rests on the friction plates on the front truck, the remaining part being carried by the roller, which is designed to act as a centering arrangement, and practical experience shows that this device is satisfactory. Another possible disadvantage is the effect that might be caused on entering a curve. Evidently, when an engine of this type enters a curve, there is one point at which the pivot pin is at the junction of the tangent of the curve, and at this point the effect of any separation of the trucks is most objectionable. In other words, a consideration of the action of the engine at this point shows that the effective rigid wheel-base is practically from the end driver to the pivot pin in place of being a driving wheel-base on either truck. We find that what we may call the rigid wheel-base was not increased on this engine over that which has been used in other Mallet engines having four drivers coupled together. As a matter of fact, the action is entirely different. The driving wheel entering the curve is displaced about the pivot point as a centre, and not about the driver and other end of the truck. This accounts for the way in which this engine will take comparatively sharp curves with ease. Consideration will show that, when regarded in the light of this explanation, the more equally the centre of the boiler is over the pivot pin the easier the engine curves. Another point that came up was the fact that this design of engine throws the boiler forward. The action of the Mallet engine entering a curve is looked upon as similar to that of a switching engine. There does not, therefore, seem to be any real disadvantages connected with this arrangement other than the question of appearance. I did not much care for the appearance of this engine, but, outside of this, I do not see any reason for going back to the arrangement with the cylinders at the end. One point is the use of the sectional boiler, that is, cutting it into two parts. The front end is really more than a feed-water heater in this type of boiler, as, although the temperature of the water in it averages probably lower than in the back section, it must evaporate a portion of the steam. It is questionable what effect the centre chamber is going to have on the draft. The cards are taken at very low speeds, but one of them, test no. 1, shows considerable pressure in the low press cylinder, which is a common trouble with the Mallet engines. I saw some cards from a large Mallet the other day at a speed between 15 and 20 miles an hour, which did not give any greater tractive power than a large consolidation engine. The engine gave excellent results at low speeds, but in the higher speeds it was different. I think the speeds given ran from 4 to 6 miles per hour. I see in Mr. Evans' report on the Field Hill he shows a speed of 25 miles per hour coming into Stephen, and I would be glad if he would tell us whether he has noticed if the engine showed any sign of choking.

Jas. Powell, Chief Draughtsman, Locomotive Department G.T.R., said: It certainly required a great deal of courage and confidence to depart from the generally accepted forms and designs of this class of locomotive, and Mr. Vaughan and those associated with him in the construction of this engine are to be congratulated for the courage of their convictions. Whether the results will be borne out by experience remains to be seen, but, I sincerely hope so. I note the engine has been designed to be able to be turned on the turntables at present in use, and that it will be possible to house the engine in the present roundhouses. This is a good feature. It seems to me that, with the arrangement of cylinders as shown, the weight would not be equally distributed. Perhaps Mr. Evans could enlighten us on this point. In the description of the flues and superheater between, I would imagine that this would be a receptacle for cinders, but the writer states that this is not the case, otherwise there must be an excessive wear on the tube sheets and a difficulty in keeping the flues tight. The engine, of course, has not yet been in service long enough to demonstrate this. I presume it is not the company's intention to build any more of this type until such time as it has been proved that the engine is a success for the service it is intended for. Has a comparison been made of the cost of operating this type with the increased return for the haulage?

J. W. Harkom, said: I certainly approve of the departure from the ordinary type in so far as the distance of the drawbar from the centre of the truck is concerned. No doubt the Mallet compound generally is very defective in this respect. Any of us who have had an opportunity of seeing locomotives in service can realize what is meant by an overhang of this description, as it affects the cars badly, and whenever I have been asked what I thought of the Mallet locomotive, I have pointed out that feature as being objectionable. I do not see any reason why the cylinders should not be brought together. I would refer particularly to the diminuition of the number of packed joints as proving the benefit of this arrangement, as also the packing arrangement, which in itself, to any man who has to take care of a locomotive, means a great deal. The behavior of the boiler is too deep a subject and too complex to form a matter for discussion offhand, and I really do not feel in a position to discuss it tonight. One point about it which appeals to me is the feed-water feature. The utilization of some such method as that must result in improved steaming, as the heat is carried into the boiler and a certain amount of steam in the shape of latent heat must be generated in the front section, and, if I understand aright as to the behavior in service, the principle is justified by the results, the boiler being quite capable of furnishing steam to the cylinders. The reduction in weight is a serious matter, and, to some, may be considered an objection in comparison with other locomotives of that type, but I like the reduction in the packed joints, vibration, facilities for maintenance, and reduction in the overhang. I believe that the effect of the flange friction is rather reduced than increased by the arrangement, and flange friction is the biggest factor we have in reduction of the effective power of the locomotive. When the whole truck is able to accommodate itself to the curves, as these are, there certainly is, to my mind, very much to commend it. I think the Fairlie locomotive was certainly the precursor of the Mallet type. The former had, I know, many defects, but it seems to me that the Mallet compound is a development of the Fairlie, although the Mallet is a great advance on it.

H. Tandy, Canadian Locomotive Co., said: I do not profess to know very much about this Mallet engine, as I have not given it the amount of study I might have done, but I certainly think that the departure which you have made in that engine will fully pay for all your trouble. Mr. Vaughan said that the only thing he could see to find fault with was its appearance. I think its appearance is really the better with the cylinders bunched together, and, even if it is not, it is so much more pleasing in service that that alone should recommend it. To my mind, the additional truck placed on some Mallet engines is absolutely unnecessary.

A. A. Maver, Master Mechanic G.T.R., said: We have heard a good deal about this engine from time to time, but this is the first opportunity we have had of getting a proper understanding as to its construction. It differs in a number of respects from the Mallet engine as generally constructed, and the departures from the general method of construction appear to me to be well founded. The general details also seem to have been worked out with skill and ingenuity. It seems to me the chief features are the location of the superheater and the turning around of the front engine, thereby bringing the cylinders closer together, reducing the length of the exposed pipes, and thereby lessening the tendency to condensation. The decrease of joints in these pipes is a commendable feature, and the shortening up of the engine over all by the cylinder arrangement is also another good point gained, enabling the engine to be housed in the different roundhouses without trouble.

G. I. Evans in reply, said: A speed of 20 miles an hour has often been reached, due to downgrade or a light train. On fig. 12 (see Railway and Marine World, March) this speed is reached between Hector and Stephen, where the grade is small, and, as there was a consolidation assisting, 20 miles an hour was easily attained. It is rather difficult to say whether there was any excessive back pressure on the l.p. pistons or not. The train was handled so easily by the two engines that the throttle was opened only slightly. Regarding Mr. Powell's remarks about the cinders cutting the tube ends, of course we cannot say definitely what will happen in the superheater compartment in future, but up to the present no trouble of this kind has developed. The superheater pipes will, to a certain extent, protect the tubes by taking the wear themselves, but, as they are easily removed for repair, it will not be a very serious matter if they do wear out occasionally. The steaming capacity of the boiler, as Mr. Harkom says, is entirely satisfactory, and no difficulty is experienced in maintaining full boiler pressure. When the locomotive was first put into service some adjustment was necessary in the smokebox on account of the change in coal.

The Railways and Forest Fires.

The Forestry Committee of the Conservation Commission has made the following recommendations to be added to the Railway Act, regarding the provisions relating to forest fires along railway routes:—

For each and every case in which a fire is started by sparks from a locomotive, and either begins outside the right-of-way or spreads therefrom to adjoining land, the company operating the railway when the fire is started, shall be liable to a fine of $1,000, to be recovered by summary prosecution before a stipendiary magistrate or two justices of the peace, provided that it shall be a sufficient defence if it be shown (1) that the company has used upon the locomotive the best available modern appliance for preventing sparks spreading; (2) that no negligence has been shown by the engineer or fireman of the locomotive, or any other servant of the company, conducing to the starting or spreading of the fires; and (3) that the company has maintained an efficient staff of fire rangers properly equipped with suitable appliances for fighting fires and proper and efficient means of traveling along the line, and that the staff has been prompt and diligent in taking all possible means to prevent the fire from spreading. The committee further recommended that the act respecting Government railways be amended to provide (1) that the Government railways maintain an efficient staff of fire rangers properly equipped with all suitable appliances for fighting fires and proper and efficient means of traveling along the line, and (2) that the Government railways, shall provide free transportation for all provincial fire guardians properly certified while traveling in the discharge of their official duties.

The Dominion Parliament has voted $2,500 to the Montreal Polytechnic School for the advancement of learning in connection with railway engineering and transportation in general, on condition that the railway companies contribute an equal amount. The C.P.R. and the G.T.R., prior to the passing of the vote, had promised to contribute to the funds, and the Quebec Legislature has promised to increase its contribution to an amount equal to that contributed by the Dominion Government and the railway companies.

Dominion Railway Subsidies for 1910.

The Dominion Parliament at its recent session voted subsidies in aid of railways at the rate of $3,200 a mile when the cost does not exceed $15,000 a mile, and increasing to $6,400 in proportion as the cost of construction increases. It is provided that all the lines for the construction of which subsidies are voted, unless already commenced, shall be begun within two years from Aug. 1, 1910, and completed within a reasonable time, not to exceed four years from Aug. 1. Other railways than the one securing the subsidy, may secure running powers over the lines to be constructed upon terms and conditions laid down by the Board of Railway Commissioners. In any contract entered into the Government may make it a condition that the line to be built shall be laid with new steel rails, made in Canada, and that the construction material, rolling stock and other equipment shall, as far as possible be of Canadian manufacture. The cost of the line includes all bridges not exceeding $25,000, but does not include right of way in cities, cost of terminals, or rolling stock. The subsidies granted are revotes of those granted in 1906 and 1908, which have not been earned, or in respect to which contracts have not been entered into between the Government and a company. In some instances, however, there has been a change in one or other of the terminal points, and in others there is a difference in the mileage, as compared with the votes of 1908. Following is a list of the lines to be aided arranged in provinces:—

NOVA SCOTIA.

DOMINION ATLANTIC RY.—To Government pier or wharf at Canning, one mile; from Brazil Lake, to Kemptville, 11 miles; from Centreville to Weston, 15 miles.

HALIFAX AND SOUTH WESTERN RY.—Lunenburg to Bridgewater, via Upper La Have, 12 miles.

INVERNESS RY. AND COAL CO.—From Broad Cove to Cheticamp, 37 miles.

MARGAREE COAL AND RY. CO.—From Orangedale to Chimney Corner Cove, 46 miles, and from Orangedale to Caribou Cove, four miles.

DARTMOUTH TO DEAN'S SETTLEMENT.—Not exceeding 80 miles.

DEAN'S SETTLEMENT TO MELROSE.—Not exceeding 52 miles.

MELROSE, ETC.—From New Glasgow to Melrose, Melrose to Guysborough, and a branch to Country Harbour, not exceeding 116 miles.

TUSKET WEDGE TO RIVERDALE.—Not exceeding eight miles.

NEW BRUNSWICK.

INTERNATIONAL RY. OF N.B.—To cover difference in mileage between Campbellton and St. Leonard's, as subsidized in 1908, and as actually constructed, 3.5 miles.

YORK AND CARLETON RY.—From present terminus to National Transcontinental Ry., nine miles.

CONNORS TO BEAU LAKE.—Not exceeding 18 miles.

GRAND FALL TO ST. JOHN.—Not exceeding 228 miles.

PLASTER ROCK TO RILEY'S BROOK.—Not exceeding 28 miles.

QUEBEC.

ATLANTIC, QUEBEC AND WESTERN RY.—From Paspebiac to Gaspe, along the shore, not exceeding 102 miles.

CANADIAN NORTHERN QUEBEC RY.—From Arundel to Preston-Hartwell tp., not exceeding 30 miles, and from Montreal to Hawkesbury, Ont., not exceeding 65 miles.

EASTERN TOWNSHIPS RY.—From St. Leonard's Jct., on the Intercolonial Ry., to Dudswell, 36 miles.

HA HA BAY RY.—From Jonquieres to Baie des Ha Ha, not exceeding 24 miles.

L'AVENIR AND MELBOURNE RY.—From Melbourne to Drummondville, not exceeding 28 miles.

LITTLE NATION RY.—From Papineauville towards Nominique, not exceeding 30 miles.

LOTBINIERE AND MEGANTIC RY.—From Lyster to Dudswell, 50 miles, and from Inverness tp. to the Quebec Bridge, 30 miles.

QUEBEC AND LAKE ST. JOHN RY.—From Valcartier station to St. Catherine, not exceeding 3.8 miles; from Valcartier station towards Gosford, 5.50 miles; from the end of the 35th mile of the branch to La Tuque on the St. Maurice River, to La Tuque Falls, 5 miles; from La Tuque Falls to the mouth of the River Croche, 5 miles; from the La Tuque branch to the steamboat landing near La Tuque, not exceeding 1.6 miles; from Chicoutimi, south, or southeast, not exceeding 5 miles; from Herbertville to St. Joseph d'Alma, not exceeding 10 miles.

QUEBEC AND NEW BRUNSWICK RY.—From Chaudiere Jct. to the international boundary between Quebec and Maine, not exceeding 62 miles.

JOLIETTE TO LAKE MANUAN.—Not exceeding 160 miles.

MONTREAL NORTHERLY.—From Montreal to the National Transcontinental Ry., not exceeding 200 miles.

ROBERVAL TOWARDS JAMES BAY.—Not exceeding 100 miles.

ST. JOACHIM TOWARDS SEVEN ISLANDS.—Not exceeding 170 miles, including branches to Murray Bay and Bari St. Paul.

STE. AGATHE DES MONTS TO HOWARD TP.—Not exceeding 15 miles.

ONTARIO.

ALGOMA CENTRAL AND HUDSON BAY RY.—From Sault Ste. Marie to White River or Dalton, 200 miles; from Michipicoten Harbor towards C.P.R., not exceeding 25 miles; from White River or Dalton towards the National Transcontinental Ry., 50 miles.

BRACEBRIDGE AND TRADING LAKE RY.—For a line from Bracebridge to a point near Baysville, not exceeding 16 miles.

ERIE, LONDON AND TILLSONBURG RY.—From Port Burwell to London, not exceeding 35 miles.

KINGSTON, SMITH'S FALLS AND OTTAWA RY.—From Kingston to Ottawa, not exceeding 101 miles.

LAC SEUL, RAT PORTAGE AND KEEWATIN RY.—From Kenora to the National Transcontinental Ry., not exceeding 22 miles.

MANITOULIN AND NORTH SHORE RY.—For lines from the M. and N.S.R., between Little Current and Sudbury, westerly towards the Algoma Central and Hudson Bay Ry., not exceeding 76 miles; from Little Current, thence crossing tne C.P.R. near Stanley, thence to Sudbury, not exceeding 88 miles; from Sudbury, northerly, not exceeding 30 miles.

NIPIGON RY.—From near Nipigon station on C.P.R., to Nipigon Lake, not exceeding 30 miles; from Nipigon Bay to the west side of Lake Helen, on line of Nipigon Ry., not exceeding 3½ miles; from the Nipigon Ry., near crossing of Fraser River to Lake Jesse, by Cameron Falls, not exceeding 1½ miles; from north shore of Lake Nipigon, northerly, not exceeding 45 miles.

ONTARIO, NORTHERN AND TIMAGAMI RY.—From Sturgeon Falls, northwesterly, to the westerly shore of Lake Timagami, not exceeding 50 miles.

ST. MARY'S AND WESTERN ONTARIO RY.—From Embro to Exeter, not exceeding 36 miles.

TORONTO, LINDSAY AND PEMBROKE RY.—From Golden Lake to Bancroft, not exceeding 51 miles.

SHARBOT LAKE TO CARLETON PLACE.—From Sharbot Lake or Bathurst, via Lanark, to Carleton Place, not exceeding 41 miles.

ALBERTA.

PACIFIC NORTHERN AND OMINECA RY.—

From Edmonton to or towards Peace River, not exceeding 110 miles.

SOUTHERN CENTRAL PACIFIC RY.—From two miles west of Pincher northwesterly for 10 miles, and southwesterly for 40 miles.

BRITISH COLUMBIA.

ESQUIMALT AND NANAIMO RY.—From near Duncans to Cowichan Lake, not exceeding 24 miles.

KETTLE RIVER VALLEY RY.—From Midway to Merritt, not exceeding 250 miles, and from Coldwater River to the Fraser River, not exceeding 50 miles.

KOOTENAY CENTRAL RY.—From Golden, via Windermere, Fort Steele and Ellis, towards the international boundary, not exceeding 186 miles.

The Minister of Railways stated that the total mileage for which the Act provided subsidies was 3,277.4. At a subsidy of $3,200 a mile that mileage would call for $10,487,680, while if the total amount of $6,400 was necessary, an expenditure of $20,975,360 would be involved.

Recent Nova Scotia Legislation.

The Nova Scotia Legislature last session passed Acts affecting transportation interests as follows:—

ACADIA COAL CO.—Amending acts of Incorporation.

DOMINION ATLANTIC RY.—Two Acts amending company's powers, and one with respect to building North Mountain division.

DOMINION IRON AND STEEL CO.—Amending chap. 139, statutes of 1899.

DRYDOCK, ETC.—To enable city of Sydney to furnish free site for drydock, shipbuilding plant and ship repair shop.

EGERTON TRAMWAY CO.—Amending chap. 137 of statutes of 1902. (The E. T. Co. is now operated as the Pictou County Electric Co.)

GREAT NORTHERN MINING CO.—Respecting company's powers.

INTERCOLONIAL RY.—Amending chap. 98 of statutes of 1909 respecting cost incurred by North Sydney for extension of I.C.R. to that town.

INVERNESS.—Amending chap. 93, statutes of 1909, respecting construction of a railway in Inverness county.

LIVERPOOL AND MILTON TRAMWAY CO.—Two Acts amending chap. 88 of statutes of 1896.

MABOU COAL AND RY. CO.—Amending chap. 135 of statutes of 1908.

MARGAREE COAL AND RY. CO.—Amending Act of 1909 confirming agreement between N.S. Government and company.

MARITIME COAL AND RY. CO.—Amending chap. 153, statutes of 1903-04.

MARITIME TELEGRAPH AND TELEPHONE CO.—Incorporation.

NOVA SCOTIA IRON AND STEEL CO.—Amending chap. 137, statutes of 1898.

PACIFIC WHALING CO.—Amending and consolidating acts relating to company.

PORT HOOD-RICHMOND RY. COAL CO.—Respecting company's powers.

QUEEN'S CENTRAL RY.—Incorporation.

SYDNEY AND LOUISBURG RY.—Incorporation.

SYDNEY SHIP CHANDLERY CO.—Incorporation.

Manitoba's First Locomotive.—The first locomotive ever seen in Manitoba, returned to Winnipeg, April 27, from Golden, B.C., on a flat car. It is proposed to give the locomotive an overhauling, and then place it on exhibition as a relic in the park facing the C.P.R. station on Higgins Ave. The story of the bringing of this locomotive to Winnipeg in 1877, together with an illustration, and details of its subsequent history will be found in our issue of Feb. and April, 1904.

How to Improve the Roadbed.

Our last issue contained a paper bby E. Desharnais, Roadmaster C.P.R. in Medicine Hat, Alta., on this subject. Following are the main points of its discussion by the Western Canada Railway Club:—

H. Rindal, Assistant Engineer C.P.R.: The construction department has certain rules for increasing the height of a dump so as to allow for settling, and these rules are followed on all new lines. I think, however, that even a dump widened in accordance with this, will be found in after years to be too narrow at the subgrade, as the rain will wash a certain amount of material off the shoulder, especially if the dump is made of material, which will not allow the grass to grow readily. Mr. Desharnais' remarks about trimming ballast are in my opinion correct. There is no doubt that trimming ballast down to three inches below top of ties has a tendency to destroy the ties, by letting the sun get at too much of the ends, and splitting them. I was out with Mr. Dixon on his inspection trip last summer and think that his recommendation regarding a tie inspector was justified. We found a certain piece of track that had just been re-tied, where quite a number of the ties taken out had enough life left in them to last another year. If there had been a tie inspector on the particular section, this would not have happened. From Mr. Desharnais' paper I take it that he thinks the inspector is supposed to be "A little tin god on wheels." This is not the intention, for the inspector will always confer with the section foreman and roadmaster, and I think that we would have a more uniform rate of tie renewals through this system, as two section foremen will hardly ever have the same idea about the remaining life of a tie. As far as discovering bad ties when lifting is concerned, the foreman is just as badly handicapped as the inspector would be. The proposed guard rail over muskegs will be too expensive. It will cost about $17 per 30 ft. rail length, and this is too much even for the C.P.R. East of here, on the double track, the creeping is stopped by using anti-creepers, about eight to 10 per rail length, at a cost of about $1.75 per rail length. These, in addition to 12 ft. ties will make as good a track as can be obtained over a muskeg. Mr. Desharnais ends up with a dig at the engineers. An engineer who will put in a centre stake in the morning and pull it up in the afternoon, to adjust the height, is hardly worthy of the name. I think Mr. Desharnais will find that the trouble is with his extra gangmen. If a man walking on the track sees a stake sticking up, he must kick it to see if it is loose. The next man will do the same, and the stake gets pretty loose after a few such attempts. My idea of placing centre stakes is that they should be left at a height which brings the top a couple of inches below the top of the finished ballast.

J. G. Legrand, Bridge Engineer G.T.P.R.: I think that the engineer who puts stakes down and then pulls them up again, can hardly call himself an engineer. He may have to drive them down again after taking them up to cut them and tried to put them into the same hole. This is the only way I can explain it.

H. Patten: Our company, at Fort William, is accumulating a lot of hard coal screenings, which is of no use for making steam. Would this be any good for ballast purposes, say yard-ballast?

E. Desharnais: Anything coming from coal, such as slack from the mines, is no use for track purposes. It does not bind, and on that account is not suitable. Coal dust, slack or cinders moves under weight, forming dust and the centre under the ties gives way. It is no good on the main line as a ballast, for the ties continually work loose.

H. Patten: Would it not be of any use for yard purposes?

E. Desharnais: Twenty years ago we used all kinds of ballast, because the trains were much lighter and ran a great deal slower than they do to-day. The rails were also much lighter, and consequently the heavier ballast was not required. I approve of cinders for yards and sidings, because there is no fast running on these rails, and the grass and weeds will not grow in the cinders, which is a saving on the ties.

T. Duff Smith: Regarding the life of ties being nine years. I think that is somewhat higher than the average. It appears to me that seven years on the main line is nearer the average?

E. Desharnais: Five years ago we were very much discouraged with the quality of the ties supplied, but now we get good ties which last on an average of nine years. Tamarac, especially black tamarac ties from swamps, are the best. There are many complaints about the changing too many ties, but it is due to the higher speed, also heavier power and rails. I allow 18 to 19 ties to a rail, or 270 to 280 to the mile.

J. Hillis: Have you had any experience with creosote or preservative being used on ties, and has the same been successful?

E. Desharnais: None at all. There is no doubt that something of this kind will have to come, as ties are getting scarcer all the time.

W. S. Fallis: How will creosoted ties wear after they have been treated in this manner? I think creosoting is one of the coming innovations in ties, that will tend to lengthen their life. This is exemplified in the process of creosoting shingles for roofs. Creosoted shingles will last three or four times as long as those not so treated. The procedure is to dip about 6 ins. of the butt of the shingle in creosote, which quickly penetrates the tissue of the wood, making it absolutely impervious to moisture and decay, rendering the life of the shingle very much longer. The process of creosoting ties is much the same. They are dipped in creosote liquid, which penetrates all parts of the tie to about half an inch. I have recently heard of a new method, by which the ties are placed in some kind of a retort containing creosote, and the liquid is forced into the very heart of the tie, rendering it almost beyond decay. As timber becomes scarcer in the future, which is not by any means improbable, no doubt some method such as this will be adopted to lengthen the life of ties.

A. E. Cox, General Storekeeper C.N.R.: An eminent professor from England gave a series of lectures, in U.S., on this subject. He stated that some creosoted ties on one of the railways in the United Kingdom had been lifted up after 23 years service, and were afterwards used for fences. It is claimed that it doubles the life of the tie, but it also doubles its cost.

W. E. Skinner: In Hawaii, on 70 miles of coast railway track, one of the superintendents has been experimenting on the ties by boring holes for driving spikes, and pouring a certain amount of creosote into them. I learn that he is having very good results. I think he has had some ties in use for about 11 years.

E. Fisher: We have been talking about the life of the tie, but nothing has been said about the life of the locomotive in this discussion. For example, take a locomotive running through sand hills and cuts. We all know that sand is very detrimental to the working parts of the locomotive, cutting and wearing them out before their time. Why could not something be done to keep the sand and dust from flying? Why could not some

kind of a creeper be planted on the face of the cuts? It would of course take a few years to do it, but it is done in other parts of the country. I was, at one time, in a part of the country composed of red loam where stones and earth were continually falling down on the track. The company kept planting creepers until they got one to grow, with the result that eventually they stopped the earth from falling on the track and dust from flying. I think it would be a good idea to have this tried in this western country.

A. E. Cox: What percentage of new spikes do you figure on in re-laying new steel, especially where steel has been laid for ten or fifteen years?

E. Desharnais: Ten boxes of spikes to the mile, providing you have good men to pick up on the line, but I find that where tie plates are used they cut into the spikes, and in that case it will take about 16 boxes to the mile.

CANADA'S RAILWAY BUILDING.

A Vast Construction Programme Decided On.

A careful consideration of contracts let, and engagements entered into with the Dominion and Provincial Governments, shows that the various Canadian railway companies expect to complete and bring into operation about 7,000 miles of new lines within the next five years. This estimate is made on the basis of contracts already entered into and construction work immediately in sight, and does not include various projects which may reach the active construction stage within that time, neither does it include the mileage of yard and terminal lines, and the second track work in progress or contemplated by the C.P.R.

From the contracts already in hand it would appear that track will be laid this year on not less than 1,500 miles, about the same as last year; and from the engagements entered into with the different governments, it appears as if there will be very little diminution of that rate of railway building for the following three or four years. British Columbia will probably show the heaviest increase in mileage during the next few years, for it has contracted with the Canadian Northern Pacific Railway to build 600 miles, and with the Kettle Valley Ry. to build about 230 miles by the end of 1914. The C.P.R. has either under contract on Vancouver Island or in contemplation about 200 miles of line, the G. T. Pacific Ry. has under contract 200 miles, and will place under contract the remaining 500 miles of its system within a year; and the Great Northern Ry., through its subsidiary company, the Vancouver, Victoria and Eastern Ry., has a considerable mileage under contract and survey. In Alberta and Saskatchewan the Canadian Northern Ry., and the G. T. Pacific Ry., are under agreement with the Dominion and Provincial Governments to build over 1500 miles of main and branch lines, and of these, some 600 miles have been placed under contract. In these new provinces, the next few years will see a large mileage constructed of the Alberta and Great Waterways Ry., on which work is at present temporarily suspended; the line to Hudson Bay, for which the Dominion Parliament has granted a first construction vote, and the Hudson Bay and Pacific Ry., for which surveys are at present in progress in view of, as the Managing Director says, a start this summer. Next to these provinces, Ontario will show the largest increase in mileage for the next few years, principally in connection with the Canadian Northern Ontario Ry., and the National Transcontinental Ry.

The National Transcontinental Ry., when completed, will extend from Moncton, N. B., to Price Rupert, B. C., 3,550 miles. The first portion of this line, which is being constructed by the Dominion Government, through a Commission, extends from Moncton to Winnipeg. Contracts have been let for the grading, etc., for the whole distance of 1804 miles, and upon this mileage there are 742 miles of grading and 1,183 miles of track laying to be completed within the next two or three years, in this part of the line is situated the Quebec Bridge, for which the Dominion Government is preparing to receive tenders. The western division of the line which is being constructed by the G. T. Pacific Ry. Co., extends from Winnipeg to Prince Rupert, 1746 miles. Of this mileage track has been laid on 915 miles from Winnipeg to Wolfe Creek, west of Edmonton, Alta., and a train service is being operated to Edmonton. A contract has been let for over 200 miles of the line easterly from Prince Rupert, and track is being laid on the first 100 miles, while contracts are expected to be let during the year for the remaining 500 miles, situated almost entirely in British Columbia. A subsidiary company, known as the G. T. Pacific Branch Lines Co., has just placed on the British market an issue of £1,270,500 of 4 per cent. bonds, guaranteed by the province, for the construction of branch lines in Saskatchewan as follows:—Regina to the International boundary near Portal, 155 miles; Regina to Moose Jaw, 110 miles; from Biggar, in a south-westerly direction, 50 miles; Prince Albert branch, 110 miles; Cut Knife branch, 50 miles. These lines are to be built in addition to others previously arranged for, upon which 55 miles of track was laid in 1909. Contracts have been let for an extension of 30 miles on the Melville-Yorkton line; 60 miles on the Melville-Balcarres line, and it is expected that work will be gone on with on the projection of this line southerly from Regina to the International boundary this year, for the grading of about 50 miles from Biggar to Battleford. Under an agreement with the Alberta Government, the company has undertaken to build about 600 miles of line in that province, and has started construction on one line, viz., from Tofield to Calgary, upon which track was laid to Cambrose, 26 miles, in 1909. A contract has been let for the extension of the line into Calgary this year.

The Canadian Northern Ontario Ry. has under construction 100 miles from Toronto to Trenton, as the first section of its line to Ottawa. It is expected that contracts will be placed during the year for the balance of the line, and also for the grading of the line from Toronto to Buffalo, along the Toronto-Niagara Power Co.'s right-of-way. The extension of the line from north of Sudbury to Port Arthur is projected, but it is not likely that any extensive work will be done on it for a year or two. In a recent interview, President Mackenzie stated that the C.N.R. expected to add some 600 miles to its lines on the western prairies this year. There were about 200 miles of grading done in 1909, upon which track was not laid, and contracts have been let for 230 miles of new work in Manitoba, Saskatchewan and Alberta. Other contracts will be let in the near future. It is however, in British Columbia, that the C. N. R. will, through the C. N. Pacific Ry.. be most active during the next few years. The company has undertaken to build 600 miles by 1914, of which 50 miles are to be constructed on the mainland, and 20 miles on Vancouver Island during the current year. So far as other Mackenzie, Mann & Co. lines are concerned, the only one upon which construction will be gone on with this year is the Portland Canal Short Line, from Stewart along the valley of the Bear River, B. C., for 15 miles.

The C. P. R. construction programme for the current year, includes in addition to the laying of track and the completion of lines graded in 1909, the building of a second track between Winnipeg and Portage La Prairie, and the construction of 459 miles on six different lines, in Manitoba, Saskatchewan, Alberta and British Columbia, for which contracts have been let for completion this season. The extension of other lines has been decided upon, but it is uncertain what further contracts will be let this season.

The Kettle Valley Ry., which has a small mileage in Canada, has entered into an agreement with the British Columbia Government to build 230 miles of line of which 25 miles is to be completed this year, 50 miles in 1911, and the remaining mileage by the end of 1914. Contracts have been let for 50 miles upon which work has been started.

The Alberta and Great Waterways Ry. let a contract for the first section of its 350 mile line from Edmonton to Fort McMurray, Alta., but construction has been suspended for the present. The Dominion Government has provided funds for making a start on the 600 mile line from Pas Mission to Hudson Bay, and the Hudson Bay and Pacific Ry. promises a start on its projected line between Prince Albert and Fort Churchill this year.

The Great Northern Ry., through various subsidiary companies has a large programme in Canada, but the only point at which active construction is going on is between Abbotsford and Hope, B.C., pending decision upon the question of tunneling the Hope Mountains or constructing a round about line over them. The probabilities of construction on G.N.R. lines is always an unknown quantity, and it is impossible to conjecture what is likely to be done.

Of the lines outside the above the Dominion Government has under construction a 10 mile branch of the Prince Edward Island Ry.; a diversion of 9 miles at Sydney Mines, N.S., and a 10 mile cut-off at Chatham, N.B., on the Intercolonial Ry.; the Dominion Atlantic Ry. has in contemplation the construction of a 35 mile branch from Centreville, of which 10 miles will, it is said, be placed under contract at an early date. Construction is being proceeded with on the Ha Ha Bay Ry., from St. Alphonse, Que., about 24 miles; the Central Ontario Ry. is building a 10 mile extension northerly from Maynooth, and the Algoma Central and Hudson Bay Ry., will connect up its Michipicoten branch with the C.P.R., and complete its main line, these two sections representing about 150 miles of work, while the Manitoulin and North Shore Ry. has a 12 mile extension under contract.

In Newfoundland the Reid Newfoundland Co. has agreed with the Government to construct 280 miles of branch lines of which at least 50 miles has to be completed annually. For the purposes of construction rails and fastenings are to be admitted duty free, as also will be the material necessary for the construction of rolling stock, which has to be manufactured on the Island.

The immense amount of railway construction which is being done in Canada, in proportion to its population will be more fully realized by pointing out that in 1909, according to official returns made by the various steam railway companies to the Railway and Marine World, 1,588.47 miles of new line were laid with track. In the same period only 3,748 miles of new track were laid in the whole of the United States. Second track, etc., is not included in the figures given for either country.

Efficiency in Transportation.

In our May issue we published a paper on this subject by D. Crombie, Assistant to the General Transportation Manager G.T.R. Following are the main points of the discussion on it by the Canadian Railway Club:—

H. H. Vaughan, Assistant to the Vice President C.P.R.: I am rather doubtful whether the comparison of the English and German operating ratios is entirely fair. Mr. Crombie assumes that a greater density of traffic leads to a lower ratio. I do not think that is quite right. It seems to me that greater density has led to an increased ratio. I have noticed this, while the traffic on the C.P.R. has increased about 50 to 60%, as the traffic got congested the expenses would tend to increase. If you bear in mind the staff that English roads have to maintain to manage their traffic, and that in addition their length of haul is very much less than ours, you can understand that their terminal expenses are exceedingly high and terminal expenses are an important factor in operating costs. I would like to supplement Mr. Crombie's statement as to the cheapness of transportation by another remark, and that is, that whether coal is used efficiently or not, still, a shovelful of coal will now carry 200 tons one mile. This seems remarkable, and certainly we are not so very inefficient when a shovelful will do that.

It seems to me that, in connection with the service obtained from cars, Mr. Crombie has left himself very little room for improvement. In the paper I read myself recently about the efficiency of coal consumption, I was very careful to leave myself room for about 25% improvement, but in Mr. Crombie's statement he has shown that the time the cars are handled by railroads is only about 10% of the total, so that no amount of speed could reduce the total average days per load of less than 90% of the figure he has given. When you take Mr. Crombie's statement and one or two other cases he has mentioned later, it seems to me that the traffic department is responsible for all the trouble, as apparently, only about 2% improvement is possible by the car and transportation departments.

I think that Mr. Crombie must have thought that this was a club of almost entirely mechanical men from the easy way he has dealt with the troubles caused by locomotive and car equipment. There is a certain amount of truth in this, however, and I am beginning to think that the question of coal economy is just as much a transportation as a mechanical matter. The engine may be all that it should be, and the handling of it as good as possible, and then the big difference between economical and uneconomical operation is largely in the hands of the transportation department.

I feel hardly able to discuss Mr. Crombie's proposed reorganization. Personally, I agree with him that the Hines system is not likely to be extended. It looks very well in the concentration of officers into one office, instead of being scattered, and I see no objection to calling each officer a superintendent, but the advisability of allowing each one to handle each other's work is very questionable, and the only way it seems to me the system could be run is by each man keeping to his own work pretty well. There is very little difficulty about various men on a division learning each other's work. In fact, it always seems to me that when one speaks to a man he is generally liable to know all about the other fellow's work and exactly how it ought to be run. I do not quite know the idea of the proposed organization. It seems to me we should get the same thing by splitting up a district so that the superintendent would get in touch with the public and his men in the same way as a divisional agent is supposed to do, and that the only way in which this can be effected would be by getting a division small enough for the superintendent himself to do this work.

J. Pullen, Freight Traffic Manager G.T.R.: Mr. Crombie has pointed out that, although the capacity of cars has increased very considerably in late years, the average loading of cars has not increased in the same proportion, and suggests that the freight traffic department should adjust the minimums, following closely the increase in car capacity. This is a question to which the railways have given, and are giving, a good deal of consideration. Within the last few years the minimum weight for standard box cars in the territory in the U.S. covered by the Official Classification, that is to say, east of the Mississippi River and north of the Ohio, has been increased from 30,000 lbs. to 36,000 lbs. In Canada, with the exception of some heavy commodities, the classification minimum has remained at 24,000 lbs. It is largely a matter of education of the public to the needs of transportation companies, and much good work is being done by the freight officers in this direction. The Canadian Freight Association has now under consideration a proposal to increase the minimum weights wherever possible to do so. Generally speaking, the railway commissions hold to the view that the minimum weight for any article should not be in excess of the quantity that can be loaded in a standard box car. The public, well content with this view, would resist any efforts of the carriers to go beyond that point because it means an increase in freight charges. Then there are the commercial conditions to be considered. Frequently the consignee has not warehouse accommodation sufficient to take in a large car, and therefore insists on buying only a small car. For example, 60,000 lbs. of salt could readily be carried in one of our modern 36 ft. box cars, but only 100 barrels of 300 lbs. each, or 30,000 lbs. in all, could be loaded on end on the floor of the car. Shippers object to tiering the barrels up, partly on account of the labor involved and partly by reason of the damage to the lower tiers. Furthermore, the small country dealer does not want to buy more than 100 barrels at a time.

Mr. Crombie has suggested that the reasons for the continued existence of demurrage bureaus are not apparent. Possibly, from the standpoint of a transportation officer, this may be true, but I am sure all freight officers will agree with me that we do not want to go back where we were before the car service associations were organized. Car service has been legalized both in Canada and the U.S., nevertheless there are amongst the shipping public a good many who would not hesitate to evade the car service rules if they could get a willing station agent who would help them to do it. The car service associations have removed from the sympathetic station agent and the freight officer, who are expected to cultivate the goodwill of the public, all opportunity for evasion of the rules. We are getting better use of our equipment becase shippers are delaying cars at terminals less than formerly. Still, as Mr. Crombie says, there is room for much improvement, but we do not think the time has come for doing away with the the car service associations until the public have been more thoroughly educated as to the advantage of the rules both in their interests and that of the carriers.

Mr. Crombie has suggested the transfer from the freight to the transportation department of the freight claim agent's forces in order that the department at fault may promptly and fully be put in a position to correct the fault. I am sorry not to be able to agree with him on this point. Personally, the freight officers would only be too glad to be relieved of one of their most disagreeable duties, namely, the investigation and settlement of loss and damage claims. One of the most abused officers of the staff is the freight claim agent. He may do his work ever so well and be ever so conscientious in his duties, and treat everyone with the fullest possible consideration, but it is always impossible to fully satisfy an unreasoning, to say nothing of a dishonest claimant. From that point of view we should not object to transferring this work to the transportation department, but I fear that the interests of the patrons of the company would not be as carefully cared for as is now done by the freight department. This is not intended to be any reflection upon the transportation department. The officers of the freight department especially are expected to cultivate the goodwill of the shipping public, and in dealing with loss and damage claims the use of tact is necessary. I should not want to be responsible for the relations between the public and the railway company if the settlement of loss and damage claims had to be entrusted to some of the transportation officers I have known.

I am much pleased to note the consideration Mr. Crombie has given to the question of systematic loading of less than carload freight. I suppose nowhere on the face of the globe has there been evolved a more complete and successful system of handling carload movements than in the U.S. and in Canada, but when it comes to the handling of merchandise in less than carload quantities we seem to be woefully behind the times, and I hope the transportation officers will continue to give this important subject more attention. The less-than-carload traffic represents the high-class freight, upon which higher rates and greater revenues are secured. It is of the utmost importance, both to the shipper and the consignee, that he should know approximately when he is likely to receive his goods, so that he can arrange for his sales accordingly. Any failure of the transportation companies to handle such goods with regularity is the cause of much annoyance and disturbance to commercial men. If some arrangement could be made whereby the merchandise could be depended upon to arrive at destination without transfer en route, the public would get a very much better service and the railways be relieved of much adverse criticism.

G. T. Bell, Passenger Traffic Manager G.T.R.: Mr. Crombie was very careful, in opening his paper, to announce that he was dealing more particularly with the freight department—car and fast freight service, train loading, fuel, and station service. In his different headings, perhaps station service appeals to me more than anything else. I think the quantity and quality of help is very frequently criticised, and sometimes with good cause. The men at stations often have too much to do, and better pay and prospects encourage them to enter other fields. Of course, I am speaking of passenger service entirely.

As far as the district agent is concerned, I think Mr. Crombie probably misunderstands the nature of the work now done by district and other passenger agents. There are many things that the poor district agent would find it quite out of the question to give his attention to at all, although he would find some of them very enticing. I have no doubt, for example, it would be very pleasing to him to go regularly to the local theatres to see that the chorus girls travel by the right route.

Orders by the Railway Commissioners.

Beginning with June, 1904, we have 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 hearing took place and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the date assigned to them.

10173. Apr. 18.—Approving C.P.R. Standard Freight Tariffs Supplement 3 to C.R.C., w. 2; Supplement 3 to C.R.C., w. 3, and Supplement 2 to C.R.C., 7, adding stations on new lines.

10174. Apr. 19.—Authorizing C.P.R. to build spur for the Okanagan Lumber Co., Okanagan Landing, B.C.

10175, 10176. Apr. 18.—Authorizing C.N.O.R. to build across road overhead, on lot 24, con. 3, Pickering tp., at station 2761, and similarly to cross Dawes' Road, York tp.

10177. Apr. 15.—Authorizing Manitoba Government Telephones to place wires across C.N.R. near Oakburn station.

10178. Apr. 15.—Authorizing G. E. Higginson, to place wires across C.P.R. near Calumet station, Que.

10179. Apr. 15.—Authorizing Waterloo Water and Light Commission to place wires across G.T.R. on Queen St., Waterloo, Ont.

10180. Apr. 19.—Authorizing Western Counties Electric Co. to place wires across T.H. & B. Ry. at Mohawk St., Brantford, Ont.

10181. Apr. 19.—Authorizing Dominion Light, Heat and Power Co. to place wires across C.P.R. at its Hochelaga yards, Que.

10182. Apr. 18.—Authorizing Seymour Power and Electric Co. to place wires across Bell Telephone Co. wires at Campbellford, Ont.

10183. Apr. 18.—Authorizing Uxbridge and Scott Telephone Co. to place wires across G.T.R. on Brook St., Uxbridge, Ont.

10184, 10185. Apr. 18.—Authorizing Ottawa Electric Co. to place wires across C.P.R. at two points.

10186 to 10189. Apr. 18.—Authorizing Wahnapitae Power Co., Dominion Nickel-Copper Co. and Moose Mountain, Ltd., to place wires across C.N.R., C.P.R., at four points in Ontario.

10190 to 10197. Apr. 19.—Authorizing Ontario Hydro-Electric Power Commission to place wires across various railways at eight points.

10198 to 10201. Apr. 19.—Authorizing Bell Telephone Co. to place wires across various railways at four points in Ontario.

10202 to 10212. Apr. 19.—Authorizing Saskatchewan Government Telephones to place wires across C.P.R. at 11 points.

10213. Apr. 14.—Authorizing Water and Light Commission of Waterloo, Ont., to relay gas main across G.T.R. on Queen St.

10214 to 10217. Apr. 18.—Authorizing C.P.R. to open for traffic its Weyburn-Lethbridge Branch from mileage 0 to 26; Kipp-Aldersyde Branch from mileage 0 to 28.2; Wynyard section from mileage 88.3 to 125.3, between Wynyard and Lanigan, and Pheasant Hills Branch from mileage 430.39 to 561.63 between Wilkie, Sask., and Hardisty, Alta.

10218. Apr. 18.—Authorizing C.N.O.R. to build across Division St., Colborne.

10219. Apr. 18.—Approving C.N.R. plan of standard masonry abutments for highway crossings.

10220. Apr. 19.—Authorizing C.N.O.R. to build across public road between lot 32, con. 1, and lot 33, con. 2, Cramahe tp.

10221, 10222. Apr. 18-19.—Approving C.N.R. location from mileage 28.54 to 58.27, through tps. 10-13, r. 21-23, w. 2 m.; and mileage 0 to 28.54, through tps. 6-10, r. 18-20, w. 2 m., Sask.

10223. Apr. 18.—Approving M.C.R. plan of bridge at Cataract St., Niagara Falls, Ont.

10224. Apr. 12.—Authorizing C.P.R. to build spur across Tweed St. and lot 37 in D.G.S. 65 and 66, St. Boniface, Man.

10225. Apr. 19.—Authorizing C.P.R. to use bridges 83.0, 85.2, 99.88, 114.1, and 119.7 on its Smith's Falls Section, Ont.

10226. Apr. 19.—Approving G.T.R. plan of proposed additions to masonry at each end of bridge 21, at m. p. 76.02, District 20, Ont.

10227. Apr. 19.—Relieving G.T.R. from providing further protection at crossing of first public road south of Drew station, Ont.

10228, 10229. Apr. 19.—Ordering G.T.R. within 60 days to install electric bell at crossing just west of Ridgeway station, Ont., and ordering C.N.R., similarly respecting crossing at Gore St., Fort William, Ont.

10230. Apr. 20.—Authorizing C.N.O.R. to build across public road between lots 24 and 25, con. 1, Scarboro tp.

10231. Apr. 19.—Relieving G.T.R. from providing further protection at crossing of Haggerty St., Newbury, Ont.

10232. Apr. 20.—Approving location of G.T.R. proposed station at Waterloo, Ont.

10233. Apr. 12.—Authorizing G.T.R. to build spur to Stratford Manufacturing Co.'s premises, Stratford, Ont.

10234. Apr. 19.—Authorizing Galt, Preston and Hespeler Ry. to operate interlocking plant at Hespeler, Ont.

10235, 10236. Apr. 18-20. — Authorizing P.M.R. to reconstruct bridges over Canard River, in Colchester North tp., near New Canaan station, and over Whitebread drain, Sombra tp., Ont.

10237. Apr. 19.—Approving M.C.R. plans of proposed station at Tecumseh Road, Ont.

10238. Apr. 19.—Approving M.C.R. plan of proposed changes in bridge at Park St., Niagara Falls, Ont.

10239. Apr. 19.—Authorizing M.C.R. to reconstruct overhead bridge at Murray St., Niagara Falls, Ont.

10240. Apr. 20.—Approving M.C.R. plan of proposed changes in bridge at Clifton Ave., Niagara Falls, Ont.

10241. Apr. 19. — Approving proposed changes in Canadian Classification 14, viz.: Elimination of item 23, page 57, covering ratings on evaporated potatoes; elimination of item 8, page 65, covering ratings on evaporated vegetables; and addition of an item under heading of Groceries, reading: vegetables, desiccated or evaporated, in bags, boxes or barrels, L.C.L. 3, C.L. 5.

10242. Apr. 19.—Approving location of proposed C.P.R. station at Carlstadt, Alta.

10243. Apr. 19.—Authorizing Abernethy village, Sask., to place wires across C.P.R., and to install a telephone in station there.

10244. Apr. 20.—Authorizing Manitoba Government Telephones to place wires across C.P.R. at Archibald St., St. Boniface.

10245 to 10255. Apr. 19.—Authorizing Saskatchewan Government Telephones to place wires across various railways at 11 points.

10256 to 10260. Apr. 19.—Authorizing Ontario Hydro-Electric Power Commission to place wires across various railways at five points.

10261, 10262. Apr. 18.—Authorizing city of Winnipeg to lay water mains under C.P.R. West Selkirk branch, at Manitoba and Selkirk Aves.

10263. Apr. 18.—Authorizing town of Dunnville, Ont., to place sewer under G.T.R. at Tamarac St.

10264 to 10268. Apr. 18.—Authorizing Weston village, Ont., to lay pipe across G.T.R. and C.P.R., at five points.

10269. Apr. 19.—Authorizing Saskatchewan Government Telephones to place wires across C.P.R., between secs. 27 and 22, tp. 17, r. 7, w. 3 m., at Ernfold.

10270. Apr. 18.—Authorizing city of Winnipeg to lay water pipe under C.P.R., West Selkirk branch, at Pritchard Ave.

10271. Apr. 19.—Rescinding order 3979, Nov. 19, 1907, which authorized a C.P.R. crossing at point marked A on plan filed with the Board; and authorizing a crossing at point marked C on said plan, and ordering C.P.R. to fence off crossing at point marked B.

10272. Apr. 19.—Ordering G.T.R. within 60 days to install electric bell at Beverley St., Galt, Ont.

10273. Apr. 21.—Ordering C.P.R. to install within 60 days, electric bell at crossing of Martin St., Milton, Ont.

10274 to 10299. Apr. 19 to 21.—Relieving G.T.R. from providing further protection at crossings at Murray St., Pembroke; second public highway west of Moose Creek; Hunter's Crossing, Galt; Talbot road, Middleton tp.; Barley side road, Middleton tp.; 2½ miles west of St. Mary's Jct.; Thomas St., Arnprior, Ont.; St. Liboire road, Quebec, Que.; three miles north of Port Dover, Ont.; second highway east of St. Mary's Jct.; near Wingham Jct.; 1½ miles south of Dunkfield; Waterloo road, 3½ miles north of Hespeler; ½ mile south of Paisley; 1½ miles north of Mildmay; three miles west of Fort Erie; ¾ mile west of Stoney Point; St. John's crossings, near Clinton; Ferguson's crossing, near Admaston, Ont.; and similarly relieving C.P.R. in respect of crossings at Turgeon St., Ste. Therese; Bridge St., Three Rivers; Cote des Perrons (Chemin de Base), Ste. Rose parish; Cassidy's crossing, Wakefield tp.; Canjllon St., Sauveur, Quebec, Que.; one mile south of Claresholm, Alta.; Government road, Pembroke tp., Ont.

10300. Apr. 5.—Ordering that Guelph & Goderich Ry. (C.P.R.) remove mound on south-east side of highway at crossing between cons. 9 and 10, Morris tp., Ont.

10301. Apr. 19.—Extending for 30 days' time, within which interlocking plant required under order 8110, Sept. 14, 1909, be installed—made upon Vancouver Power Co.'s application, and authorizing it to cross with its railway the New Westminster & Southern Ry. at Cloverdale, B.C.

10302. Apr. 21.—Authorizing C.P.R. to build two additional tracks across Centre Ave., Claresholm, Alta.

10303. Apr. 21.—Authorizing Esquimalt & Nanaimo Ry. to build across highway at mileage 6.40 of its Comox extension, from mileage 0 at Parksville, on its Wellington-Alberni branch, to mileage 34.79 at Union Bay, Vancouver Island, B.C.

10304. Apr. 18.—Authorizing C.P.R. to build spur in Winnipeg across lot 1 and the lane in block 31, parish lot 35, St. John's.

10305. Apr. 20.—Authorizing C.P.R. to build spurs for Saskatchewan Flour Mills Co., and Rat Portage Lumber Co., Moose Jaw, Sask.

10306. Mar. 19.—Authorizing C.P.R. to build spur through blocks 10 and 7 and across 18th St., Saskatoon, Sask.

10307. Apr. 21.—Authorizing G.T.R. to substitute plan for plan approved by order 6980, May 10, 1909, which authorized building of spurs for Consumers' Gas Co., Toronto.

10308. Apr. 14.—Authorizing G.T.R. to build spurs to Gibson, McCormack, Irvin Co.'s premises, Weston, Ont.

10309. Apr. 19.—Authorizing G.T.R. to build spur lines, with sidings, to Laprairie Brick Co.'s premises, Laprairie, Que.

10310. Apr. 20.—Rescinding order 9648, Feb. 17, and ordering Niagara, St. Catharines & Toronto Ry. to install full interlocking plant at G.T.R. crossing between Clifton Jct. and Stamford, Ont.

10311. Apr. 21.—Extending for three months from date time within which G.T.R. shall build branch line in Humberstone tp., Ont., as provided in order 9398, Jan. 29.

10312. Apr. 20.—Approving Chatham, Wallaceburg & Lake Erie Ry. standard freight tariff, C.R.C. 116.

10313. Apr. 19.—Authorizing C.N.O.R. to divert and cross public road between lot 13, con. 3, and lot 13, con. 4, Clarke tp.

10314. Apr. 19.—Authorizing Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co. to build spur line on Lauriston St., Saskatoon, Sask.

10315. Apr. 21.—Ordering C.N.O.R. to build subway across road through lot 3, con. 2, Hope tp., and pay all costs of closing Cavan rd., except land damages.

10316. Apr. 21.—Ordering G.T.R. to clean approaches at crossing of public road which forms boundary between Ops tp. and Lindsay, Ont.

10317. Apr. 21.—Refusing C.N.O.R. application for approval of site and side elevation of bridge over Port Hope Creek and G.T.R., lot 3, con. 2, Hope tp., and ordering that the opening in the embankment be at the other side.

10318. Apr. 22.—Approving C.N.R. plans of bridge over Assiniboine River at Winnipeg.

10319 to 10320. Apr. 21.—Authorizing the C.N.O.R. to build across public roads between cons. 1 and A, Hamilton tp., and between lots 10 and 11, con. 3, Hope tp.

10321. Apr. 12.—Ordering C.P.R. within 60 days to install electric bell with light attached at crossing at mileage 81.28, Toronto section, Markham tp., Ont.

10322. Apr. 22.—Approving strain sheet for 39 ft. girder span to be provided by Lincoln Mills Paper Co. for intake at Lybster Mills, Merriton, Ont.

10323. Apr. 23.—Approving revised location of Tillsonburg, Lake Erie & Pacific Ry. and highway crossings between Ingersoll and Code Jct., Ont.

10324. Apr. 22.—Approving C.N.O.R. strain sheets for bridge over Dixie Creek, Ont.

10325. Apr. 23.—Declaring that C.P.R. crossing at Maitland St., London, Ont., is protected to the Board's satisfaction.

10326 to 10337. Apr. 22.—Relieving G.T.R. from provjding further protection at crossings at Garnet, in Walpole, 10th con. Haldimand tp.; second road west of Wainfleet; third road west of Dunville; 1½ miles east of Tillsonburg; one mile south of Palmerston; 1½ miles east of Walsh; two miles north of Rymal, Ont.; similarly relieving C.P.R. in respect of crossings at Chemin Frederick, between lots 466 and 504, St. Felix de Valois, Que.; mileage 40.66 east of Harrison, Ont.; Le Rang de Lacadie, Pointe du Lac Parish; 2½ miles east of St. Basile Station, Que., and similarly relieving M.C.R. in respect of crossing at first highway west of Appin Jct., Ont.

10338. Apr. 21.—Ordering form of protection to be provided by G.T.R. at Darcy St. crossing, Cobourg, Ont.

10339. Apr. 22.—Authorizing Canadian Niagara Power Co. to carry wires across M.C.R. at Gilmore St., Bridgeburg, Ont.

10340. Apr. 28.—Ordering that C.P.R., from May 1 to Oct. 1, in each year, operate all passenger trains, north and south on its Gatineau Branch, from and to Sapper's Bridge, Ottawa, and furnish suitable accommodation for passengers there.

10341. Apr. 26.—Ordering that G.T.R. crossing at St. Charles St., Belleville, Ont., be protected by electric bell.

10342. Apr. 21.—Ordering that highway at

mileage 20 C.P.R. main line, about two miles south of Lindsay, Ont., remain where it is, ditches within right of way to be tiled and filled to widen road as suggested in petition of ratepayers of Ops tp.

10343. Apr. 23.—Ordering that G.T.R. within 60 days install improved type of electric bell at crossing just west of Nelles Corners station, Ont.

10344. Apr. 21.—Ordering that G.T.R. build bridge at crossing between cons. 3 and 4, Ops tp., Ont.

10345, 10346. Apr. 23.—Ordering that C.P.R. be relieved from providing further protection at crossings between cons. 8 and 9, Euphemia tp., and at highway between cons. 4 and 5, Garafraxa tp., Ont.

10347. Apr. 25.—Authorizing Fingal Telephone Co. to place wires across P.M.R. between lots 33 and 34, Southwold tp., Ont.

10348. Apr. 26. — Authorizing Addison, Greenbush and Bookspring Telephone Co. to place wires across C.P.R. at Jelly's crossing, con. 10, Elizabethtown tp., Ont.

10349 to 10351. Apr. 25.—Authorizing Ontario Hydro-Electric Power Commission to place wires across various railways at three points.

10352, 10353. Apr. 26.—Authorizing Nipissing Power Co. to place wires across C.P.R. at two points in North Bay, Ont.

10354. Apr. 25.—Authorizing town of Palmerston, Ont., to lay sewer under G.T.R. at Henry St.

10355. Apr. 26.—Authorizing C.P.R. to build spur to Winnipeg Oil Co.'s premises, Moose Jaw, Sask.

10356. Apr. 26.—Re rates on petroleum and its products in Ontario. This order is given in full on another page.

10357, 10358. Apr. 21. — Ordering that C.N.O.R. build subways between cons. 3 and 4, and between lots 12 and 13, con. 3, Hope tp.

10359, 10360. Apr. 25.—Declaring that C.P.R. crossings of Laliberte St., Quebec, and Waterloo St., London, Ont., are protected to the Board's satisfaction.

10361. Apr. 25.—Ordering that C.P.R. within 30 days make approaches to highway crossing between cons. 8 and 9, Puslinch tp., Ont., 20 ft. wide and re-fence approaches to conform to Board's requirements under its General Regulations Affecting Highway Crossings.

10362. Apr. 27.—Authorizing Bell Telephone Co. to place wires under C.P.R. at Pall Mall and Waterloo Sts., London, Ont.

10363. Apr. 27.—Authorizing city of Revelstoke, B.C. to place wires across C.P.R.

10364 to 10366. Apr. 27.—Authorizing Saskatchewan Government Telephones to place wires across C.N.R. at three points.

10367. Apr. 27.—Authorizing Ontario Hydro-Electric Power Commission to place wires across G.T.R. at lot 5, con. 1, London tp., Ont.

10368. Apr. 26.—Authorizing Northern Navigation Co. to lay gas main under G.T.R. at Sarnia, Ont.

10369. Apr. 26.—Authorizing C.P.R. to build spur for Crow's Nest Pass Coal Co., near Crow's Nest station, B.C.

10370. Apr. 26.—Authorizing C.N.O.R. to build across public road between lots 24 and 25, con. B, Brighton tp.

10371. Apr. 26.—Authorizing C.N.O.R. to cross, overhead, road between lots 4 and 5, con. 4, Scarboro tp.

10372. Apr. 26.—Ordering that time within which the Vancouver, Victoria and Eastern Ry. and Navigation Co. build spur to Daly Reduction Co.'s works at Hedley, B.C., be extended for six months from date.

10373. Apr. 27.—Authorizing C.P.R. to build extension of spur to premises of Enterprise Hardware Co., A. Carruthers Co., and Gordon Ironsides and Fares, to extend across lot 12, block 15, registered plan Q. 10 of Saskatoon, Sask.

10374. Apr. 26.—Ordering that crossing of Perth St., Brockville, Ont., by C.P.R. and Brockville, Westport and Northwestern Ry. be protected by a flagman.

10375. Apr. 27.—Ordering that C.P.R. be relieved from providing protection at crossing eight poles north of mileage 2, Maniwaki Branch, Que.

10376, 10377. Apr. 28.—Ordering C.P.R. within 60 days to install improved electric bell at crossing first road west of Britannia station, Chalk River Section, Eastern Division, and at first road west of Stittsville station, Ont.

10378 to 10380. Apr. 28.—Ordering that G.T.R. be relieved from providing protection at crossing east of St. Mary's Jct., Ont., and that C.P.R. be similarly relieved respecting crossing at first road west of Leonard station, Ont., and at Dubuc, Sask.

10381. Apr. 27.—Authorizing G.T.R. to build extension of siding east of Greenwood Ave., Toronto.

10382. Apr. 29.—Temporarily approving, pending final determination by Board of tariffs of tolls which Bell Telephone Co. may charge, and form of agreement with other companies to be approved, also Bell Telephone Co.'s agreement with Burgessville Telephone Co.; providing it is not taken to authorize the Bell Telephone Co. to charge higher tolls than it was, immediately previous to May 13, 1906, authorized to charge.

10383. Apr. 27.—Approving plan of G.T.R. station at Vinelands, and authorizing G.T.R. to build siding across town line between Clinton and Louth tps., Ont.

10384. Apr. 28.—Authorizing Ontario Hydro-Electric Power Commission to place wires across Hamilton and Brantford Electric Ry. at lot 55, con. 2, Ancaster tp.

10385. Apr. 28.—Authorizing Mallorytown Independent Telephone Corporation to place wires across G.T.R. near Lyn station, Ont.

10386, 10387. Apr. 28.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Georgetown station; and across Central Ontario Ry. near Wellington, Ont.

10388, 10389. Apr. 28.—Authorizing McTaggart Rural Telephone Co. to place wires across C.P.R. at two points, in Saskatchewan.

10390 to 10416. Apr. 28.—Authorizing Saskatchewan Government Telephones to place wires across C.P.R. at 27 points.

10417. Apr. 26.—Amending order 10237, Apr. 19, which approves location of M.C.R. station at Tecumseh Road.

10418. Apr. 26.—Amending order 6148, Jan. 21, 1909, fixing stop-over charge of 25c. per car a day for first 48 hours, and car service toll thereafter on lumber, shingles, timber and other forest products in carloads, originating in B.C. and consigned to Sarnia Tunnel, Ont., "for orders," by striking out "twenty-five cents" in line 9, of operative part and substituting "one dollar."

10419. May 2.—Approving location of Western Canada Power Co.'s line from Ruskin station on C.P.R., to Stave Falls, B.C.

10420. May 2.—Ordering G.T.R. within 60 days to install electric bell at crossing of William St., Cobourg, Ont.

10421 to 10424. May 2. — Authorizing C.N.O.R. to build across road between lots 16 and 17, con. 1; between lots 11 and 12, con. 1, Cramahe tp.; between lots 4 and 5, con. 1; and between lots 6 and 7, con. 1, Brighton tp.

10425. May 2.—Ordering that C.P.R. trains be flagged at crossing of Beverley St., Galt, Ont.

10426, 10427. May 2.—Ordering that G.T.R. be relieved from providing protection at crossing 2½ miles west of Burford; and that C.P.R. be similarly relieved respecting crossing at mileage 20, south of Lindsay, Ont.

10428. Apr. 28.—Authorizing Ontario Hydro-Electric Commission to place wires across G.T.R. at Allanburgh.

10429. May 3.—Authorizing Essex Terminal Ry. to open for traffic portion of its line from junction with G.T.R. in Sandwich East tp. to junction with C.P.R. in Sandwich West tp., Ont.

10430. May 3.—Approving location of G.T.P.R. Young-Prince Albert Branch from section 28, tp. 32, r. 27 to sec. 31, tp. 40, r. 26, w. 2 m., Saskatoon District, Sask., from mileage 0 to 55.148.

10431. May 3.—Approving plan of Great Northern Ry. shelter sheds.

10432. May 2.—Authorizing C.P.R. to build industrial spur for I. Desormeau, Cote St. Francois, Que.

10433. May 3.—Authorizing C.P.R. to build across 32 highways on its Langdon north Branch from mileage 0 to 39.45 Alta.

10434. May 2.—Authorizing C.P.R. to build spur for British Columbia Fir and Cedar Lumber Co., Vancouver, B.C.

10435. May 3.—Authorizing C.P.R. to cross road allowances and change its Pipestone Extension at Schwitzer Jct., Man.

10436 to 10438. May 3. — Authorizing C.N.O.R. to build between lots 26 and 27, con. 1; through lots 35, con. 2; and between lots 28 and 29, con. 1, Cramahe tp.

10439 to 10441. May 3. — Authorizing C.N.O.R. to build between lots 12 and 13, con. A; between lots 13 and 14, con. A; between lots 8 and 9, con. A, Haldimand tp.

10442. May 3.—Authorizing C.N.O.R. to build between lots 21 and 22, con. 1, Cramahe tp.

10443. May 3.—Authorizing city of Brantford to lay sewer under G.T.R. at Marlborough St.

10444. May 2.—Authorizing United Gas Companies, St. Catharines, to lay gas pipe under G.T.R. at lot 3, Wainfleet tp., Ont.

10445. Apr. 29.—Authorizing Citizens' Electric Co. to place wires across C.P.R. at Smith's Falls, Ont.

10446. May 3.—Authorizing G. E. Higginson to place wires across C.P.R. near Calumet station, Que.

10447. May 3.—Authorizing Montreal Light, Heat and Power Co. to place wires across C.P.R. at Hadley St., Cote St. Paul, Que.

10448. May 2.—Authorizing Walkerville, Light and Power Co. to place wires across Essex Terminal Ry.

10449. May 3.—Authorizing Bolton Telephone Co. to place wires across G.T.R. at lot 20, between cons. 1 and 2, Albion tp., Ont.

10450. Apr. 28.—Ordering C.P.R. within 60 days to erect gates at St. Louis St., Farnham, Que.

10451. Apr. 28.—Ordering G.T.R. within 60 days to erect gates at Bourdage St., St. Hyacinthe, Que.

10452. Apr. 28.—Ordering C.P.R. to put into proper condition crossings through St. Mathieu South, St. Jean Baptiste North, St. Leon South, St. Leon North, St. Mathieu North and St. Joseph, Que.

10453. May 3.—Ordering that all G.T.R. passenger cars shall, on or before June 1, 1911, be equipped with marker sockets in the lower position, and where passenger cars are so equipped markers shall be carried there.

10454, 10455. Apr. 28.—Dismissing application of town of St. Louis, Que., for order authorizing it to extend highway across C.P.R. where it intersects Park Ave., and authorizing it to cross by a subway instead.

10456. May 4.—Approving location of Vancouver, Fraser Valley and Southern Ry. from east boundary of Vancouver to north-west boundary of New Westminster, B.C.

10457. Apr. 28.—Ordering G.T.R. to build overhead bridge at Lachine Road crossing, Rockfield, Que.

10458. May 3.—Fixing compensation to be paid by C.P.R., G.T.R., city of Ottawa and Carleton county, in connection with the Richmond road viaduct, Ottawa.

10459. May 4.—Extending until June 1, time within which C.P.R. shall install electric bell at Merry St. crossing, Magog, Que.

10460. Apr. 28.—Adding city of Montreal and Montreal Turnpike Trust as parties to question of protection at C.P.R. crossings at Prud'homme and Decarie Aves.

10461. Apr. 28.—Ordering C.P.R. to continue watchman at Main St. crossing, Farnham, Que.

10462. May 3.—Respecting equipment of electric railway cars with power brakes. This order is given in full on another page.

10463. Apr. 28.—Ordering C.N.Q.R. to stop its trains inbound and outbound at Pointe Aux Trembles.

10464. May 4.—Amending order 10285, Apr. 21, respecting C.P.R. crossings at Cote des Perrons, Que.

10465. May 4.—Ordering G.T.R. within 60 days to install signal bell at Victoria St. crossing, Thamesville, Ont.

10466. Apr. 28.—Dismissing J. S. Buchan's application for order for the sale of Montreal Central Terminal Co.'s assets.

10467. May 4.—Extending until June 1, time within which C.P.R. shall install electric bell at crossing at lot 10, con. 10, Medonte tp., Ont.

10468. May 4.—Extending until Aug. 4, time within which G.T.R. may build branch to W. Knechtel & Son's premises, Hanover, Ont.

10469 to 10476. May 4.—Authorizing C.N.O.R. to build between lots 24 and 25; lots 16 and 17, con. A., Haldimand tp.; lots 31 and 32, con. 4, Darlington tp.; lots 22 and 23; lots 34 and 35; lots 31 and 32; lots 4 and 5; lots 18 and 19, con. A., Haldimand tp.

10477, 10478. May 3-4.—Authorizing C.P.R. to build bridges at 21 points.

10479. May 3.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Walkerville station, Ont.

10480 to 10486. May 3.—Authorizing Farmers Telephone Co., Windsor, N.B., to erect wires across C.P.R. at seven points.

10487. May 4.—Authorizing C.N.O.R. to build between lots 16 and 17, con. B., Murray tp.

10488. May 4.—Authorizing C.P.R. to build spur for Crow's Nest Pass Coal Co., near Michel station, B.C.

10489 to 10491. May 6. — Authorizing C.N.O.R. to build between lots 4 and 5, con. A.; lots 18 and 19, con. B., Murray tp.; and between Murray and Brighton tps.

10492. May 3.—Dismissing C.N.O.R. application for approval of location through Lanark county, mileage 29 to 41.

10493, 10494. May 3.—Dismissing C.N.O.R. applications for authority to build across certain highways in Smith's Falls, and for approval of revised location through Smith's Falls, mileage 38.3 to 42.1.

10495. May 6.—Authorizing C.N.O.R. to build between lots 12 and 13, con. B., Murray tp.

10496. Apr. 28.—Authorizing town of St. Lambert, Que., to build highway crossing at intersection of Montreal and St. Lambert Terminal Development Co., St. Antoine de Longeuil parish.

10497. May 6.—Authorizing Nelson Telephone Co. to place wires across G.T.R. at Ash station, Ont.

10498. May 4.—Authorizing Manitoba Government Telephones to place wires across C.N.R. at Stephenfield station.

10499. Apr. 21.—Authorizing Seymour Power

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THE RAILWAY & MARINE WORLD

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and Electric Co. to place wires across C.P.R. near Sulphide, Ont.

10500 to 10504. May 6.—Authorizing Bell Telephone Co. to place wires across various railways at five points.

10505. May 6.—Authorizing Ruby Lake Lumber Co. to place wires across C.N.R. Pas Mission branch, near mileage 6, Sask.

10506. Apr. 28.—Authorizing town of St. John's, Que., to open highway at Queen St. across G.T.R., and ordering G.T.R. to install within 60 days a signal bell there; also that G.T.R., within 30 days file plan showing location of gates at St. James St., St. John's, Que.

10507. May 3.—Ordering C.P.R. within 60 days to erect gates at crossing near Matthews Pork Factory, Hull, Que.

10508. May 6.—Ordering G.T.R. to install within 60 days, gates at William St. crossing, Brockville, Ont.

10509. Apr. 21.—Authorizing C.N.O.R. to build across Division St., Cobourg, and ordering G.T.R. to build subway and approaches to carry the street under both railways.

10510. May 7.—Ordering that G.T.R. be relieved from providing protection at the crossing 1¼ miles south of Hespeler, Ont.

10511. May 4.—Amending order 10036, Mar. 31, which authorizes J. A. Coleman to lay gas pipe under M.C.R., near Montague station, Ont.

10512, 10513. May 6.—Authorizing C.P.R. to build bridges over Alexandria River, on its White River sec., Ont., and at 4th crossing of Michel Creek on its Crambrook section, B.C.

10514. May 6.—Approving revised location of G.T.R. branch from mileage 90 from Colwell to Penetanguishene, and on south half of lot 13, con. 2, and north-easterly to lot 92, con. 1, Tiny tp., Ont.

10515. May 4.—Approving revised location of G.T.R. branch from near Tiffin, and on lot 16, con. 3, Tay tp., extending southwesterly through the township to lot 92, con. 1, Tiny tp., Ont.

10516. May 6.—Authorizing Toronto, Hamilton and Buffalo Ry. to build a spur for Sawyer-Massey Co., Hamilton, Ont.

10517. May 6.—Authorizing Bell Telephone Co. to place wires across C.P.R. near Guelph station, Ont.

10518. May 9.—Authorizing Ontario Hydro-Electric Power Commission to place wires across G.T.R. at lot 22, con. 1, West Flamboro tp.

10519, 10520. May 7.—Authorizing Montreal Light, Heat and Power Co. to place conduit and gas main under G.T.R. Lachine Canal bank siding, at Cote St. Paul, Que.

10521. May 6.—Authorizing town of Renfrew, Ont., to lay sewer under C.P.R. at Ann St.

10522. Apr. 27.—Authorizing C.P.R. to build across 24 highways on its Weyburn-Lethbridge Branch, from mileage 0 to 26.2.

10523-24. May 9.—Ordering C.P.R. to install within 60 days an electric bell at crossing of Colborne and William Sts., London, Ont.

10525. May 9.—Authorizing proposed drainage works of Tilbury East tp., across C.P.R. lands.

10526. May 9.—Authorizing C.P.R. to build bridge 91.7 over Snake River on its Chalk River section, Ont.

10527. Mar. 1.—Ordering that in terms in its tariff on file with the Board, the Bell Telephone Co. is entitled to compute extra mileage and charge only from Ottawa limits as at present existing, in connection with complaint of Dr. J. T. Nelson, of Westboro, Ont.

10528. Apr. 19.—Re rates on lumber. This order is given in full on another page.

10529. May 7.—Ordering that time within which interchange track at intersection of C.P.R. and G.T.R. at Brampton, Ont., was required by order 9877, Mar. 14, to be ready for operation, be extended to July 1.

10530. May 9.—Approving plans of G.T.R. station at Moose Creek, Ont.

10531. May 7.—Ordering that time within which G.T.R. branch to Davis and Doty premises, Oakville, Ont., as required by order 10048, Mar. 22, be removed, be extended for six weeks from May 22.

10532. May 9.—Authorizing Ontario Hydro-Electric Power Commission to placee wires across Bell Telephone Co.'s wires at lot 55, con. 1, Ancaster tp.

10533 to 10535. May 9.—Authorizing Bell Telephone Co. to place wires under G.T.R. at three points in Ontario.

10536, 10537. May 9.—Authorizing Bell Telephone Co. to place wires across G.T.R. at two points near Galt, Ont.

10538. May 9.—Authorizing Stiver Brothers, Stouffville, Ont., to lay drain under G.T.R.

10,539. May 12.—Approving revised location of C.P.R. Regina, Saskatoon and North Saskatchewan Branch, from s.w. ¼ sec. 29, tp. 17, r. 19, w. 2 m., mileage 0. to sec. 23, tp. 20, r. 21, w. 2 m., mileage 21.9, Sask.

10,540. May 12.—Authorizing C.N.O.R. to build across public road between lots 28 and 29, con. B, Brighton tp.

10,541. May 12.—Authorizing Wahnapitae Power Co., Dominion Nickel Copper Co., and Moose Mountain, Ltd., to erect wires across C.N.O.R. between Toronto and Sudbury, near mileage 255.8, north from Toronto.

10,542. May 12.—Ordering C.P.R. within 60 days to install an electric bell at Saskatchewan ave. crossing, Winnipeg.

10,543. May 12.—Authorizing G.T.P.R. to build across Aldboro and Westcana sts., West Winnipeg, Man.

10,544. May 12.—Authorizing P. F. Quinlan, Stratford, Ont., to place wires across G.T.R. between cons. 8 and 9, Ellice tp., Ont.

10,545, 10,546. May 12.—Authorizing Greenwood Telephone Association, Steelton, Ont., to place wires across Algoma Central and Hudson Bay Ry. at second and third people's crossings from Sault Ste. Marie.

10,547-48. May 12.—Authorizing Bell Telephone Co. to place wires across P.M. Rd. at two points in Ontario.

10,549. May 13.—Authorizing T.H. & B. Ry. to build spur to Union Draw Steel Co.'s premises, Hamilton, Ont.

10,550. May 13.—Approving location of G.T.P.R.'s Tofield-Calgary Branch from mileage 50 to 99.804, Alberta.

10,551. May 13.—Approving location of C.N.R. from mileage 170 to 238.41, Humboldt-Calgary division, Alta.

10,552 May 12.—Authorizing C.P.R. to build bridges 20-42, Pays Plat River; 33.2, Gravel River, Nipigon section, Lake Superior division; 64.4, Haslam Creek, Esquimalt & Nanaimo Ry., and 73.6, Magaguadavic River, St. John section, Atlantic division.

10,553. May 12.—Authorizing C.P.R. to lay extra track across road allowance between secs. 7 and 8, tp. 16, r. 2, w. 2 m., Whitewood, Sask.

10,554. May 12.—Authorizing C.P.R. to build spur to Canada Linseed Oil Mills, Toronto.

10,555. May 12.—Authorizing G.T.R. to build branch lines from its line near lots 27 and 28, con. 1, Williamsburg tp., to River St. Lawrence in front of lot 28, Ont.

10,556. May 12.—Authorizing C.P.R. to build three spurs across Manitoba st., Moose Jaw, Sask., for Saskatchewan Flour Mills Co.

10,557. May 12.—Authorizing C.P.R. to build spur to University of Saskatchewan, Saskatoon.

10,558, 10,559. May 10.—Approving location of C.N.O.R. Sudbury-Port Arthur division from mileage 140 to 160, and from mileage 460 to 480.

10,560. May 10.—Authorizing G.T.R. to build passing track across Yonge St., Harriston, Ont.

10,561. May 10.—Dismissing complaint of Auger & Son, Quebec, as to Quebec Central Ry. supply of cars of not less than 35 ft. long for pulpwood shipments.

10,562. May 7.—Dismissing Dominion Park Co.'s complaint, so far as it deals with short term rates for telephones, and increase of guarantee for pay station, and ordering that maximum tolls charged by Bell Telephone Co. from June 15, for short terms service of long distance wall, or desk, extension sets, shall bear same proportion to yearly tolls as those charged for short terms service of initial sets bear to yearly tolls, subject to a minimum charge of $5, the said tolls to be published and filed in accordance with the provisions of Railway Act.

10,563. May 10.—Extending time within which C.P.R. was directed by order 8,936, Dec. 7, 1909, to complete station at Eganville, Ont., to Aug. 1.

10,564. May 13.—Recommending to Governor in council for sanction amalgamation agreement of May 9 between C.N.R. Co. and Saskatchewan Midland Ry. Co.

10,565. May 10.—Authorizing town of Owen Sound, Ont., to lay water main under C.P.R. to Carney Lumber Co.'s premises.

10,566. May 10.—Authorizing Goderich Township Telephone System to place wires across G.T.R. at con. 16 road, Goderich tp., Ont.

10,567. May 11.—Ordering M.C.R. within 60 days from date to install an electric bell at York Mines station crossing, Oneida tp., Ont.

10,568. Feb. 26.—Ordering that M.C.R. crossing at first highway east of Welland station, Ont., be protected by gates, to be installed not later than May 1, and to be operated between 7 a.m. and 7 p.m. daily.

10,569. Apr. 21.—Authorizing C.N.O.R. to build across Main st., Orono, at station 1274.35.

10,570. May 6.—Authorizing C.N.R. to build the De Lourdes spur in tp. 6, r. 9, w. p m., Man.

10,571. May 16.—Ordering that time provided in order 9,114, Dec. 30, 1909, within which C.P.R. was required to complete subway at Iberville st., Montreal, be extended to June 15.

10,572. May 16.—Authorizing C.P.R. to build spur to Standard Sanitary Mfg. Co.'s premises across Royce street, Toronto.

10,573 to 10,575. May 10.—Ordering that C.P.R. be relieved from providing protection at crossings south of Lang station; east of Moose Jaw, and at Staughton, Sask.

10,576. May 10.—Authorizing C.P.R. to build bridges, 117.6, Bow River, Laggan section, Western division; 22.5, Moose Jaw section, Western Division, and 63.33, Lac du Bonnet branch, Central division.

10,577. May 10.—Authorizing Canadian Niagara Power Co. to place wires across G.N.W. Telegraph Co.'s wires at Bridgeburg, Ont.

10,578. May 10.—Authorizing G. A. Burgess, Carleton Place, Ont., to place wires across C.P.R. at Albert st.

10,579. May 10.—Authorizing Ontario Power Co. to place wires across G.T.R., Welland division, at George st., Port Colborne, Ont.

10,580. May 16.—Authorizing Bell Telephone Co. to place conduit under G.T.R. at Neeve st., Guelph, Ont.

10,581. May 16.—Authorizing Bell Telephone Co. to place wires across G.T.R. near Vankleek Hill, Ont.

10,582. May 16.—Authorizing Bell Telephone Co. to place conduit under G.T.R. at Ferguson ave., Hamilton, Ont.

10,583, 10,584. May 16.—Authorizing Bell Telephone Co. to place wires across G.T.R. at Clinton, and near Harrisburg, Ont.

10,585. May 13.—Authorizing C.P.R. to build siding across Strickland Place and Earnbridge st., Toronto.

10,586. May 6.—Approving location of union station at Orillia, Ont., for use of Georgian Bay and Seaboard Ry. (C.P.R.) and C.N.O.R.; also location of these lines into and through Orilia, and crossing of G.T.R. at Atherley Jct. by Georgian Bay and Seaboard Ry.

10,587. May 3.—Ordering that G.T.R. protect crossing on Park st., Brockville, Ont., by watchmen day and night.

10,588. May 3.—Authorizing Ferris tp., Nipissing District, Ont., to build highway across C.P.R. on lot 29, con. 14.

10,589. May 13.—Authorizing C.P.R. to build spur to International Harvester Co. of America's premises, Brandon, Man.

10,590. May 13.—Authorizing C.N.O.R. to build between lots 12 and 13, con. 4, Clarke tp.

10,591. May 9.—Ordering C.P.R. at snow shed 19, 1¾ miles west of Rogers Pass station, B.C., to erect tell-tales, not less than 100 ft. from all bridges, tunnels, or other structures which do not afford clear headway of at least 7 ft. between top of highest freight car and lowest portions of structures directly over space to be traversed by car in passing.

10,592. May 9.—Ordering G.T.R. within 60 days to install gates at Broadway st. crossing, Wyoming, Ont.

10,593. May 16.—Authorizing C.N.R. to build across certain streets in Stettler, Alta.

10,594. May 16.—Authorizing C.N.R. to build its Vegreville extension across C.P.R. Moose Jaw-Lacombe Branch, at Stettler, Alta.

10,595. May 16.—Approving C.P.R. bridge over Vermillion River, Sault Ste. Marie branch.

10,596. May 16.—Authorizing C.P.R. to build spur to Austin & Nicholson's premises at mileage 24.6, west of Chapleau district, Sudbury, Ont.

10,597. May 16.—Authorizing C.P.R. to build spur to Alberta Clay Products Co.'s premises, Coleridge, Alta.

10,598. May 16.—Authorizing Quebec Ry., Light and Power Co. to build branch line from Quebec towards Sillery.

10,599, 10,600. May 2.—Authorizing C.N.O.R. to build between lots 8 and 9, con. 1; and lots 30 and 31, con. B, Brighton tp.

10,601. May 16.—Approving C.N.O.R. location through Hamilton and Hope tps., mileage 176.86 to 180.64 from Ottawa.

10,602. May 2.—Authorizing C.N.O.R. to build between Haldimand and Cramahe tps.

10,603. May 16.—Approving location of portion of Calgary and Edmonton Ry. branch from Strathcona to Edmonton, Alta.

10,604. May 13.—Authorizing Bell Telephone Co. to place wires across C.P.R. at Vankleek Hill, Ont.

10,605 to 10,609. May 13.—Authorizing city of St. Thomas, Ont., to place wires across Bell Telephone Co.'s wires at Kains and St. Catharine sts., and across telegraph lines at three points on Flora st.

10,610. May 16.—Ordering M.C.R. to install an electric bell at Moote Road crossing, Canboro tp., Ont.

10,611. May 12 13.—Ordering that C.P.R. be relieved from providing protection at crossing at west end of station yard, Manitou, Man.

10,612, 10,613. May 12, 13.—Authorizing G.T.P.R. to cross at grade, C.P.R. Wetaski-

win Branch at Camrose, and C.P.R. Lacombe Branch at Alix, Alta.

10,614. May 12, 13.—Ordering C.P.R. to build and subway at Main st. crossing, Kenora, Ont.

10,615. May 16.—Authorizing C.N.O.R. to divert street near north bounuary of its right of way between Main and Cobbledick sts., Orono.

10,616. May 17.—Authorizing C.N.O.R. to divert and build its line between lots 32 and 33, con. 2, Cramahe tp.

10,617. May 6.—Authorizing National Transcontinental Ry. to cross C...R. Dundee branch at grade with a spur line to gravel pit, through secs. 1, 2, 11 and 12, r. 4, e. p. m., Man.

10,618. May 12, 13.—Dismissing Manitoba Windmill and Pump Co.'s complaint as to rates charged by C.P.R. on windmills from Brandon, Man., to Vancouver, B.C., being unjustly discriminatory in favor of Eastern Canadian shippers.

10,619. May 17.—Approving location of G.T.P.R. Battleford branch, mileage 0 to 26, Sask.

10,620. May 12, 13.—Authorizing G.T.P.R. to divert highway crossing in s. ½ sec. 18, tp. 12, r. 20, w. 1 m., Brandon District, Man.

10,621. May 17.—Approving revised location of V., V. & E. R. & Nav. Co.'s line from east line of sec. 15, tp. 16, to west line of tp. 26, New Westminster District, B.C., 18.3 miles.

10,622, 10,623. May 17.—Authorizing C.P.R. to build bridges 106.44 over Windy Lake, Cartier section, Lake Superior division, and 26.9 over Lavalle Creek, Chalk River section, Eastern division.

10,624, 10,625. May 16.—Authorizing G.T.R. to cross, at grade, between lot 11, con. 2, and lot 11, con. 3, between lots 85 and 86, con. 2, Tiny tp., Ont.

10,626. May 16.—Authorizing G.T.R. to cross overhead between lots 89 and 90, con. 1, Tiny tp., Ont.

10,627, 10,628. May 16.—Authorizing G.T.R. to cross at grade road between lot 88, con. 1, and lot 88, con. 2, and between lots 11 and 12, con. 2, Tiny tp., Ont.

Sleeping Car Reservations Limited.

The Eastern Canadian Passenger Agents Association's rule respecting sleeping and parlor car reservations has been amended as follows, the new rule having gone into effect May 16:—

"61. (a) Unless paid for in advance accommodation reserved on verbal or city telephone applications to city or station ticket offices where space is held in sleeping or parlor cars starting from such cities will not be held later than two hours prior to the departure of train for cars scheduled to leave such cities prior to 5 p.m.

"3 p.m. (instead of 5 p.m.) for cars scheduled to leave such cities between 5 p.m. and 10 a.m. next day."

Sleeping or parlor car tickets will be redeemed if presented to agent from whom purchased, or to station ticket agent at same place, prior to departure of train for which they were sold.

Railway Subsidy Contracts.

Contracts have been entered into by the Dominion Government, under the act granting aid to certain railways, for the construction of the following lines:

ALBERTA CENTRAL RY.—For a line from near Red Deer to the Rocky Mountain House, on the North Saskatchewan River, Alta., 70 miles. (April 25).

THESSALON AND NORTHERN RY.—For a line from Thessalon, Ont., northerly for four miles. (April 19).

During March, 72 employes were killed and 30 injured in the course of their work on Canadian railways. Of the fatalities, 60 were due to the avalanche at Rogers Pass, B.C., on Mar. 6, five to being run over, two each to falls, to derailments and to being caught between cars, and one to an explosion of dynamite, while of the other accidents, 11 were due to falls, six to falling material, five to being caught between cars, four to being run over, and one each to an assault by a passenger, to falling material, to being struck by an object in passing, to machinery, to flying material, to a derailment and to burns.

G.T.R. Betterments, Construction, Etc.

Line to Providence, R.I.—U.S. reports state that engineers are in the field locating lines to close all gaps in the Central Vermont Ry., so that it will be enabled to run trains over the G.T.R. and its own tracks all the way from Montreal to Providence, R.I. Some 50 miles will have to be built to cover these several gaps, and the new lines will parallel sections of the Boston and Maine Rd., over which C.P.R. trains now run.

Montreal Level Crossings.—The Board of Railway Commissioners has directed that plans for the elimination of the G.T.R. level crossings in Montreal be submitted in August. When the matter last came before the Commissioners the company's solicitor said it was intended to build a viaduct from Bonaventure station to St. Henri, so as to abolish all level crossings; the viaduct to have a capacity for four tracks. From St. Henri it would go to a point east of the Wellington St. subway and back in a westerly direction to beyond Cote St. Paul road. It would then gradually descend to the level of the present tracks at Turcot yards. The length of the viaduct would be about four miles, and the estimated cost would be $8,000,000. The city has power to raise $2,000,000 to be expended upon its share of the cost. Detailed plans and estimates are now being prepared.

St. Laurent to Maisonneuve.—W. Wainwright, Second Vice President, has announced that work will begin almost immediately on the building of a line from St. Laurent, round the Mount Royal, to Maisonneuve, and that the line will probably be completed this year.

Kingston, Smith's Falls and Ottawa Ry.—The Dominion Parliament has granted a subsidy to aid in building a line from Kingston to Ottawa, Ont., not exceeding 101 miles.

Bathurst St., Toronto, to the Humber.—The City Engineer reported to the Toronto City Council May 17, that the company had not made a start on the depression of tracks west of Bathurst St., on May 1, as required by the Board of Railway Commissioners' order, and he was instructed to act, with the City Solicitor, in seeing that the order was enforced. The plans are prepared and the company has been acquiring the land necessary in Parkdale, and is making various preliminary arrangements.

Guelph to Harrisburg.—The 65 lb. rails between these points are being replaced by 80 lb. steel, removed from sections of the Toronto-Montreal line.

Stratford to Goderich.—G. A. Mitchell, Master of Bridges and Buildings, was in Stratford, May 6, in connection with the renewing of bridges at Erie and Wellington streets. He said the whole of the bridges on the line to Goderich will be strengthened or renewed, in order to carry the heavier traffic now going over the line.

Track Elevation in London.—Speaking recently at London, Ont., C. M. Hays, President, said the heavy and expensive works in hand or contemplated in Montreal and Toronto claimed first attention. This is interpreted to mean that it will be some years before the question of track elevation and the complete rearrangement of yards and station in London will be finally considered.

Connection with Sault Ste. Marie.—Recent press reports stated that the G.T.R. had secured control of the Detroit and Mackinaw Rd., and that it was proposed to extend it to a junction with the Algoma Central Ry. at Sault Ste. Marie, Ont. We are officially advised by the G.T.R. management that there is no truth in the reported acquirement of the control of the line. The G.T.R. through one of the companies amalgamated with it in 1892, had power to build a line to Sault Ste. Marie, with a bridge over the St. Mary River, and a considerable portion of the right-of-way was secured. The company abandoned its project in favor of the C.P.R. Algoma branch, and an agreement was entered into between the two companies (G.T.R. and C.P.R.) as to right-of-way and rights over the bridge. (May, pg. 373.)

Portland Canal Short Line Railway.

T. F. Hopkins and M. Stewart, of Seattle, Wash., together with such persons as became shareholders, were incorporated by the British Columbia Legislature in 1909 as the Portland Canal Short Line Ry. Co., to build a standard gauge railway from or near the head of Portland Canal along Bear River for 30 miles, with branch lines not exceeding 10 miles. The capital was fixed at $1,000,000, and the head office at Victoria. The present officers of the P.C.S.L. Ry. Co. are:—President, D. D. Mann; Vice President, Z. A. Lash; Secretary, A. J. Mitchell; Manager of Construction, W H. Grant; Engineer, D. O. Lewis. A contract has been let to the Cassier Construction Co., the officers of which are identical with those of the P.C.S.L.R. Co., to build 15 miles of line from Stewart, B.C., at the head of Portland Canal, and about 125 miles north of Prince Rupert, northerly along Bear River Valley to the mining camp at the junction of Bear River and American Creek, in which D. D. Mann and his associates in Canada and the U.S. are largely interested. The camp is said to be rich in silver, copper, zinc and lead.

W. H. Grant, D. O. Lewis and staff, left Toronto April 12, and Vancouver April 26, for Stewart. Two survey parties were organized in Vancouver and location is being proceeded with. A wharf is being built at Stewart and it is expected to have the line completed this year. For construction purposes two locomotives have been bought in the United States and the Canadian Car and Foundry Co. is building a combination passenger car and caboose, and 23 flat cars. The company will probably be in the market for ore cars towards the end of the summer. (May, pg. 369.)

Index to The Railway and Marine World.

A complete index to the matter contained in the Railway and Marine World for 1909, Jan. to Dec. both inclusive, has been mailed to subscribers who applied for it. The indexes for 1907 and 1908 met with much favor, and we have no doubt the one for the past year will be equally appreciated. A large portion of the matter we publish from month to month is of great permanent value for reference, and of course this value is much enhanced by a complete classified index. We were much gratified when we issued our first index for 1907 to find that a large number of subscribers file and bind the paper.

We do not make a general distribution of the index, but a copy will be sent to each subscriber who desires one, and who will notify us to that effect. A letter or post card, simply stating that the index is desired, and giving the subscriber's name and address, will be sufficient. Any subscriber who wishes a copy and has not already applied should do so at once.

W. Stapleton, General Agent Passenger Department, Western Canada Division, Canadian Northern Steamships Limited, writes: "Having been a subscriber to the Railway and Marine World for some time, I am glad to say that I find it very useful in many ways. The very interesting articles it contains make it almost invaluable to a Canadian transportation official."

MAINLY ABOUT PEOPLE.

W. D. Matthews, director C.P.R., has returned to Toronto from Europe.

F. McCuaig, of the C.P.R. freight department at Ottawa, died there recently.

Sir Sandford Fleming has been elected President of the Ottawa Association for the Blind.

J. B. Spence, engineer Department of Railways and Canals, died in Ottawa May 20, aged 68.

W. H. Hunter, who died at Orangeville, Ont., May 24, was for many years a C.P.R. claims agent.

Sir Wm. L. Young, director G.T.R., London, Eng., was in Montreal, May 10, on his way home from Cuba.

W. R. Tiffin, Superintendent Northern Division G.T.R., Allandale, Ont., is reported to be seriously ill.

Jos. Hobson, Consulting Engineer, G. T. R., left Hamilton, Ont., early in May for a trip to Great Britain.

E. Fitzgerald, Montreal, Assistant General Purchasing Agent C.P.R., left Montreal May 19 for a trip to Europe.

A. H. Harris, Special Traffic Representative, C. P. R., sailed on the Empress of Ireland, from Quebec, May 20.

Sir Sandford Fleming has been re-elected Chancellor of Queen's University, Kingston, Ont., for a further three years.

M. V. Grandin, Managing Director of the Great Northern Mining Co., Cheticamp, N.S., has taken up his residence temporarily at Pictou, N.S.

G. Sharp, Superintendent Prince Edward Island Ry., returned recently to Charlottetown, P.E.I., from a holiday trip to Calgary, Alta.

Mrs. Scott Griffin, wife of the Manager Canadian Northern Express and Telegraph Companies, left Toronto for England at the end of May.

J. O. Smith, C.P.R. baggage master at Fredericton Jct., N.B., died May 1, from blood poisoning, said to have resulted from the bite of a pet dog.

Mrs. F. Balch, who died at Massena, N. Y., recently, was mother of F. J. Balch, General Freight Agent Ottawa and New York Ry., Ottawa, Ont.

The engagement is announced of Allan Keefer, son of C. H. Keefer, C. E., to Miss Clare Oliver, third daughter of the Minister of the Interior.

Dr. N. A. Macnab, son of B. A. Macnab, Managing Editor Montreal Star, has been appointed on the G.T.P.R. medical staff, west of Edmonton, Alta.

Jas. Dalrymple, who died in Montreal, May 14, aged 66 years, was father of J. E. Dalrymple, Assistant Freight Traffic Manager G. T. Pacific Ry., Winnipeg.

D. W. Hatch, Travelling Agent Atcheson, Topeka and Santa Fe Ry., Montreal, has removed his office there, from 138 St. James Street to 83 St. James Street.

Miss R. Bosworth, daughter of G. M. Bosworth, Fourth Vice President C.P.R., was married recently at Montreal to D. Seely, son of D. J. Seely, St. John, N.B.

W. R. Tiffin, Superintendent Northern Division G.T.R., Allandale, Ont., completed 50 years' service with that company and its predecessors, May 24.

Lady Shaughnessy and Miss Shaughnessy arrived in Quebec from Europe, by the Empress of Ireland, May 13, and were met by Sir Thos. G. Shaughnessy.

Jno. Wilson, who some years ago retired from the position of yardmaster, G.T.R., Detroit, Mich., after 36 years' service, died there April 28, aged 88.

G. Swanson, railway contractor, Dryden, Ont., is erecting a $25,000 residence on his 50 acre fruit ranch near Creston, B.C.

Hon. L. P. Brodeur, Minister of Marine, has returned to Canada, from the South, where has has been recuperating after his recent serious illness.

E. N. Bender, General Purchasing Agent C.P.R., returned to Montreal May 19, after a months trip to the Pacific Coast and intermediate points.

J. T. Arundel, General Superintendent Central Division C.P.R., Winnipeg, sailed from Quebec on the ss. Empress of Ireland, May 20, for a trip to Great Britain.

W. P. Torrance, of Kingsmill, Saunders, Torrance and Kingsmill, Solicitors, M. C. Rd., Toronto, sailed from Montreal on the ss. Canada, May 20, for Liverpool, intending to return in August.

Mrs. A. D. MacTier, wife of the Assistant to the Second Vice President C.P.R., and two of her children, sailed from Quebec on the ss. Empress of Ireland May 20 for Liverpool.

M. J. Butler, formerly Deputy Minister of Railways and Canals, addressed the City Club, Boston, Mass., recently on "Transportation Problems in Canada."

M. P. Davis, of M. P. and J. T. Davis, contractors on the National Transcontinental Ry. and other works, was married in New York May 3, to Miss G. A. McGrady.

G. H. Hedge, Assistant Master Mechanic Canadian Northern Ry., has removed his family from Port Arthur to Winnipeg, as he has had his headquarters at the latter place for some time.

Gen. Thomas L. Rosser, who was the first Chief Engineer of the C.P.R., at Winnipeg, and who has been living for some years in Virginia, is reported to have died there recently.

Lady Reid, widow of the late Sir Robert G. Reid, President Reid Newfoundland Co., and Miss Reid returned to Montreal recently from a lengthened trip to the Mediterranean.

A. P. Walker, Assistant Engineer C. P. R., Toronto, who has been granted three months leave of absence, sailed from Montreal recently on the s.s. Lake Manitoba, for Great Britain.

J. G. Williams, who, died in Port Hope, Ont., recently, aged 92, was largely interested in the old Midland Ry., at the time of its construction, and during its operation as an independent line.

It is reported that Sir William Van Horne will leave shortly for Australia to advise the Government regarding the construction of a railway across the continent, with extensive irrigation works.

G. McL. Brown, European Manager C.P.R., has been elected President of the C.P.R. Swimming Club, which has just been formed in the company's London office.

Miss Ethel Jones, daughter of L. K. Jones, Secretary Department Railways and Canals, Ottawa, is to be married in September to Gordon Richardson, of the Bank of Montreal, Winnipeg.

N. Weatherstone, who was superannuated recently, after being I.C.R.. agent at Toronto for many years, will spend the summer in Winnipeg with his daughters, Mrs. Bain and Mrs. Minty.

A. L. Gardiner, who died in New York City recently, after several years' service as Assistant Counsel of the Manhattan Ry. Co., and the Interborough Rapid Transit Co., was a native of Dundee, Ont.

The engagement is announced of F. S. Livingstone, Traffic Manager, Toronto and York Radial Ry., to Miss E. A. Bennett, daughter of B. H. Bennett, General Agent Chicago and North Western Ry., Toronto.

W. D. Reid, President Reid Newfoundland Co., is at present in Great Britain, where, it is stated, he is making arrangements for the organization of a company for the development of the mineral and timber lands owned by his company.

R. W. Dunsmuir, son of Jas. Dunsmuir, railway and steamship owner and colliery proprietor, Victoria, B.C., is reported to have married in Paris, France, Miss Dorothy Russell, daughter of Miss Lilian Russell, the actress.

Miss M. J. Blair, youngest daughter of the late Hon. A. G. Blair, at one time Minister of Railways and Canals, and subsequently first Chief Railway Commissioner, was married in Ottawa recently to S. C. Gilmour.

Jas. Leitch, K.C., Chairman Ontario Railway and Municipal Board, who has been absent for a short while, owing to a mishap which affected one of his eyes, has resumed duty, and presided at the hearing of the Toronto Ry. application early in May.

It is reported that A. Johnstone, formerly M.P. for Cape Breton county, N.S., is to be appointed Deputy Minister of Marine and Fisheries, in succession to G. J. Desbarats, to be appointed as Deputy Minister for the new naval department.

It is stated that E. de la Hooke, for many years city passenger and ticket agent at London, Ont., will retire in the near future, under the provisions of the company's pension regulations, and that he will be succeeded by R. E. Ruse, at present station ticket agent there.

J. G. Scott, formerly General Manager Quebec and Lake St. John Ry., has been appointed a member of the special committee appointed by the Quebec city council to consider the best means of promoting the interests of the port of Quebec.

W. Mackenzie, President Canadian Northern Ry., who was expected to return to Canada from England, on the ss. Royal Edward, did not do so, owing to business engagements. He intended, however, to sail from Avonmouth, May 26, on the ss. Royal George.

E. Force, C.E., who died at the Home for Incurables, Toronto, May 11, was well known as a railway engineer, having been on the Intercolonial Ry.'s first construction staff and afterwards in the C.P.R. service. He became incapacitated for work some eight years ago, owing to a paralytic stroke.

D. R. McBain, who has been appointed Superintendent Motive Power Lake Erie and Michigan Southern Ry., and a number of other New York Central lines, commenced his railway career at St. Thomas, Ont., as fireman, passing through all the grades to his present position.

M. P. Davis, railway and general contractor, presented Bishop Fallon with an episcopal ring on the occasion of his consecration as Roman Catholic Bishop of London, Ont. Bishop Fallon's brothers have carried out a number of contracts for the Dominion Government on the St. Lawrence canals.

Z. J. Fowler, who died in Ottawa recently, was a member of the firm of O'Brien, Fowler and McDougall Bros., which is at present carrying out contracts on the National Transcontinental Ry. and on the Canadian Northern Ry. He was a charter member of the Canadian Society of Civil Engineers.

Wm. Jenkins, who died at Madoc, Ont., May 14, aged 91, was the father of B. S. Jenkins, General Superintendent C.P.R. Telegraphs, Winnipeg. The late Mr. Jenkins was the sole surviving son of Rev. Wm. Jenkins, formerly of Markham and Richmond Hill, who was one of the pioneer Presbyterian ministers of Canada.

G. Lamb, accountant and cashier Gen-

eral Passenger office, C.P.R. Atlantic Steamship Service, Montreal, has retired from active service, and, with his family, will spend the summer in Great Britain. He has been connected with the Atlantic steamship business for a number of years, having transferred to the C.P.R. when it took over the Beaver Line from Elder, Dempster & Co.

The London, Eng., Gazette, of April 25, in addition to the official note conferring the Albert Medal of the first-class on T. Reynolds, C. P. R. Conductor, North Bay, Ont., for conspicuous gallantry in saving the lives of 11 persons in the accident at Webbwood, Ont., on Jan. 21, contains an extended account of the incidents of the rescues.

The Canadian Press Association on its recent trip over the G.T.R., the Temiskaming and Northern Ontario Ry., and a portion of the National Transcontinental Ry. gave J. D. McDonald, District Passenger Agent, G.T.R., a silver tea service and tray; J. H. Black, Superintendent T. and N.O.R., a grandfather's clock, and J. Gorman, Inspector Dining Car Service G.T.R., a mantel clock.

D. P. Cotter, who has been appointed ticket agent, Canadian Northern Quebec Ry., and Canadian Northern Steamships Ltd., at Quebec, has filled various position in the Quebec and Lake St. John Ry., freight and ticket offices in Quebec, and for the last two and a half years has been ticket agent for the C. P. R. at Chateau Frontenac, Quebec, and for the C.P.R. Atlantic Steamship Service in Quebec.

W. Stapleton, whose appointment as General Agent Pasenger Department Canadian Northern Steamships, Winnipeg, was announced in our last issue, was born at Bristol, Eng., May 20, 1884. He entered the Canadian Northern Ry. service in May, 1903, as stenographer in the Passenger Department, and worked through the various positions to that of chief clerk of that department. From 1906 to Jan. 8, 1910, he was Travelling Passenger Agent and from Jan. 8 to April 8, 1910, was City Ticket Agent, Winnipeg.

R. G. McNeillie, whose appointment as District Passenger Agent, C.P.R., Calgary, Alta., was announced in our last issue, was born at Lindsay, Ont., July 1, 1883, and entered railway service Oct. 1, 1901, in the C.P.R. Passenger Department, Winnipeg, since when he held various positions there, and was for three years prior to Oct. 20, 1909, chief clerk in the General Passenger Agent's office, and from Oct.. 20, 1909, to April, 1910, District Passenger Agent C.P.R., Nelson, B.C.

A. H. Davis, whose appointment as Passenger Agent Canadian Northern Steamships, Montreal, was announced in our last issue, was born Jan. 14, 1876, and entered the service of S. Cunard and Co., General Agents Allan Line, Halifax, N.S., Nov. 12, 1890, and transferred to the C.P.R. on the organization of that company's steamship service in Nov., 1901. He has been chief clerk at St. John, N.B., and Quebec, Que., for the past seven years, and is also secretary and treasurer of the Quebec Transportation Club.

O. C. Walker, who has been appointed Inspector Refrigerator Service, C. P. R. Western Lines, Winnipeg, was born Jan. 31, 1877, at Newport, England, and entered C. P. R. service May 1902, since when he has been, to May 1903, car checker at North Bay, Ont., May, 1903 to May 1904, freight clerk and cashier at Regina, Sask.; May, 1904, to March 1, 1907, clerk in General Superintendent's office, Winnipeg; March 1 to July 1, 1907, statistical clerk General Manager's office, Winnipeg; July 1, 1907, to Sept. 1, 1909, chief clerk to Superintendent District 3, Pacific Division, Nelson, B. C.; Sept. 1, 1909 to May 1, 1910, Travelling Car Service Agent, Winnipeg.

J. E. Proctor, whose appointment as District Passenger Agent, C. P. R., at Brandon, Man., was announced in our last issue, was born at Sarnia, Ont., Feb. 17, 1878, and entered C. P. R. service August 21, 1899, since when, he has been, to May, 1900, assistant agent at Fergus, Ont., May, 1900, to May 1901, assistant agent at Shelburne, Ont.; May 1901 to Dec., 1902, in ticket office, Union Station, Toronto; Dec. 1902, to 1903, City Ticket Agent, Nelson, B. C., during 1903, City Ticket Agent, Rossland, B. C., and on the closing of the office there, returned to Nelson and continued as City Ticket Agent to April 1906; April, 1906, to Nov. 1907, Travelling Passenger Agent, Calgary, Alta.; Nov., 1907, to April, 1910, District Passenger Agent. Calgary, Alta.

J. E. Quick, whose portrait appears on the first page of this issue, was born July 19, 1851, at Richmond, N. Y., and entered railway service in 1871, since when he has been, to 1874, baggage master and supply clerk, Port Huron and Lake Michigan Ry., now part of the G. T. R. system; 1874 to 1876, General Baggage Agent and Ticket Clerk, same road; 1876 to 1884, agent, Port Huron, Mich., and General Baggage Agent, Chicago and Grand Trunk Ry.; 1884 to April 15, 1896, General Baggage Agent, same road and Detroit, Grand Haven and Milwaukee Ry.; April, 15, 1896, he was appointed General Baggage Agent, G. T. R., and Aug. 1908, also General Baggage Agent, G. T. P. R., which positions he continues to hold. He was elected Secretary of the American Association of General Baggage Agents, July, 1885, and has been re-elected at each annual meeting since. He is one of the six surviving charter members of the association, which was formed in 1882.

S. P. Howard, General Freight Agent Eastern and Lake Superior Divisions C.P.R., Montreal, has resigned from transportation service, and has entered the real estate business with John Findlay, under the name of Findlay and Howard Co. He is the son of the late Capt. Thos. Howard, one-time harbor master at Montreal, was born there Dec. 30, 1866, and entered transportation service under the Montreal Harbor Commissioners, as clerk in the Wharfinger and Harbor Master's office, and subsequently became private secretary to the Chairman. He entered C.P.R. service Feb. 1, 1883, since when he has been, to 1886 stenographer to General Freight Agent; 1886 to 1888 chief clerk Foreign Freight Department; 1888 to 1891, Travelling Freight Agent; 1891 to 1898, City Freight Agent, Montreal; 1898 to July, 1901, Assistant General Freight Agent; July, 1901, to May 17, 1910, General Freight Agent Eastern and Lake Superior Divisions, Montreal. He was President Canadian Freight Association in 1907.

G. B. Reeve, who died at La Mirada, Cal., May 2, was born in Surrey, Eng., Oct. 23, 1840. He came to Canada in 1860, and in May of that year entered G.T.R. service, since when he was, to 1862, freight clerk at Belleville, Ont.; 1862 to 1863, telegraph operator; 1863 to 1865, train dispatcher; 1865 to 1866, relieving agent; 1866 to 1873, agent at Parkhill, Ont.; 1873 to 1874, Assistant General Freight Agent at Montreal; 1874 to 1876, in charge of the Western District, Toronto; 1876 to 1881, in charge of the Eastern District at Sherbrooke, and from 1878, at Montreal; 1881 to Feb. 1, 1896, Traffic Manager Chicago and Grand Trunk Ry., and from 1890 to Feb. 1, 1896, also Traffic Manager Cincinnati, Saginaw and Mackinaw Ry.; Feb. 1, 1896, to April 30, 1900, General Traffic Manager G.T.R., and from 1899 to April 30, 1900, also General Traffic Manager Central Vermont Ry.; Dec. 15, 1900, to Dec. 31, 1901, Second Vice President and General Manager, all service with the G.T.R. He retired from active service April 30, 1900, but on the resignation of C. M. Hays, then General Manager, he returned as Second Vice President and General Manager, and finally retired on the return of C. M. Hays, Dec. 31, 1900, since when he lived on his ranch at La Mirada, Cal., some views of which we published in our Aug., 1900, issue.

J. D. Morton, who has been appointed Assistant Comptroller Canadian Northern Steamships, Ltd., in addition to his other appointments, was born in London, Ont., June 15, 1857. His record is as follows: 1871 to Mar., 1873, messenger Montreal Telegraph Co.; Mar., 1873, to Nov., 1879, operator Great Western Ry. of Canada; Nov., 1879, to Feb., 1881, ticket agent, same road; Feb. to Nov., 1881, station agent, same road; Jan. to Nov., 1882, mechanical clerk Des Moines and Fort Dodge Ry.; Nov., 1882, to Aug., 1883, Stores Department C.P.R., Winnipeg; Aug., 1883, to Jan., 1885, General Storekeeper Manitoba and North Western Ry., Winnipeg; Jan., 1885, to Sept., 1886, Cashier and Paymaster same road; Sept. to Nov., 1886, Accountant same road; Nov., 1886, to Nov., 1893, chief clerk General Manager's office, same road; Nov., 1893, to June, 1899, in commercial accounting in Winnipeg; July, 1899, to Apr., 1902, accountant on construction Ontario and Rainy River Ry.; May, 1902, to Dec., 1906, accountant on construction Halifax and South Western Ry.; from Dec., 1906, Chief Accountant Canadian Northern Ry., also from Feb., 1909, General Auditor Canadian Northern Ontario Ry., Canadian Northern Quebec Ry., Halifax and South Western Ry., Duluth, Rainy Lake and Winnipeg Ry. He was also elected Vice President Niagara, St. Catharines and Toronto Ry., and Niagara, St. Catharines and Toronto Navigation Co., June 10, 1908.

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

	Acres.
Calgary and Edmonton Ry.....	2,083.00
Canadian Pacific Ry. grants....	773.09
Total	2,856.09

The Railway Storekeepers Association's annual convention was held in St. Louis, Mo., May 16 to 18, when several subjects relating to the general handling of railway stores were dealt with, the chief matter for discussion being the economy of the piecework system in the handling of supplies.

The Canadian Northern Ry. has increased the pay of its machinists to 42½c. an hour, its blacksmiths, moulders and pattern makers by 2c. an hour, and has refused increases to its boiler makers and helpers, carmen and steam fitters, who have applied for the appointment of a board of conciliation to enquire into the question.

The C.P.R., we are advised, will inaugurate a passenger service between Lenore, Brandon and Minnedosa, Man June 5, leaving Lenore at 6.30 a.m running to Brandon and thence to Minnedosa, returning to Brandon and then to Lenore, in the evening, covering 2[illegible] miles daily, except Sundays. The steam motor car, which was operated in the vicinity of Montreal some time ago, and later out of Toronto, will be utilized for the service. The car which has seating capacity in the main compartment for 40, and in the smoking compartment for 16, in addition to accommodation for baggage, was fully described and illustrated in our Aug., Sept. and Oct., 1906, issues.

C.P.R. Betterments, Construction, Etc.

Tobique and Campbellton Ry.—The Dominion Parliament has granted a subsidy in aid of the construction of a line from Plaster Rock, the present terminus of the Tobique Valley Ry., to Riley Brook, N.B., not exceeding 28 miles.

Place Viger Improvements.—We are officially advised that the company has begun work on a complete revision of its present freight and passenger terminals at Place Viger, Montreal. A new station is to be built adjoining the present hotel-station, and the existing building will be devoted entirely to hotel purposes. The present viaduct on which Notre Dame St. is carried is to be extended eastward some 950 ft., and the passenger main lines will be carried under the east end of this viaduct, spreading immediately north of it into a stub end terminal yard. South of Notre Dame St. the entire freight yard will be remodelled, providing inbound and outbound freight sheds, each 1,000 ft. long, with suitable trackage and largely increased team track, and team roadway facilities, for unloading carload lots. Some 400,000 cubic yards of excavation is still necessary in connection with this work. It is intended to use the space underneath the viaducts not occupied by tracks, as a freight shed or warehouse, two stories high, similar to that at present used under the portion of this structure now in service.

Ottawa Entrance.—A plan was filed with the Department of Railways, May 6, for a new entrance into Ottawa. The proposal is divided into two sections: (1) The closing up of the Rideau canal between the Deep Cut and Sapper's Bridge, and the placing of the railway tracks on the bed of the canal. (2) The construction of an underground tunnel from the Central station across the city to the Union station on Broad street, where connection with existing lines would be made. The Dominion Government is asked to sanction the company's acquiring the canal bed, and the city is asked to authorize the use of the streets necessary. The matter was under discussion between D. McNicoll, Vice President, and the Mayor, May 11. The latter suggested an alternative proposal, which Mr. McNicoll said would be looked into by the company's engineers.

Toronto Plans.—Notices have been served on the tenants of properties near the crossing of Yonge St. in the north part of the city, recently purchased by the C.P.R., to deliver up possession immediately in order that certain improvements may be carried out. The company's plans are said to include enlarged yards, subways at Yonge St. and Avenue Road, and a station building. The company promised to submit plans for these works to the Board of Railway Commissioners by June 1, and nothing can be done until these have been approved.

Islington-Mimico Line.—Construction is well advanced on the line which the C.P.R. is building from a little west of Islington station, to the G.T.R. at Mimico, about three miles. A start was made at the Islington end, but work was stopped pending an arrangement being made for crossing the power line, which is owned by Mackenzie, Mann & Co. interests. With the exception of this crossing, grading is nearly completed, and ties are being laid. The completion of this line will enable the C.P.R. to run trains from its Toronto, Hamilton and Buffalo connection into Toronto without having to go over the whole of the G.T.R. line between Toronto and Hamilton. On the G.T.R. line some heavy and expensive works are about to be carried out from the Humber into Toronto, and an endeavor was made when the matter was before the Board of Railway Commissioners to place a portion of the cost of these on the C.P.R.

St. Mary's and Western Ontario Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from Embro to Exeter, Ont., not exceeding 36 miles.

The application of W. Dale to have the by-law passed in Nov. last, granting $20,000 in aid of the construction of the line in Blanchard tp. quashed, has been refused.

London, Ont., Improvements.—Considerable property in the vicinity of the C.P.R. yards has been sold lately, and it is stated that the company is the purchaser. The report states that the land acquired is to be used for shops, roundhouse, station, office buildings, etc. General Superintendent Oborne and other officials of the company were in London May 14, looking over the yards and adjoining properties.

Line to Collingwood.—D. McNicoll, Vice President, told a deputation at Collingwood, Ont., recently that he would press upon the executive the desirability of building a line into Collingwood next year. The C.P.R. had made a survey and there was a charter available. The route of the proposed line is from Baxter, on the Toronto-Sudbury line, entering the town from the west, but east of the old North-Western Line, with a station between Hurontario and Beach streets.

Georgian Bay and Seaboard Ry.—A contract has been let to the Toronto Construction Co. for building a line from Coldwater Jct., on the Toronto-Sudbury line, easterly to Atherly Jct., via Orillia. The construction will be in charge of C. W. P. Ramsey, Assistant Engineer, under the direction of A. McCulloch, Division Engineer, Montreal. The section of the line from Atherly Jct. to Orillia is to be used by the Canadian Northern Ry.

Fort William Shops.—Tenders have been asked for erecting an addition 128 ft. by 70 ft. to the machine shops at Fort William, Ont.

Winnipeg-Portage la Prairie Second Track.—Six miles of grading for the second track between Winnipeg and Portage la Prairie, Man., were reported completed May 5. The contractors, J. Hargreave & Co., have 150 teams at work.

Brandon Freight Sheds.—Tenders have been received for building a new freight shed at Brandon, Man.

Central Division Bridges.—Contracts have been let to the Dominion Bridge Co. for steel bridges at Headingly and Souris, Man., to replace the existing wooden bridges. J. Findlay, from the Bridge Co.'s works at Montreal, was in Winnipeg, April 30, arranging for starting work, the contract calling for completion this summer.

Weyburn, Westerly.—Speaking at Forward, the present terminus of the line westerly from Weyburn, Sask., recently, Superintendent Uren said grading was in progress, and he expected that by the fall a further distance of 25 miles would be ready for traffic. The line was intended to be carried on to Lethbridge, and construction would be further pushed next year.

Western Division Roundhouses.—A contract has been let to the Dominion Bridge Co. for the steel work for additions to the roundhouses at Macleod, Crow's Nest, Coleridge, Calgary and Lethbridge, Alta. Six additional stalls are to be added at each place.

Monarch, Alta.—A new station, a siding, and a stockyard are being built.

Deviation of Crow's Nest Pass Line.—Plans for a deviation near Pincher Creek, Alta., have been prepared, and a public meeting was held there April 26 to protest against the same being approved. The plans received by the Mayor showed a revision of the route of the line between Macleod and Crow's Nest, which would carry the line about five miles north of Pincher Creek.

Pacific Division Contracts.—Contracts are reported to have been let as follows:—Engine sheds at Field, Rogers Pass, Kamloops, Smelter Jct., and Traill, B.C., to J. McDiarmid, Winnipeg; fruit packing house at Summerland, Nelson Bros., Summerland, B.C.; fruit packing house, Vernon, T. E. Crowell, Vernon, B.C.; freight shed, Kelowna, — Biggar, Kelowna, B.C.; bunk houses at various points on the division, Standard House Co., Vancouver, B.C.

Kootenay Central Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Golden, B.C., towards the International boundary, via Windermere and Fort Steele, crossing the Crow's Nest Pass branch of the C.P.R. near Elko, 186 miles.

Nelson to Grand Forks, B.C.—We are advised that although press reports stated that the company was doing a great deal of work in improving the line between these points, there is not very much being done; nothing of any large extent. The principal works done or in hand are the repairing and extending of the dock at Nelson; a 30 ft. addition to the station at Nelson, a five-stall engine house at Smelter Jct., and the replacing of several bridges on the Boundary section. The bridge near Cascade, referred to in the press reports as being under construction, is that across the Fraser River, generally known as the Cisco bridge. The present bridge—a cantilever one—which was erected during construction, is to be replaced, but the plans for this, we are advised, are not completed.

Arrowhead and Kootenay Ry.—A press report states that the C.P.R. proposes to make a start in the fall on the projected railway to connect the main line at Revelstoke, via Lardo, with the Crow's Nest Pass line.

Snow Sheds in Mountains.—A press report states that plans have been prepared for the erection of steel snow sheds at various points on the line through the Rockies and Selkirks to replace the present wooden ones. The report further states that the structures which were destroyed last winter by avalanches, will be the first to be replaced by steel snow sheds.

Esquimalt and Nanaimo Ry.—A subsidy has been voted by the Dominion Parliament to aid in building a line from near Duncans to Cowichan Lake, 24 miles.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—Contracts are reported let as follows:—Grading on a cut-off from New Richmond, Wis., to Withrow, Minn., 17 miles; grading on a branch from Medford to Drake, N.D., 13½ miles, to Foley, Welch and Stewart; for grading an ore line and yard between Mayline, south of Superior, and the dock site on St. Louis Bay, Wis., to Fort Baxter. (May, pg. 371.)

W. R. Tiffin's Fifty Year Service.

W. R. Tiffin, Superintendent Northern Division G.T.R., Allandale, Ont., issued the following circular to the official staff and employes of the division, May 24:—"To-day completes my 50 years' service with the company, and I feel it fitting that I should take advantage of the occasion to express my appreciation of the loyal support which I have received from you all during my term of office as Superintendent of this division, and to thank you for the assistance rendered in furthering the company's interests."

Mr. Tiffin's health, we much regret to have to say, is not at all satisfactory, as he received a paralytic stroke recently

Railway Rolling Stock Notes.

The Dominion Parliament voted $2,500 for alterations to the Governor-General's private car.

The Intercolonial Ry., has received one Pacific Locomotive from the Montreal Locomotive Works.

The G.T.P.R. has ordered two Superintendents' cars, to be numbered 4104 and 4105, from the Canadian Car and Foundry Co., Montreal.

The I.C.R. has received one locomotive from the Montreal Locomotive Works, details of which we have already published.

The Temiskaming and Northern Ontario Ry., has received 50 all-steel underframe box cars and 12 cinder cars from the Canadian Car and Foundry Co., Montreal.

The Willard Kitchen Co., has received one, the Eastern Construction Co., two, and M. P. and J. T. Davis, two mogul locomotives from the Montreal Locomotive Works.

The G. T. R. has received five mogul locomotives fro mthe Canadian Locomotive Co., Kingston, Ont., and eight 10-wheel locomotives from the Montreal Locomotive Works, Montreal.

Willard Kitchen Co., contractors on the National Transcontinental Ry., have ordered one standard Rodger double plow distributing car from the Hart-Otis Car Co., Ltd., Montreal.

The G.T.R. has ordered 1,000 steel underframe box cars of 60,000 lbs. capacity, and 500 steel underframe automobile cars of 60,000 lbs., capacity, in the U.S., for use on its Western Division.

The G.T.P.R. has received 200 flat cars, nos. 361100 to 361299; 292 box cars, nos. 311325 to 311316, and one official car, no. 4102, from the Canadian Car and Foundry Co., Montreal, and also one official tender, no. 4175, ordered from Rhodes, Curry Co., Ltd., now one of the constituents of the C.C. and F. Co.

The Canadian Northern Ry., between Apr. 15 and May 15, has received 270 box cars from the Canadian Car and Foundry Co., Montreal; 145 flat cars from the Crossen Car Mfg. Co., Cobourg, Ont.; 100 box cars from the Silliker Car Co., Halifax, N.S., and 100 logging cars from the Russel Wheel and Foundry Co., Detroit, Mich.

The C. P. R., between April 13, and May 14, received the following additions to rolling stock: 23 vans, four baggage and express cars and two G. 2 locomotives from its Angus shops, Montreal; one D. 10 locomotive from the Montreal Locomotive Works, and 473 steel frame box cars from the Canadian Car and Foundry Co., Montreal.

The Halifax and South-Western Ry. has ordered 20 thirty-ton Hart hopper ore cars, with hoppers steel lined, from the Hart-Otis Car Co., Montreal. Following are the chief dimensions:—

Length over end sills	21′ 0″
Length inside	16′ 0″
Width inside	8′ 6½″
Height inside	5′ 10″
Height top of rail to top of side	9′ 10″
Height from rail to floor	4′ 1¾″

The C.P.R. has ordered 211 composite Otis type coal cars, 1910 design, 100,000 lbs capacity, from the Hart-Otis Car Co., Ltd., Montreal. Following are the chief dimensions:—

Length over end sills	38′ 10″
Length inside	36′ 5″
Width inside	9′ 7″
Height inside	5′ 0″
Height top of rail to top of side	9′ 4 13-16″
Height from rail to floor	4′ 4 13-16″

The Toronto, Hamilton and Buffalo Ry. has ordered six Hart Convertible cars, 1910 design, from the Hart-Otis Car Co., Montreal. Following are the chief dimensions:—

Length over end sills	36′ 8″
Length inside as gondola	34′ 8″
Length inside as hopper	20′ 10″
Width inside	8′ 8″
Height inside	3′ 9¼″
Height from rail to top	8′ 1⅜″
Height from rail to floor	4′ 4⅛″

The Toronto Construction Co., G.T.P.R. contractors, have ordered ten Hart convertible cars, 1910 design, from the Hart-Otis Car Co., Ltd., Montreal, of which the following are the chief dimensions:—

Length over end sills	36′ 8″
Length inside as gondola	34′ 8″
Length inside as hopper	20′ 10″
Width inside	8′ 8″
Height inside	3′ 9¼″
Height from rail to top	8′ 1⅜″
Height from rail to floor	4′ 4⅛″

The C. P. R., between April 13 and May 14, ordered the following additions to its rolling stock: two first-class cars, 76 wooden box cars, 13 stock cars, 22 flat cars, five vans and 10 D.10 locomotives from its Angus shops, Montreal; one steel ore car, three steel Hart cars, 200 Otis composite steel and wood coal cars and five steel coal cars, from the Canadian Car and Foundry Co., Montreal; 35 consolidation locomotives from the Montreal Locomotive Works, and also purchased 18 steel Hart-Otis dump cars.

Following are the chief details of the 35 consolidation locomotives which the C. P. R. has ordered from the Montreal Locomotive Works:—

Weight in working order	220,000 lbs.
Weight on drivers	195,000 lbs.
Weight on engine truck	25,000 lbs.
Wheel base, driving	16′ 6″
Wheel base, engine	25′ 5″
Wheel base, engine and tender	55′ 8″
Valve gear	Walschaert
Cylinders	24″ by 32″
Driving wheel	63″
Boiler type	Extended wagon top
Boiler, diar.	72″
Boiler pressure	180 lbs.
Tubes, no. and diar.	272 2″ and 24 5″
Tubes, length	15′ 2¾″
Brakes	Westinghouse American
Capacity, water	5,000 galls.
Capacity, coal	12 tons
Superheater	Vaughan-Horsey

The Toronto, Hamilton and Buffalo Ry., has ordered two consolidation locomotives from the Montreal Locomotive Works, of which the following are the chief particulars:—

Weight in working order	196,000 lbs.
Weight on drivers	171,000 lbs.
Weight on engine truck	25,000 lbs.
Wheel base, driving	17′ 0″
Wheel base, engine	25′ 9″
Wheel base, engine and tender	57′ 3″
Cylinder	21½″ by 28″
Driving wheel diar.	55″
Boiler, type	Extended wagon top
Boiler, diar.	68¼″
Boiler, pressure	200 lbs
Tubes, no. and diar.	353 2″
Tubes, length	15′ 0″
Brakes	Westinghouse American
Capacity, water	7,000 galls.
Capacity coal	10 tons

Henri Menier, Paris, France, has ordered one four coupled locomotive for Anticosti Island from the Montreal Locomotive Works, of which the following are the chief particulars:—

Fuel	Wood
Weight in working order	46,000 lbs.
Weight on drivers	40,000 lbs.
Weight on engine truck	6,000 lbs.
Wheel base, driving	6′ 3″
Wheel base, engine	12′ 1″
Wheel base, engine and tender	30′ 0″
Cylinder	12″ by 18″
Driving wheel diar.	36″
Boiler, type	Straight top
Boiler, diar.	42″
Boiler pressure	160 lbs.
Tubes, no. and diar.	92 2″
Tubes, length	9′ 9″
Brakes	Steam
Tank capacity	1,200 galls.
Fuel capacity	1¾ cords

The Temiskaming and Northern Ontario Ry. has recently received 50 steel underframe box cars, Nos. 80,100 to 80,198 (even Nos. only), from the Canadian Car and Foundry Co., Montreal. Following are the chief dimensions:—

Capacity	100,000 lbs.
Length inside	36′ 0″
Length over end sills	36′ 11½″
Width inside	8′ 6″
Width over roof boards	9′ 10⅜″
Width over side channels	8′ 7⅝″
Width over side sheathing	9′ 3¼″
Height from rail to top of floor	4′ 2¾″
Height, top of side sill to under side of plate	7′ 10¾″
Height, top of rail to top of running board	13′ 6 11-16″
Height, top of rail to top of brake mast	14′ 6″
Height, top of rail to centre of draw bar	2′ 10½″
Distance, back of end sill to centre of bolster	5′ 0¾″
Truck wheel base	5′ 6″
Door opening	6′ 0″

Following are the chief details of the combination passenger and caboose car, and the flat cars which the Portland Canal Short Line Ry. recently ordered from the Canadian Car and Foundry Co., Montreal, as mentioned in our last issue:

PASSENGER AND CABOOSE CAR.

Length over end sills	50′ 0″
Length over dead woods	55′ 0″
Length over side sills	9′ 10½″
Seating capacity	40
Trucks	4-wheel passenger
Body bolsters	Double transom
Brake beams	Simplex
Air brakes	Westinghouse P. 1412
Wheels	Cast iron 33″
Couplers	Janney
Journal boxes	McCord

FLAT CARS.

Length over end sills	30′ 0″
Width over side sills	9′ 0¾″
Width over floor	9′ 3″
Air brakes	Westinghouse H.C. 812
Body and truck bolsters	Simplex
Brake beams	Simplex
Couplers	Janney
Wheels	Cast iron 33″
Journal boxes	McCord
Journal bearings	Canadian Bronze Co.

Corrections for the Erring.

CANADIAN PACIFIC.—Construction work will probably be carried out this year on the line which has been located from Merritt, B.C., to Penticon, about 75 miles, in the southern end of the Okanagan Valley.—Railroad Age-Gazette, May 6.

The line mentioned is to be constructed by the Kettle River Valley Ry., under an agreement with the British Columbia Government, and not by the C.P.R.

ALGOMA CENTRAL AND HUDSON BAY RY.—The affairs of this company, *which is in the hands of a receiver*, are to be reorganized under the plan of the Lake Superior Corporation.—Railroad Age-Gazette, May 6.

Like all the other subsidiary companies owned by the Consolidated Lake Superior Co., the Algoma Central and Hudson Bay Ry. Co., practically went into liquidation in the end of 1903. Negotiations were entered into for a reorganization, and in order to aid in bringing this about the Ontario Legislature loaned to the reorganization syndicate $2,000,000 under the terms of an act assented to April 26, 1904. The Lake Superior Corporation was successfully formed, took over the whole of the properties of the Consolidated Lake Superior Co., and has been operating them ever since independent of any receivership or liquidation proceedings. What is being done now is to readjust the A.C. and H.B.R. finances to present conditions, and to provide funds for the completion of its line from Pangassin to Hawk Lake Jct., the junction with the Michipicoten branch, and from Hawk Lake Jct., to the C.P.R. at Hoban, Ont.

Mr. Edward Duval chief clerk to Mr. Bury at Winnipeg, has been appointed Superintendent of terminals at Calgary, an office recently created.—Canadian Engineer, May 13.

E. W. Duval has not been appointed superintendent of terminals at Calgary, excepting by the press, nor has such an office been created. He has been appointed Trainmaster in charge of maintenance and operation of Calgary terminals, C.P.R., as announced officialy in our Transportation Appointment Department.

National Transcontinental Railway.

The Minister of Railways submitted in the House of Commons April 28, a statement furnished by G. Grant, Chief Engineer, as follows:—Total payments to Dec. 31, 1909, $67,890,698; Dec. estimates, $1,010,014; contract reserve, $3,247,295; amount estimated to complete 21 contracts, $35,949,958; total $108,097,965. To this has to be added $16,149,084 for items not included in contracts, making $124,247,049. From this total has to be deducted $420,223 on account of rental of terminals and on account of shops at Winnipeg, leaving the estimated cost of the line at $123,826,826, or about $9,000,000 more than the last estimated cost submitted by the late Chief Engineer in June, 1909. The two estimates are as follows:—

	June, 1909.	Apr. 5, 1910.
Preparation and excavation	$ 54,748,176	$ 63,893,276
Tracklaying and ballasting	8,188,247	8,473,863
Trestles and bridges	11,638,222	13,521,328
Sundry	2,198,055	2,960,356
Rails and fastenings.	12,945,281	11,984,000
Steel bridges	7,993,809	5,217,503
Buildings	1,962,628	3,710,500
Right of way	1,168,342	2,153,000
Surveys, engineering and expenses	13,550,415	11,913,000
	$114,393,175	$123,826,826

The Dominion Parliament at its last session, voted $27,000,000 on account of surveys and construction. Parliament also voted $1,500,000 on account of construction of the Quebec Bridge. In explaining the latter vote the Minister of Railways stated that the Board of Engineers had got to the point where the contract for the substructure had been let, and the contractor was at work. As regards the superstructure considerable sums had been expended on plans, tests and studies. Experiments had been made in Great Britain and the U.S. and compression tests were made under the supervision of two McGill University professors. The board of engineers was prepared to advertise for tenders for the manufacture and erection of the superstructure. He had not been given any information as to the estimated cost of the bridge. In an interview May 5, the Minister stated that tenders for the superstructure would be asked for immediately, and that the successful tenderer would have to accept full responsibility for the bridge. This decision, it is said was arrived at as a result of a cablegram received from England, May 4, that the tests which had been made there showed that the plans were satisfactory and would provide a safe and reliable superstructure. It is generally understood that the engineers have come to the conclusion that a cantilever type bridge is better than a suspension one. The bridge builders will be given about three months to prepare and submit their tenders.

Replying to a Quebec deputation, May 19, the Chairman of the N.T. Railway Commission said the workshops would be located at Quebec. On the same day there was a general conference in Quebec on terminal matters between the Commissioners, a number of Dominion Ministers, and G.T. Pacific Ry. officers.

The Commissioners were advised May 13, that grading had been started between Abitibi River and Nipigon, Ont. The delay in starting was due to the difficulty of getting supplies and grading outfits in, owing to the distance from existing railways, and the lack of water facilities.

The finishing up of the section between Superior Jct., Ont., and Winnipeg, Man., is being pushed, and it was estimated, May 1, that it would be completed within three months. The work being done includes ballasting, the construction of passing tracks, switches, spurs, telegraph line, station buildings, section houses, water tanks, tool houses, etc.

Tenders are under consideration for the equipment of the power house at the Winnipeg shops, including water tube boilers, mechanical stokers, feedwater heaters, engines, generators, air compressors, pumps, etc.

GRAND TRUNK PACIFIC RY.

The Dominion Parliament last session voted $28,000 to provide for the inspection of construction of the line; and $2,500 as remuneration for the Government director on the Board.

In an interview at St. John, N.B., May 13, the Minister of Public Works said the G.T.P.R. intended to apply to the Government under the provisions of its act, for running rights over the Intercolonial Ry. to St. John, N.B., and Halifax, N.S. If terms could not be agreed on, the Board of Railway Commissioners was authorized to decide on the matter. C. M. Hays, President G.T.R. and G.T.P.R., a few days earlier said it was the original intention that the ocean ports of the line would be Montreal, Quebec, St. John and Halifax, and it would not be departed from.

The G.T.P.R. is reported to have purchased 60 acres at Courtenay Bay, St. John, N.B., for terminal purposes, but the company's officials decline to say anything definite with regard to the matter.

The substructure for the bridge across Wolfe Creek, Alta., was completed April 28, and the steel work is now well in hand. This bridge is 800 ft. long, and the rail level is 200 ft. above high-water mark. According to a statement by Vice President Chamberlin, at a distance of 1,500 ft. from the west end of the Wolfe Creek bridge, is the east end of the McLeod River bridge, upon which the contractors are now engaged in putting the substructure. This bridge will be 900 ft. long. As soon as it is completed track laying will be resumed and will be proceeded with as fast as possible until the grading gangs are overtaken. These are working over 100 miles west of McLeod River, and are reported to be making good progress. There is, however, a shortage of labor which prevents the contractors making the progress they desire.

In a recent interview E. J. Chamberlin, Vice President and General Manager, stated that he expected track would be laid west to Yellowhead Pass this year; on the first hundred miles east from Prince Rupert by July 1, and that a 135 miles further would be ready for the steel a short time thereafter. The construction of the bridge across the Skeena River, 180 miles from Prince Rupert would delay track laying for some time. The contract for the remaining mileage of the line in British Columbia would be let by the end of the year. With favorable labor conditions it was expected that track would be laid right through by the end of 1912.

Pacific Northern and Omineca Ry.—The Dominion Parliament has voted a subsidy to aid in building a line from Edmonton north-westerly to or towards the Peace River not to exceed 110 miles.

The company filed plans with the Department of Railways for a line from Edmonton to the Peace River, some time ago, and the Canadian Northern Ry. is making application for approval of location plans for a line from Edmonton to Dunvegan, along much the same route. The Department has postponed consideration of the applications of both companies in order to give them an opportunity of coming to an agreement.

G.T. Pacific Branch Lines.—A recent press report stated that the company's engineers were making surveys for a line to Brandon, Man., with the idea of securing an entrance into the Canadian Northern Ry. station. We are advised that so far as C.N.R. officials are aware no such surveys are being made, nor have any negotiations been in progress as to the use of that company's station.

In a recent interview E. J. Chamberlin, V.P. and G.M., said it was hoped to lay about 200 miles of track on branch lines in the prairie provinces during the year. Contracts have been let as follows:—For 30 miles from Yorkton, on the Yorkton-Melville branch, to Rigby, Hyland and Plummer, Winnipeg; from Watrous to Prince Albert, 130 miles, to J. D. McArthur & Co.; from Biggar to Battleford, 50 miles, to the Goulin Contracting Co., from Balcarres to Regina, the balance of the Melville-Regina branch, 75 miles, to J. D. McArthur & Co., and for 100 miles from Regina south toward the boundary. The company will lay track as soon as grading is sufficiently far advanced, and get the lines open for traffic as soon as possible. A press report referring to the last of these lines says the original intention was to reach the International boundary at Portal, by a route midway between the C.P.R. and the Canadian Northern Ry., but it has been decided to pass through Weyburn.

J. Dalrymple, Assistant Freight Traffic Manager, went over the Tofield-Camrose line, May 1, for the purpose of advising as to sites for stations, elevators, etc. Grading has been completed for a number of miles from Camrose towards Calgary, and track laying is to be started at an early date. The route of the line into Calgary has been located but it has not been finally approved by the Department of Railways, as some arrangements are being made in the direction of securing a joint station in Calgary with the Canadian Northern Ry. On May 4 it was reported that right of way had been acquired as far as Aricana, on the Langdon branch of the C.P.R., and that negotiations for the rest of the right of way to within five miles of Calgary were nearly closed. A deputation representing the owners of mining properties in the Carbon coal fields has asked the Provincial Government to arrange with the company for the construction of a spur line into these collieries. The line as located is seven miles east of the mines.

A block of property is reported to have been purchased for wharfage purposes in North Vancouver, B.C. The lands lie east of Capilano in Long Flat and are about 300 acres in extent. (May, pg. 375).

British Investments in Canada.—A list has been prepared in England showing that £14,622,192 of British capital has been invested in Canada since Jan. 1 of the present year. Of this amount the following has been invested in railways, or in companies having railway and marine connections:—G.T. Pacific Ry., £1,000,000 of 4 per cent. debenture stock, realized £925,000; British Columbia Electric Ry., £530,000 of 4¼ per cent. perpetual consolidated debenture stock; Canadian Northern Ry., £1,000,000 of 4 per cent. debentures, realized £950,000; G.T. Pacific Branch Lines Co., £1,270,500 of 4 per cent. mortgage bonds, realized £1,251,442; City of Calgary, £325,400 of 4½ per cent. debentures, to provide among other things for an electric railway, realized £336,789; Canadian Car and Foundry Co., £482,877 of 6 per cent. mortgage bonds, realized £497,363; Canadian Western Lumber Co. (owning a railway, tugs, etc.), £1,500,000 of 5 per cent. mortgage debentures, realized £1,320,000.

The Association of Train Dispatchers of America will hold its annual convention at Seattle, Wash., June 21-23; the principal subjects for discussion being the proposed amendments to the standard rules.

Canadian Northern Ry. Construction, Etc.

Quebec and Lake St. John Ry.—Subsidies have been voted by the Dominion Parliament in aid of the construction of the following lines:—From Valcartier station to St. Catherine, Que., 3.8 miles; from Valcartier station towards Gosford, not exceeding 5.5 miles; from mileage 35 of the branch to La Tuque, on the River St. Maurice, to La Tuque Falls, 5 miles; from La Tuque Falls to the mouth of the Creche River, 5 miles; from the La Tuque branch to the steamboat landing near La Tuque, 1.6 miles; from Herbertville to St. Joseph d'Alma, 10 miles; from Chicoutimi south or south-east for 5 miles.

Canadian Northern Quebec Ry.—The Dominion Parliament has voted subsidies in aid of the construction of the following lines:—From Arundel to a point in the united townships of Preston and Hartwell, Que., not exceeding 30 miles; from Montreal to Hawkesbury, Ont., not exceeding 65 miles.

In an interview at Montreal, May 4, D. B. Hanna, President, is reported as saying: "The question of providing big railway terminals in this city is one that is engaging our attention, but matters have not got to such a point yet that I can make any announcement. Our company fully realizes the necessity of such terminals and the importance of providing them, and you may rest assured that we shall push ahead with the work as rapidly as is possible."

Canadian Northern Ontario Ry.—In reference to the entrance into Ottawa, it is said that arrangements are about completed for the purchase of the University Oval athletic grounds for station purposes.

Good progress is being made with construction on the Toronto-Trenton section of the line to Ottawa, and it is expected to complete it this year, work on the Colborne sub-section having been completed. J. Giroux, who had the contract for this part of the line is removing his outfit to Cobourg to go on with grading the section between there and Port Hope. The question of the entry of the line into the latter town was decided at a meeting held May 3, when the company's offer was accepted. According to the plans the station will be situated on Ontario St., near Hope St. The question of the route beyond Trenton is under consideration. The route as laid out runs within ten rods of the Deaf and Dumb Institute, and an objection is being made to this. A committee representing the City Council and the Board of Trade has reported in favor of the company's plans.

In Toronto the question of the granting of a right-of-way along the east bank of the Don River to Ashbridge's Marsh is under the City Council's consideration. A recommendation was made Mar. 19, that the Council construct such a line itself and permit its use by any railway company.

Surveys for the section between Toronto and Niagara Falls have been made, principally along the Electrical Development Co.'s right-of-way, but it is not expected that construction will start this year.

We are advised that the C.P.R. and the C.N.O.R. will have joint use of the line which the C.P.R. is building between Atherly Jct. and Orillia. This is a section of the Georgian Bay and Seaboard Ry., and forms part of the mileage between Coldwater Jct. and Atherly Jct., which has just been placed under contract.

On the Lake Superior section 30 miles are already built from Selwood northwesterly to Gowganda Jct. H. K. Wicksteed, Chief Locating Engineer, has four survey parties at work. About 150 miles have been located west from Gowganda Jct., and two parties are carrying that location on westerly. Two other parties are working east and west from Nipigon. H. K. Wicksteed is reported to have stated in an interview May 6, that work was being pushed ahead as rapidly as possible, and would be completed in a month or two. The reports showed that a very favorable location was being secured. The divide between Port Arthur and Nipigon is crossed at an elevation of 220 ft. lower than where it is crossed by the C.P.R. This insures a gradient of 0.4 per cent. The line will probably skirt the shore for some distance along Thunder bay. The survey parties are now working north of Mackenzie. In an interview at Port Arthur, May 14, Vice President Mann said that no further construction would be done on that line this year, and it was too early to say what would be done next year.

The Irondale, Bancroft and Ottawa Ry., which has been acquired by Mackenzie, Mann & Co., is being operated under lease by G. Collins, General Manager Central Ontario Ry. The I.B. & O.R. is being connected with the C.O.R. at Bird's Creek Station, Ont., by the building of about 1½ miles of track.

Nepigon Ry.—Subsidies have been voted by the Dominion Parliament to aid in building the following lines:—From Nipigon station on the C.P.R. transcontinental line to Nipigon Lake, 30 miles; from Nipigon Bay, Lake Superior, to west of Lake Helen, not exceeding 3.5 miles; from near the crossing of French River by way of Cameron's Falls to Lake Jesse, 1.5 miles; from the north shore of Lake Nipigon for 45 miles northerly.

Canadian Northern Ry.—Vice President Mann, in an interview at Port Arthur, May 14, said, as to works in that city he thought fair progress had been made with the hotel building, although he would like to see the roof on by the fall, but this was not possible. The work contemplated at the terminals included an extension of the steel dock, and the erection of a freight shed there. The roundhouse and workshops would also be enlarged, and various improvements would be made in the yards. Traffic was growing and constant additions had to be made to the facilities. As to the line between Port Arthur and Winnipeg, the work of relaying the track with heavier steel rails would be completed; a number of the wooden bridge structures would be replaced by steel spans on concrete abutments, and at the crossing of Rainy Lake, a dump of rock a mile and a half in length would be put in to replace the present bridge, with swing spans for navigation.

The contract for the interior work on Fort Garry station, Winnipeg, has been let to P. Lyall & Sons, at a cost of about $300,000. A steel viaduct is being erected at the rear of the station for the entry of the trains. Tenders are to be asked at once for the erection of express and other warehouses beneath this viaduct.

A press report states that a branch line is under survey from Goose Island, on the Oak Point branch, for 25 miles, and that that line will, for some distance, run parallel with the C.P.R. line to Teulon, Man., and that it is intended to extend it eventually to Fisher River.

On the Oak Point branch, which is now operated from Oak Point Jct., near Winnipeg, to Oak Point, 60.4 miles, grading was done for 30 miles further last year. The Cowan Construction Co. has a contract for grading for some 70 miles further to Gypsumville, Lake Manitoba. Track will be laid this year on as much of this additional mileage as possible.

A press report states that the company has purchased a number of lots adjoining its yards at Portage la Prairie, Man., for extension purposes.

Writing to the city authorities at Brandon, Man., recently, R. J. Mackenzie said the company had been getting specifications for the proposed hotel at Brandon into shape, in order to ask for tenders at an early date.

On the Greenway-Wakopa line, about 12 miles will be built this year from the present track end. N. Boyd is reported to have the grading contract to Deloraine.

On the branch from Maryfield, on the Brandon-Regina line, running southwest and westerly, and crossing the C.P.R. Portal-Pasqua branch at Midale, track was laid in 1909 on 68.39 miles, and about 80 miles further were graded. This 80 miles will be laid with track this year, and some 50 miles more will be graded and part of it laid with track. Cowan & Co. have the grading contract.

On the branch from Hallboro', Man., westerly via Rapid City, 69.28 miles of track were laid in 1909, and about six more miles of grading have been done. We were advised recently that it had not been decided whether that would be laid with track this year.

The Rossburn branch from Neepawa, Man., which is intended to connect with the main line at Canora, Sask., is now being operated to Russel, Man., 104.2 miles from Neepawa. Last year track was laid to mileage 160 from Neepawa, and grading was done for about a mile further. It is probable that about 30 miles more grading will be done this year. A press report states that Wilson & Wilmot are grading near Stoneway, Sask.

On the Thunder Hill extension from Thunder Hill Jct., Man., near Swan River, on the Dauphin-Prince Albert line, track has been laid for over 40 miles, and about 13 miles more have been graded, on which track will be laid this year. About 20 miles more will be graded this year and track will probably be laid on it. McMillan Bros. have the grading contract.

A press report states that the company has secured a right-of-way for nearly all the route of its proposed line westerly from Regina as far as Moose Jaw, Sask.

From Melfort, Sask., a branch is to be built south 25 miles to the main line at Humboldt. This will probably be completed this year.

On the Goose Lake branch from Saskatoon, Sask., towards Calgary, Alta., track has been laid to Kindersley, the first division point, and 44.14 miles further has been graded into Alberta. We were advised recently that track would be laid on this grade this year, and that some further grading would probably be done. R. J. Mackenzie is reported to have stated recently that about 60 miles of track would be laid and that grading contracts had been let, but that owing to the scarcity of ties he did not think it would be possible to do all the work anticipated.

The Prince Albert-North Battleford branch is now built to Shellbrook, 30 miles from Prince Albert, Sask. About 40 miles further will be built this year. C. J. Murray is reported to have the grading contract.

From the present end of track on the Prince Albert-North Battleford line, via Shellbrook, about 45 miles of the Crooked Lake branch have been graded. The remainder of the 58 miles will be graded this year and track laid on it. C. J. Murray is reported to have the grading contract and tracklaying was reported to have started May 1.

From North Battleford. Sask., via Jackfish Lake towards Athabaska Landing, 40 miles have been graded and track will be laid this year. No further grading will be done at present.

On the branch from Vegreville, Alta., southerly via Camrose and Stettler, towards Calgary, about 130 miles have been graded and 19.47 miles were laid with track in 1909. Track will be laid on the balance of this grading, 110.53 miles, this year, and grading will be done and track probably laid for 96 miles further. Reports state that track was laid into Camrose, May 1, across the C.P.R., and that it is being proceeded with towards Stettler. The differences between the C.N.R. and the C.P.R. as to a right-of-way through Stettler have been settled. A press report says that outside the town limits grading has been completed southerly for about 40 miles, and that it is expected to get the grading completed into Calgary this year. The telegraph line has been completed to Round Hill, and poles and wire have been distributed to beyond Camrose; the station and tank gang has reached Lake de May, and ties and other supplies are being shipped into Camrose for the rest of the line.

The revised plans for the route of the company's projected line into Calgary have been approved by the Minister of Railways between Bow River and Calgary, Alta. The actual route into the city is still under consideration, as the City Council is desirous of having the G.T. Pacific Ry. enter by the same route and use a union station.

From St. Albert, 8.5 miles from Edmonton, on the Edmonton-Athabaska Landing branch, about 40 miles will be built north-westerly this year. An Edmonton dispatch, May 10, said M. McCrimmon had been given the grading contract.

On the branch from Edmonton, Alta., towards Athabaska Landing, 21.5 miles are being operated to Morinville, and about 23 miles more have been graded. This will be laid with track this year.

The main line is in operation from Edmonton 21 miles west to Stony Plains and is graded for about five miles further, not 12, as stated in our April issue. It is expected to lay track on this grading and for 24 miles further this year, making altogether 50 miles from Edmonton, and grading will probably also be done as far as the McLeod River.

Canadian Northern Alberta Ry.—The Dominion Parliament has incorporated a company with this title to build a railway from near Edmonton or Strathcona westerly, and giving the company power to take over the line constructed or located by the Edmonton, Yukon and Pacific Ry., or the Canadian Northern Ry., its successor by amalgamation. The incorporators are all associated with Mackenzie, Mann & Co., or with the Canadian Northern Ry. A second act repeals the provisions of chap. 25 of the statutes of 1908, granting aid for the extension of the Edmonton, Yukon and Pacific Ry., and provides for the granting of aid to the C.N.A.R. for the first 150 miles of its line from Strathcona or Edmonton, to the coal areas near the Brazeau River and the headquarters of the McLeod River, by means of a guarantee of bonds. For the first 50 miles of the line the securities are to be guaranteed to the amount of $13,000 a mile, and for the remaining mileage to the amount of $25,000 a mile; the interest to be at the rate of 3½ per cent. and the principal to be payable in 50 years. The securities to be secured by a first mortgage on the lines constructed, buildings, rolling stock, etc., and to be guaranteed to the Government by the Canadian Northern Ry. The Minister of Railways explained that it was necessary to have these acts passed in order to make available the subsidies voted to the Edmonton, Yukon and Pacific Ry. in 1908. One of the conditions upon which that subsidy was voted was that the E., Y. and P.R. should be amalgamated with the C.N.R., but it was found when this was done that the securities could not be issued inasmuch as they would conflict with C.N.R. Consolidated Debenture Stock. By the cancellation of the old agreement of 1908, and the incorporation of a new company with a new agreement, the difficulty is overcome.

Canadian Northern Pacific Ry.—Revision surveys for portions of the located line between Yellow Head Pass and New Westminster, B.C., are being made. C. F. Hannington is at work between Kamloops and Lytton, and J. Irwin in the North Thompson Valley. They will also take soundings in the rivers across which bridges will have to be built. The B.C. Government has placed in reserve large areas of land along the line of the route surveyed, in connection with the proposal to construct branch lines to Revelstoke and Golden, for which it is reported surveys will shortly be made. Representatives of the company's right-of-way department are working in and around New Westminster, arranging for the purchase of properties required for station and right-of-way purposes through the city. A suggestion is under consideration for a joint station with the Great Northern Ry.

G. T. R. Semi Annual Meeting.

At the recent half-yearly meeting in London, Eng., A. W. Smithers, in moving the adoption of the report, which was given in our last issue, after dealing with the various items, said, in part:—"They mark the end of the effect on them of the financial storm caused by the American panic of the autumn of 1907. It came with great suddenness when we were under great obligations, and I think the President deserves the highest credit for the promptitude with which he took in sail and successfully weathered the storm." Referring to the G.T.P. Ry., he said:—"Beginning at Fort William, our terminus on Lake Superior, a new elevator has been built capable of storing 3,500,000 bush.; terminal facilities are in course of construction, a deep-water channel is being dredged from the lake, and the branch line from Fort William to Lake Superior Jct., 200 miles, has been completed, and is ready for operation. From Lake Superior Jct. to Winnipeg, 245 miles, the line is being constructed by the Government, and this section is expected to be completed in time to handle this year's harvest. At Winnipeg a terminal station has been constructed to be jointly used with the Canadian Northern Ry. From Winnipeg to Edmonton, and beyond to Wolf Creek, which constitutes the Prairie section, 916 miles, the line has been completed. Thus, by Sept. 1, we expect to have ready for the moving of this year's crop, 1,361 miles of continuous track from Wolf Creek, the western end of the Prairie section, to Fort William, on Lake Superior. The great problem for all transcontinental lines in the north-west is how and where to cross the Rocky Mountains. After two or three years of experimental trails, the pathfinder recommended a way by the Yellowhead Pass, with only one summit to cross of 3,700 ft., and a grade of only 4-10 of 1 per cent., or 21 ft. to the mile. C. C. Van Arsdol, Engineer in Charge of the Mountain section, under B. B. Kelliher, Chief Engineer, was the pathfinder, and his name will always be associated with the extraordinary favorable grades of the Mountain section, which are the lowest of any transcontinental line. A contract has been let from Wolf Creek, the easterly point of the Mountain section, to Tete Jaune Cache, 179 miles, the grading of which we hope will be completed by the end of the year. From Prince Rupert, the western terminus, the line has been graded for 130 miles east to the Copper River, and tracklaying on this portion should be completed during the summer. Another contract has been let from Copper River easterly to Aldermere, 135 miles, and it is hoped the grading will be completed by the end of 1910. The distance between Aldermere in the west, and Tete Jaune Cache on the east, of the gap still to be contracted for, is 425 miles, and contracts for that portion of the line will be let directly the approach of rail from either side will allow of contracts being let on the most advantageous and economical basis. It is of the greatest importance that a main line of the length ours will be should have feeders, and I am glad to say that the Saskatchewan and Alberta Governments have guaranteed bonds to enable us to build branches to open up those provinces. Good progress has been made with the branches commenced last year, and we hope to complete them from Melville to Regina, Melville to Canora, Sask., and Tofield to Calgary, Alta., during the year. In the last session of the Saskatchewan Legislature guarantees on five additional branches were authorized. In all, nearly 1,000 miles of branch lines are now under, or shortly will be under, construction, and the money to pay for them has been successfully raised. Hardly less important than the finding of the way over the Yellowhead Pass, was the discovery of Prince Rupert, on the Pacific coast, with its splendid natural harbor. It is 500 miles north of Vancouver, and at present is connected by boats which ply between Pacific ports. Already accommodation is quite insufficient, and the G.T.P.R. has ordered two boats, the Prince Rupert and the Prince George, specially adapted for this service. We expect the Prince Rupert will be in service by June, and the Prince George a few weeks later. The G.T.P.R. has also bought another boat, to be named the Prince Albert, which will also be used for the coasting service. These boats will ply between Seattle, Victoria, Vancouver, Prince Rupert, and intermediate points, and will undoubtedly be fully occupied during the summer and autumn months at paying rates. I believe, in the near future, the trip across the Rockies by the C.P.R. to Vancouver, thence to Prince Rupert by boat, and back over the Rockies by the G.T.P.R. will be one of the most attractive tours of the world. Not only will the G.T.P.R. possess the route with the lowest grade of any transcontinental line, but it will be the shortest route, via Prince Rupert, to China and Japan, by 500 miles. I do not think we have begun to realize the possibilities of traffic which will grow between Canada and the Far East, and in which the G.T.P., for the reasons I have mentioned, will be in a first-class position to fully share. I have put before you what we undertook to do when we commenced this great undertaking, and I have shown you the progress we have made up to date. I think you will agree with me the account I have given shows that the operations have been conducted with all the evidence of careful design. The various portions of the scheme are all being pushed forward with a view to completion at the earliest possible moment. The Lake Superior branch and Prairie section will be the part likely to most quickly develop traffic, and, consequently, that will be the part to come into operation first. C. M. Hays, President of both the G.T.R. and G.T.P.R., has been the commander-in-chief who has brought us to what we consider our present satisfactory position, and he has been ably seconded by E. J. Chamberlin, Vice President at Winnipeg; B. B. Kelliher, Chief Engineer, and C. C. Van Arsdol, Engineer in Charge of the Mountain section."

Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Notice has been given that the company will on July 30, redeem its 4% prior lien debenture stock outstanding at that date. The transfer book for the stock will be finally closed July 9.

Approximate net profits from all sources, exclusive of land sales, for March, $34,260, against $39,116 for March, 1909. Cumulative net profits for nine months ended Mar. 31, $377,156. Approximate traffic receipts for April, $37,447, against $22,753 for April, 1909. Aggregate traffic receipts for 10 months ended Apr. 30, $323,274.

Atlantic, Quebec and Western Ry.—The first call of $10 due on 5,000 shares of stock was due May 23, and the second call also of $10, is due July 23. These two calls, added to the $80 per share already paid, will pay up the shares in full.

Central Counties Ry.—Subscriptions were recently received by the Bank of Montreal in London, Eng., for £97,500 of 4% first mortgage bonds, the issue price being £90 per £100 bond. The interest is payable half yearly and the bonds are redeemable at par in 1949. The lines owned by the company extend from Hawkesbury to Glen Robertson, Ont., 21 miles, and from South Indian to Rockland, 15 miles, and are operated under lease by the G.T.R. at an aggregate rental of £3,900 a year.

Central Ontario Ry.—Following are the officers and directors for the current year: President, J. J. Warren; Vice President, General Manager and Secretary, Geo. Collins; other directors, C. E. Ritchie, E. B. Stockdale, J. H. Moss.

Delaware and Hudson Co.—The following were elected managers of the company for the current year, May 10: R. M. Olyphant, C. M. Depew, J. J. Astor, R. S. Grant, G. I. Wilber, C. A. Peabody, J. A. Linen, L. F. Loree, W. S. Opdyke, J. R. Maxwell, C. Vanderbilt, R. S. Lovett and R. C. Pruyn.

Dominion Atlantic Ry.—Gross earnings for March, $85,600, against $75,725 for March, 1909. Aggregate gross earnings for nine months ended Mar. 31, $904,750, against $864,204 for same period 1908-09.

Grand Trunk Ry.—We are officially advised that there is no foundation in fact for the reports which have recently appeared in the daily papers that the G.T.R. had acquired control of the Detroit and Mackinaw Rd.

Guelph Junction Ry.—The Dominion Parliament has authorized the City of Guelph to acquire from the present holders the shares in the company held by them. It appears that the city put up all the money for the construction of the line with the exception of $1,000 which was paid in by 10 citizens in order to have the company formed, the city guaranteeing the payment of the balance of the price of the shares. Six of the shareholders transferred their shares to the city but the remaining four declined, and the act now passed declares that the shares were held by them as agents of the city, and not privately.

Halifax and South Western Ry.—The estimated revenue of the province of Nova Scotia for the year ending Sept. 30, 1910, includes $12,750 interest on mortgage on the Central Ry., and $152,730, interest on consolidated mortgage on the Halifax and South Western Ry., with which the old Central Ry. has been amalgamated.

Intercolonial Ry.—An Ottawa dispatch, May 13, says that the accounts of the I.C.R. for the last fiscal year, which are now being balanced, show a surplus of about $500,000, as compared with "a deficit of about $800,000," according to the statement of the Minister of Railways in the House of Commons in Feb.

Ontario and Quebec Ry.—The half-yearly interest on the 5% debenture stock, and on the common stock at the rate of 6% per annum, will be paid to shareholders of record May 2, on and after June 2, at the C.P.R. offices, Charing Cross, London, Eng.

Quebec and Lake St. John Ry.—Total earnings for Apr., $48,678.17, against $44,090.97 for Apr., 1909. Aggregate earnings for three months ended Apr. 30, $168,270.71, against $180,546.99 for same period 1909. Mileage operated, 280, against 285.6 in 1909.

Quebec Central Ry.—Gross earnings for March, $93,182.58; expenses $58,637.12; net earnings $34,545.46, against $94,190.27 gross earnings; $60,635.54 expenses; $33,554.73 net earnings for March, 1909. Aggregate gross earnings for nine months ended Mar. 31, $797,719.52; expenses $553,245.19; net earnings $244,474.33, against $761,859.93 aggregate gross earnings; $543,579.41 expenses; $218,280.52 net earnings for same period 1908-09.

Quebec, Montreal and Southern Ry., Napierville Jct. Ry. See Delaware and Hudson Co.

Reid Newfoundland Co.—A press report states that a new company has been formed in London, Eng., with a capital of $20,000,000 to take over and develop the land, lumber and mineral properties of the R.N. Co. H. D. Reid, Vice President of the company, interviewed at St. Johns, Nfld., May 5, said the President was engaged in obtaining funds for the development of the company's property, but under no consideration would the company's railway, steamships, or their general plant pass into other hands.

Temiscouata Ry.—Profits on operation for March, $5,735, and for three months ended Mar. 31, $8,636.

White Pass and Yukon Ry.—Gross earnings for nine months ended Mar. 31, $886,887.

The Dominion Atlantic Railway.

Sir Thos. G. Shaughnessy, President C.P.R., stated in Montreal, May 15, that "interests friendly to the C.P.R." had secured the Dominion Atlantic Ry. It is generally understood that the D.A.R. property has been in the market for some time and that there were negotiations between the Canadian Northern Ry. interests and the interests in London, controlling the D.A.R. The "interests friendly to the C.P.R." made an offer through the Bank of Montreal, which was accepted, and the control of the company secured. Various reports are current as to the proportion of stock of the different denominations secured, but there is a general agreement that the "interests friendly to the C.P.R." include R. B. Angus, Hon. L. J. Forget of Montreal, and T. Skinner of London, Eng., three C.P.R. directors.

The D.A.R. has never been a financial success, as the net earnings have not been sufficient to do more, after meeting interest on bonds, than to pay interest on the preferred stock as follows: 2%, 1902; 2½% for 1903; 3% for 1904. As a part of a great transcontinental system and under improved management different results may confidently be expected.

The D.A.R. is a consolidation of the Windsor and Annapolis Ry., 84 miles; the Western Counties Ry. (name changed in 1893 to Yarmouth and Annapolis Ry.), 87 miles; Cornwallis Valley Ry., 13.15 miles; the amalgamation being effected by the Dominion Parliament in 1894-5, and of the Midland Ry. amalgamated in 1905. The Intercolonial Ry.'s Windsor Branch was leased to the Western Counties Ry. in 1874, and in 1882 was transferred to the Windsor and Annapolis Ry., subsequently being transferred to the D.A.R. In connection with the Windsor branch, the track and buildings of which are maintained by the I.C.R. out of its proportion of the receipts; trackage rights were secured over the I.C.R. into Halifax, 14.42 miles. The total mileage operated by the company is made up as follows:—Lines owned, 247.30 miles; leased line 31.47 miles, trackage rights, 14.42 miles; total 293.29 miles. In addition there are 17.56 miles of yard tracks and 11.72 miles of spurs and sidings on lines owned, and 3.60 miles of sidings on the leased line. Of the lines owned and leased 276.03 are laid with steel rails, and 2.84 with iron rails; and of the yards, spurs and sidings 24.10 miles are laid with steel, and 8.78 miles with iron rails. There are 17 iron bridges on the line, the longest being that on the Midland Ry. at Truro, 1,207 ft.; no stone bridges, and three wooden ones, each of 50 ft. span; 29 trestles, the longest being of 350 ft.; and 181 level crossings of which two are guarded. The company owns 11 passenger locomotives, 14 freight locomotives, 22 first class passenger cars, 11 combination cars, one dining car, two parlor cars, 15 baggage, express and postal cars, 212 box cars, 219 flat cars, 12 stock cars, 26 coal cars, three cabooses, and seven other cars.

The company also owns wharves and docks at Digby, Yarmouth, St. John, and other points on the Bay of Fundy, and at Boston, Mass., operating between these ports the steamers Prince George, Prince Arthur, Prince Rupert, Prince Albert and Boston. The subsidies paid in aid of the construction of the railways were as follows:—Windsor and Annapolis Ry., $1.193,369, from the Dominion; Cornwallis Valley Ry., $44,800 from the Dominion, $44,800 from Nova Scotia, and $27,685 from municipalities; Western Counties Ry., $500,000 from the Dominion, $679,197.45 from Nova Scotia and $250,000 from municipalities; Midland Ry., $399,060.40 from the Dominion, $185,000 from Nova Scotia and $36,000 from municipalities. The last financial statement showed $2,433,333 of common stock, and $4,901,707 of bonds outstanding, with a miscellaneous indebtedness of $486,616.

There is considerable discussion as to what is likely to happen when the line is operated by the C.P.R. In the first place it is to be noted that by means of the short trip across the Bay of Fundy from St. John, N.B., to Digby, N.S., the C.P.R. will secure a through route to Halifax, thereby giving a much shorter connection between Montreal and Halifax, than by the I.C.R. One report states that the C.P.R. has entered into an agreement with the Michigan Central Rd., for the use of the tunnel under the Detroit River by its trains, thereby releasing the car ferries now used for transferring the trains between Detroit and Windsor. These car ferries, it is stated, will be transferred to the Bay of Fundy, and operated between Digby and St. John, pending the construction of a tunnel under the bay. The originator and the report probably failed to remember that the Bay of Fundy has about the biggest tide in the world, the difference between high and low water being about 40 ft.; that the distance between Digby and St. John is over 50 miles of not the calmest water; and that car ferries built for navigating inland waters are not just the thing for salt water navigation. A 50 mile tunnel is a somewhat large order, even for the C.P.R. We are officially advised that the question of transferring the ferries has not even been considered.

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 to distinctly 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.

The Northern Engineering Works, Detroit, Mich., has issued a catalogue of the Newten cupola.

The Geo. M. Newhall Engineering Co., Philadelphia, Pa., is arranging to have its N.B. air brake and signal hose connection manufactured in Canada.

The Standard Coupler Co. has removed its Chicago office from the Fisher Building to 1005 People's Gas Building, corner Michigan Ave. and Adams St.

The Minneapolis, St. Paul and Sault Ste. Marie Ry., has ordered a freight handling derrick from the American Hoist and Derrick Co., St. Paul, Minn.

The Canadian Fairbanks Co., Ltd., Montreal, has increased its capital stock from $650,000 to $900,000, by creating 2,500 additional shares of $100 each.

The Wire & Cable Co., Montreal, has recently secured some very substantial municipal contracts for weather proof wire from Toronto, Moose Jaw, Saskatoon and Calgary.

The Ontario Wind Engine and Pump Co., Ltd., Toronto, has increased its capital stock from $250,000 to $750,000, by the creation of 5,000 shares of $100 each.

Taylor and Arnold, Montreal, have received orders for five Pilling turntable tractors, for points on the C.P.R. Western Lines. This makes 39 of these tractors on the C.P.R. system.

O. W. Meissner has resigned his position as Superintendent of the Hart-Otis Car Co., Ltd., Montreal, and has been appointed Sales Manager of the Behrand Concentrators, Ltd., 32 St. Sulpice St., Montreal.

Butterfield & Co., Rock Island, Que., have issued their 1910 catalogue of taps, stocks and dies, reamers and Derby screw plates, Young's axle cutters, and bolt for engineers' and steam fitters' use. It comprises 90 pages, and is copiously illustrated.

The Joyce-Crydland Co., Dayton, Ohio, has issued a 100-page catalogue. Besides listing its complete line of jacks for all purposes, the catalogue contains discussions of the construction and recent improvements in this line of jacks, the relative merits of various types of jacks, such as hydraulic, lever, automatic, automatic geared, screw, telescoping, etc., for different classes of service, and recommends the most suitable jack for the different lines of work. It contains complete information concerning the dimensions, weights, price, etc., of the various jacks.

The American Brake Shoe and Foundry Co., of Mahwah, N.J., which is represented in Canada by the Holden Co., Ltd., Montreal, has increased its capital stock from $6,000,000 to $10,000,000, and is offering 10,080 shares of the preferred shares to shareholders of record at May 9, at $105, in the proportion of 18% of their holdings. The company announces that with the proceeds of the new issue, the plants of the Featherstone Foundry and Machinery Co., and the National Brake Shoe and Foundry Co., will be purchased. These properties, with an appraised value of $659,000 are said to be earning about $260,000 a year.

TRANSPORTATION APPOINTMENTS.

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.

Board of Railway Commissioners.—We are advised that A. F. Dillinger, Assistant Operating Officer, has been directed to make his headquarters in Winnipeg and devote himself entirely to the western railway.

Canadian Northern Quebec Ry.—D. P. Cotter, heretofore ticket agent C.P.R. Atlantic Steamship Service, Quebec, Que., has been appointed ticket agent C.N.Q.R. in the Immigration Offices, Louise Embankment, Quebec, and will also act for all C.N.R. lines.

R. S. Richardson, Assistant Superintendent, and P. A. Lariviere, Chief Dispatcher, with their staffs, have removed from Montreal to Joliette, the latter place becoming a divisional point between Quebec and Ottawa.

Canadian Northern Ry. — Duluth, Rainy Lake and Winnipeg Ry.—M. B. Murphy has been appointed Trainmaster of the portion of Division 2, east of Belmont and east of Brandon, Man. Office, Winnipeg.

K. McLeod, heretofore in the Winnipeg city ticket office, has been appointed city ticket agent at Regina, Sask., vice I. G. Reece, promoted.

J. A. Tait, heretofore Traveling Freight Agent, Winnipeg, has been appointed City Freight Agent at Regina, Sask.

C. R. Hill, heretofore Contracting Freight Agent, Regina, Sask., has been appointed District Freight Agent, Saskatoon, Sask.

I. G. Reece, heretofore City Ticket Agent, Regina, Sask., has been appointed Traveling Passenger Agent, Chicago, Ill.

Canadian Northern Steamships, Ltd.—J. D. Morton, Chief Accountant Canadian Northern Ry., General Auditor Canadian Northern Ontario Ry., Canadian Northern Quebec Ry., Halifax and South Western Ry., Duluth, Rainy Lake and Winnipeg Ry., and Vice President Niagara, St. Catharines and Toronto Ry., has also been appointed Assistant Comptroller Canadian Northern Steamships, Ltd. Office, Toronto.

R. S. Gosset, heretofore chief clerk Accountant's Department C.N.R., has also been appointed Auditor C.N.S., Ltd. Office, Toronto.

T. P. Jones has been appointed Wharfinger at Montreal.

Canadian Pacific Ry.—At the regular monthly meeting of the Board, May 9, Sir Wm. C. Van Horne formally resigned the Chairmanship of the Board of Directors, an honorary position which was created for him when he retired from the Presidency, and the office was abolished. For domestic reasons, it was decided that in future the President should also be known as Chairman of the company.

A. R. Creelman, K.C., the company's General Counsel, has also been elected a director, to fill the vacancy caused by the death of Sir George Drummond.

J. W. McInnch, Locomotive Foreman at Woodstock, N.B., has had his headquarters moved to Aroostook Jct., N.B.

T. M. Barrett has been appointed Assistant Commissary Agent at Quebec, vice M. E. Tansey, transferred.

W. O. Bovard, heretofore in the General Freight Agent's Office, Montreal, has been appointed Contracting Freight Agent at Montreal, vice H. P. Swinton, resigned.

W. C. Casey, heretofore Traveling Passenger Agent Atlantic Steamship Lines, St. John, N.B., has been appointed chief clerk to General Passenger Agent Atlantic Steamship Lines, Montreal.

J. O. Norrie, heretofore in the General Passenger office, Atlantic Steamship Lines, Montreal, has been appointed accountant and cashier of that department, vice G. Lamb, retired.

W. M. Taylor, heretofore in District Passenger Agent's office, Toronto, has been transferred to the office of General Passenger Agent Atlantic Steamship Lines, Montreal, in charge of the berthing department.

C. R. Mackenzie, heretofore Superintendent's Accountant at Farnham, Que., has been appointed Superintendent's Accountant at Ottawa. Ont., vice G. E. Bolton, who has left the service.

E. C. Ferguson has been appointed Car Foreman at Ottawa, vice T. A. Musgrove resigned to enter C.N.R. service.

M. A. Fullington, heretofore Resident Engineer District 1, Ontario Division, Toronto, has been appointed Assistant Engineer, vice A. P. Walker, who has been granted three months' leave of absence.

M. Kelley, heretofore transitman at London, Ont., has been appointed acting Resident Engineer District 1, Ontario Division, Toronto, vice M. A. Fullington.

J. Brownlee, heretofore Superintendent District 4, Western Division, Cranbrook, B.C., has been appointed Superintendent District 1, Central Division, Kenora, Ont., vice J. J. Scully, transferred.

J. F. Sweeting has been appointed Industrial Agent Western Lines. Office, Winnipeg.

O. C. Walker has been appointed Inspector Refrigerator Service, Western Lines, vice R. A. Gamble, appointed Fuel Agent, Western Lines. Office, Winnipeg.

M. E. Tansey, heretofore Assistant Commissary Agent at Quebec, has been appointed Assistant Commissary Agent at Winnipeg, vice H. B. Bridges, resigned.

E. J. Stone, heretofore secretary to General Manager Western Lines, has been appointed chief clerk, vice E. W. DuVal, promoted.

H. J. Reed has been appointed night locomotive foreman at Winnipeg roundhouse, vice W. K. McLeod, transferred.

J. J. Scully, heretofore Superintendent District 1, Central Division, Kenora, Ont., has been appointed Superintendent District 1, Western Division, Moose Jaw, Sask., vice W. J. Uren, transferred.

E. W. DuVal, heretofore chief clerk to General Manager Western Lines, Winnipeg, has been appointed Trainmaster in charge of Maintenance and Operation of Calgary Terminals.

W. J. Uren, heretofore Superintendent District 1, Western Division, Moose Jaw, Sask., has been appointed Superintendent District 4, Western Division, Cranbrook, B.C., vice J. Brownlee, transferred.

J. J. Forster, heretofore Traveling Passenger Agent Atlantic Steamship Lines, Chicago, Ill., has been appointed City Passenger Agent there.

D. I. Lister has been appointed Traveling Passenger Agent C.P.R. Atlantic Steamship Lines, Chicago, Ill., vice J. J. Forster, promoted.

E. L. Sheehan has been appointed Traveling Passenger Agent C.P.R. Atlantic Steamship Lines at Chicago, Ill., vice W. F. Bloomquist, resigned.

The office of H. S. Carmichael, General Passenger Agent, has been transferred from 24 James St., Liverpool, Eng., to the company's European head office, 62 Charing Cross, London.

Department of Railways and Canals.—W. A. Bowden, who has been engaged in the engineering department for about five years, has been appointed Chief Engineer, which position has been vacant since the resignation of M. J. Butler, who was Deputy Minister and Chief Engineer.

Grand Trunk Pacific Ry.—E. McDonald, heretofore tracing clerk G.T.R. General Baggage Agent's office, Toronto, has been appointed baggage clerk G.T.P.R., Winnipeg.

C. Nickerson has been appointed shore steward G.T.P. Steamships, Vancouver, B.C.

Grand Trunk Ry.—W. E. Watt, having resigned, the position of Assistant Trainmaster at Richmond, Que., has been abolished. All reports previously made to him are now made to J. J. Connelly, Trainmaster, Island Pond, Vt.

J. Henderson has been appointed Roadmaster Districts 5 and 6 between Vaudrueuil and Kingston Jct., vice C. H. Storey, acting Roadmaster. Office, Brockville, Ont.

E. R. Battley, heretofore machinist at Stratford shops, has been appointed Locomotive Foreman at Fort Erie, Ont., vice C. A. Livingston, transferred.

C. A. Livingston, heretofore Locomotive Foreman at Fort Erie, Ont., has been appointed Locomotive Foreman at Durand, Mich., vice G. H. Wyatt, transferred to Nichols, Mich.

C. G. Orttenberger has been appointed City Passenger and Ticket Agent, Chicago, Ill., vice J. H. Burgis, promoted.

J. H. Burgis, heretofore City Passenger and Ticket Agent, Chicago, has been appointed General Agent Passenger Department, in charge of passenger traffic in Washington, Oregon and Idaho States, for the G.T.R., the G.T.P.R. and the G.T.P. Steamships. Office, Seattle, Wash.

Inland Lines, Ltd.—H. P. Swinton, heretofore Contracting Freight Agent C.P.R., Montreal, has been appointed Soliciting Freight Agent Inland Lines Ltd., at Montreal, reporting to the General Agent there.

Intercolonial Ry.—J. G. Boyd has been appointed Roundhouse Foreman at Gibson, N.B., vice E. S. White, resigned.

Irondale, Bancroft and Ottawa Ry.—R. S. Derbyshire has been appointed Superintendent, vice C. Hutchinson, resigned. Office, Irondale, Ont.

New York Central and Hudson River Rd., West Shore Rd., Boston and Albany Rd.—E. J. O'Hayer, Jr., has been appointed General Eastern Passenger Agent. Office, New York.

New York Central Lines.—D. R. McBain, heretofore Assistant Superintendent Motive Power New York Central and Hudson River Rd., Albany, N.Y., has been appointed Superintendent Motive Power, Lake Shore and Michigan Southern Ry., Lake Erie, Alliance and Wheeling Rd., Dunkirk, Allegheny and Pittsburg Rd., Lake Erie and Western Rd., Fort Wayne, Cincinnati and Louisville Rd., and Northern Ohio Ry., vice Le Grand Parish, resigned to take service with another company. Office, Cleveland, O.

R. B. Kendig, heretofore Mechanical Engineer, Lake Shore and Michigan Southern Ry., Cleveland, O., has been appointed General Mechanical Engineer New York Central Lines. Office, Grand Central Terminal, New York.

Reid Newfoundland Co.—The following appointments are reported:—

A. Graham, as General Roadmaster of main line and branches.

—. Cobb, as chief of construction on the Bonavista branch.

P. Hannon, as Roadmaster Division 3, between Clarenville and Bishops Falls.

J. Peddle, as Roadmaster Division 4, between Bishops Falls and Bay of Islands.

The Dominion Parliament last session voted $121,400 for the maintenance and operation of the Board of Railway Commissioners, and $10,000 to provide legal assistance in cases coming before it during the current financial year.

Railway Commissioners' Traffic Orders.

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

CLASSIFICATION RATINGS ON EVAPORATED VEGETABLES.

10241. April 19.—Re complaint of W. J. Cluff, of Edmonton, Alta., complaining of the l.c.l. rate charged by the C.P.R. on a shipment of 50 cases of evaporated potatoes from near Belleville, Ont., to Edmonton; and re application of the Classification and Advisory Committees of the Canadian Freight Association for approval of following changes in the Classification, viz.:

1. Elimination of item 23 on pg. 57 of Canadian Classification 14, covering ratings on evaporated potatoes.

2. Elimination of item 8 on pg. 65 of Classification, covering ratings on evaporated vegetables.

3. Addition of item in Classification, under heading of "Groceries," reading: "Vegetables, desiccated or evaporated: In bags, boxes or barrels, l.c.l. 3, c.l. 5. Upon the report and recommendation of the Chief Traffic Officer it is ordered that the proposed changes in the Classification be approved.

RATES ON PETROLEUM AND ITS PRODUCTS.

10356. April 25.—Re application of British American Oil Co., Ltd., of Toronto, under sec. 315 of the Railway Act, for order directing the G.T.R. Co. and the C.P.R. Co. to readjust the present rates from Toronto on petroleum and its products, in carloads, so that they may be properly related to the commodity rates on petroleum and its products, in carloads, from Petrolia and Sarnia. It is ordered that the tolls now charged from Toronto, Petrolia, Sarnia and Wallaceburg on petroleum and its products, in carloads, as these are enumerated in the current commodity tariffs of the companies from Petrolia and Wallaceburg, be revised, as follows, per 100 lbs, namely:—

To the Undermentioned Groups and Points.	From Toronto.	From Petrolia, Sarnia and Wallaceburg.
1. East of Toronto to Oshawa and Myrtle	5th class	17 cents
2. East of group 1 to Brighton and Indian River	5th class, max. 11 cents	19 cents
3. East of group 2 to Kingston and Sharbot Lake	14 cents	21 cents
4. East of group 3 to Brockville, Kemptville and Prescott..	17 cents	23 cents
5. East of group 4 to Cornwall and Finch	19 cents	25 cents
6. East of group 5 to Montreal, also Valleyfield, Ottawa, Hull.	20 cents	25 cents
7. Points between Smith's Falls, Kemptville, Valleyfield, Vaudreuil, and Ottawa	20 cents	25 cents
	Per 100 pounds.	

(b) To points on branch lines between the G.T.R. Toronto-Orillia main line and Belleville, the rates to be reasonably blocked on the basis of the corresponding group rates of section (a) with due regard to the grouping of the class tariffs filed under order 3258; the said branch line rates not to exceed the base (a) rates by greater differences (if any) than exist between the 5th class rates to the same points respectively.

(c) To points on the G.T.R. between Ottawa and Scotia Jct. and on the C.P.R. between Carleton Jct. and North Bay, also to points in the Province of Quebec west of and including Quebec and Megantic, the rates not to exceed the base (a) rates by greater differences (if any) than exist between the 5th class rates to the same points, respectively.

(d) To points on the C.P.R. in New Brunswick, except St. John, Fredericton, Marysville, and Gibson, the rates (including those "for furtherance") not to exceed the rates (a) to Montreal by greater differences than exist between the 5th class rates to Montreal and to the said points; the rate from Toronto to the said excepted points to bear the same proportion to the general group rates as the rate established from Petrolia, Sarnia and Wallaceburg to the same points.

(e) From Petrolia, Sarnia and Wallaceburg to points west of and upon the Grand Trunk Toronto-North Bay Line 5th class rates to be the maxima; but the present rates not to be increased by more than 10% to points east of Sarnia on the line through Stratford, and east of London and St. Thomas, to and including Toronto, Hamilton, Port Dalhousie, and those on the Niagara River (except that Galt may take the Guelph rate), nor by more than 20% to points west of and including London and St. Thomas, with the rate to Windsor as the maximum.

(f) From Toronto to points west of and upon the G.T.R. Toronto-North Bay Line the rates to be those for equivalent mileages from Petrolia and Sarnia, as prescribed in section (e).

(g) The rates on fuel or gas oil and tar, in tank cars, from Toronto, to bear the same proportion to the refined oil rates as any special rates provided thereon from Petrolia, Sarnia and Wallaceburg.

(h) For the purpose of this order, fractions of a cost less than one-half shall be waived, and one-half, or greater, may be charged as one cent.

The rates herein prescribed be made effective within 60 days from the date of the issuance of this order.

CHARGE FOR STOP-OFF "FOR ORDERS" ON FOREST PRODUCTS AT SARNIA TUNNEL, ONT.

10418. April 26.—Re order 6148, Jan. 21, 1909, fixing stop-over charge of 25c per car a day for 48 hours, and the car service toll thereafter, on lumber, shingles, timber, and other forest products, in carloads, originating in British Columbia, and consigned to Sarnia Tunnel, Ont., "for orders"; and re application of G.T.R. to amend the Order. It is ordered that order 6148 be amended by striking out 25 cents in the ninth line of the operative part of the order, and substituting therefor $1.

EXPORT LUMBER RATE TO MONTREAL.

10528. April 19.—Re application of Canadian Lumbermen's Association for disallowance of lumber tariffs of the C.P.R., no. E. 689; G.T.R., no. C.F. 83; C.N.R., no. 116, and C.N.O.R., no. 46, all effective May 1, 1908. It is ordered that the application be, and it is hereby, dismissed, in so far as it affects the rates in the said tariff on lumber for domestic use. And it is further ordered that the C.P.R., the G.T.R., and the C.N.Q.R. Companies publish and file tariffs to be made effective not later than June 15, showing rates on lumber to Montreal for export which in general shall be lower than the rates on lumber to Montreal, which appear in the above mentioned tariffs.

Telegraph and Cable Matters.

The convention of the Association of Railway Telegraph Superintendents, which was to have been held at Los Angeles, Cal., May 16, has been postponed to June 20. This has been done so that the associate members and others may take advantage of the lower railway

The G.T.P.R. has 1,118 miles of poles and 3,871 miles of wire now completed and in operation, in its telegraph system, and during the present year, will construct the following:—main line, Wolf Creek to Tete Jaune Cache, 179 miles, Prince Rupert to Kitselas, 100 miles; branch lines, Melville to Regina, 95 miles, Melville to Canora, 55 miles, Tofield to Calgary, 180 miles.

The Dominion Parliament has voted the following sums for renewals, improvements and extensions of the Government system of telegraphs:—generally, $14,000; Prince Edward Island and mainland, $1,750; Lower St. Lawrence and Maritime Provinces, $33,750; Cape Breton lines, $13,000; Quebec lines, $12,700; Saskatchewan and Alberta lines, $48,950; British Columbia lines, $101,865.66; and Yukon lines, $52,294.

A. B. Smith, Manager G.T.P. Telegraphs, who has been in British Columbia for some time in connection with the proposed extensions of the telegraph lines there, was looking over the route along the Skeena River recently, and it was expected that erection would be commenced towards the end of May, and the line connecting Prince Rupert with Skeena River points be in operation later in the summer. The telegraph line from Winnipeg westerly to Wolf Creek is completed, and four wires, including one solely for commercial purposes, are in operation between Winnipeg and Edmonton.

Among the Express Companies.

S. H. Piatt has been appointed route agent Great Northern Ex. Co., St. Paul, Minn.

J. E. Archer has been appointed agent Great Northern Ex. Co., at Vancouver, B.C., vice W. J. Kirby.

A. C. Scott has been appointed agent Great Northern Ex. Co., at Grand Forks, N.D., vice W. R. Porter, transferred.

W. C. Scott, who has been over 50 years in the Canadian Ex. Co.'s service, has retired from the Quebec agency.

T. M. Horsey, heretofore cashier and chief clerk Canadian Ex. Co., at Quebec, has been appointed agent at Quebec, vice W. C. Scott, retired.

W. R. Porter, heretofore agent Great Northern Ex. Co., Grand Forks, N.D., has been appointed agent at Seattle, Wash., vice I. Waring promoted.

The G.T.P.R. recently gave notice that its cartage business, which had hitherto been handled by the Canadian Northern Transfer Co., would from May 2, be taken over by the Canadian Express Co.

The Canadian Ex. Co. has opened its offices, for the summer season, at Beaumaris, Elgin House, Port Carling, Port Cockburn, Port Sandfield, Rosseau and Windermere, Ont.

The Canadian Express Co.'s officers and directors for the current year as elected recently, are, President, C. M. Hays; Vice President and Manager, J. Bryce; Secretary and Treasurer, F. Scott; other directors, E. H. Fitzhugh, W. Wainwright, M. M. Reynolds, H. Paton and E. J. Chamberlin.

I. Waring, heretofore agent Great Northern Ex. Co., Seattle, Wash., has been appointed Asistant Superintendent for lines west of Whitefish, Mont., and the position of General Western Agent, rendered vacant by the death of F. L. Clark has been abolished, the duties being transferred to the Assistant Superintendent.

The Nova Scotia Legislature has recently passed an act, providing that when any intoxicating liquor is shipped or sent c.o.d. by or through the agency of any express company or other means of conveyance, to be paid for on delivery, such shipping or sending shall be deemed a sale of intoxicating liquor at the place where such intoxicating liquor is delivered, and the shipper or sender thereof, shall be liable to all the penalties which, under any act of the Legislature, may attach to the sale of intoxicating liquor in such place.

ELECTRIC RAILWAYS.

Canadian Street Railway Association.

PRESIDENT, D. McDonald, Manager, Montreal St. Ry.; VICE-PRESIDENT, J. Anderson, Manager, Sandwich, Windsor and Amherstburg Ry.; SECRETARY-TREASURER, Acton Burrows, Managing Director, Railway and Marine World.

ASSOCIATION'S OFFICE, 157 Bay St., Toronto.

EXECUTIVE COMMITTEE.—P. Dubee, Secretary, Montreal St. Ry.; E. A. Evans, Chief Engineer, Quebec Ry. Light and Power Co.; R. J. Fleming, General Manager, Toronto Ry.; H. M. Hopper, Secretary-Treasurer, St. John Ry.; J. E. Hutcheson, Superintendent and Purchasing Agent, Ottawa Electric Ry.; C. B. King, Manager, London St. Ry.

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

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—Reports from New Westminster May 12 indicate that the Vancouver, Fraser Valley and Southern Ry., for the building of which between Vancouver and New Westminster, location plans have been approved by the Board of Railway Commissioners, is controlled by the B.C.E. Ry. Co. The route passes through what is known as the Hastings townsite, and the entire route has been staked out from New Westminster to False Creek. A contract is reported let to M. P. Cotton, of Vancouver, for clearing and grading of a section of about 7.5 miles, the work to be completed in three months. An order in council has been issued limiting the company's franchise through Hastings townsite to 21 years from Dec. 16, 1908, the date of the original agreement.

A car service for milk and small freight was inaugurated May 4 between Vancouver, New Westminster, Cloverdale and Langley Prairie. The management says it is impossible to put on a passenger service at present, owing to the large quantity of construction material to be moved.

Referring to the Chilliwack line, the Assistant Manager said recently that steel had been laid to Abbotsford, and ballasting completed to Harris road. The overhead work has also been completed to this point. About two-thirds of the work has been completed between Abbotsford and Sumas Mountain. Beyond this point to Chilliwack, 16 miles, there is some heavy work, notably the filling in of Sumas marsh.

In connection with the important radial lines being constructed from New Westminster, extensive works are under consideration in the city. The company's engineer and the Mayor went over the routes of a number of projected new lines May 9, with a view to a definite decision being reached. (May, pg. 399.)

Calgary St. Ry.—The commission operating this railway, which is owned by the city, is planning a number of extensions, which will add about eight miles to the existing track. T. H. McCauley is Superintendent.

Calgary, Alta.—E. A. Elton appeared before the railway committee of the city council, and authorized a plan for building a system of radial railways with that city as a center. He said that if a franchise were granted the company which he represented was prepared to complete and put in operation 10 miles of line to the end of 1911. In the proposed agreement the company's cars would be operated over certain of the city lines on terms, and power would be given the city to acquire the company's lines at any time during the currency of the franchise. The committee decided not to take any action. (May, 399).

Cape Breton Electric Co.—It was reported at a meeting of the Sidney Mines, N.S., council, May 10, that the company would build the extension of its line to Cranberry, as soon as the council got Pit St. in such shape as the work could be gone on with.

Central Ry. Co. of Canada.—The Dominion Parliament last session voted $28,300 to pay Molson's Bank, $25,000 deposit made on behalf of the C.R. of B., with interest at 3% from Dec. 5, 1905, to May 1, 1910. This deposit was made under the terms of an act of 1905 when the Ottawa River Ry. Co., obtained an extension of powers, and a change of its name to that of the Central Ry. of Canada. The extensive construction projected which it was hoped to carry out have apparently been abandoned, as the Ottawa River Navigation Co., still retains its independence, and the Irondale, Bancroft and Ottawa Ry., upon which the company had an option, has been acquired by the Canadian Northern Ontario Ry.

The Dominion Ry. and Plaster Co. has abandoned its proposal to construct an electric railway from Sydney to East Bay, N.S., in favor of a steam railway. (April, pg. 310).

Frank, Alta., and District.—A proposition is under consideration in Crow's Nest Pass district for the construction of an electric railway to connect up Frank, Blairmore, McLaren's Mill and Coleman. A 20-year franchise is being asked. (May, pg. 399.)

Grand Valley Ry.—The work of renewing the tracks in Brantford, Ont., formerly the Brantford St. Ry., is being rapidly progressed with. A proposition has been submitted for the extension of the line to the Holmidate district, to be laid on gravel instead of cement. If this is acceded to the line will be built at once. (April, pg. 311.)

Halifax Electric Tramway.—The question of the construction of second tracks and of extensions to existing lines, has been under consideration by the company and the city council for some time. The company desired permission to build a second track on certain of its lines, and the council is not de sirous of granting that permission, unless certain other lines are to be extended at the same time. The special committee has been authorized to continue negotiations, but it is not likely that any arrangements will be made which will lead to construction being started this year. (May, pg. 399.)

Hamilton Street Ry.—We are officially advised that the company is replacing its old rails with 87 lb. rails on steel ties, embedded in concrete, and paving between the tracks with wooden blocks, on the following streets:—James St. north, from Barton to Bay, 1,800 ft. of double track; King St. west, from Bay to Margaret, 3,000 ft. of double track; York St., from Queen to cemetery gate, 3,600 ft. of double track. (Dec., 1909, pg. 929.)

Hamilton, Waterloo and Guelph Ry.—The Dominion act authorizing the company to construct an extension of its projected line from near Hamilton to Toronto, provides that any extension across High Park shall run north of and parallel with the G.T.R., and keep at the same elevation as the G.T.R.; that it shall not receive and distribute passengers between Toronto's western boundary of the city and the terminal in the city, unless under authority of a by-law, but if the city and company cannot agree as to the terms of such a by-law the company may apply to the Board of Railway Commissioners to locate stations or stopping places within the city; the company shall not have power to do a local business within the city, these stopping places being only for the purpose of the convenience of persons coming into the city from outside points, or leaving the city for outside points. The company may enter into an agreement with the Hamilton Radial Ry. Co., but there is to be only one right of way through High Park and in Toronto. Securities for $25,000 a mile may be issued for double track lines. (April, pg. 311).

Kingston, Portsmouth and Cataraqui Electric Ry.—An arrangement has been made by which the company will be permitted to remove its track on the Williamsville line, which is at present unused. It is agreed that the company's rights over the street will not be impaired by the removal of the tracks. (Dec., 1909, pg. 929.)

Moncton Tramways, Electricity and Gas Co.—A by-law was submitted to the taxpayers of Moncton, N.B., recently, approving of an agreement for the construction of an electric railway in the city by the Moncton Tramways, Electricity and Gas Co. The agreement provides for the lease of the electric and gas plants now operated by the city council to the company for 39 years upon certain terms, and provision is made for starting the building and operation of an electric railway, not later than Nov. 30. Two miles of line are to be laid and operated within the city. (See Moncton Electric St. Ry. Heat and Power Co., Mar., pg. 231).

The Montreal Street Ry.'s application to the Quebec Legislature for power to build an underground railway system has been passed. For a couple of years the company has been investigating underground construction as a means of relieving the congestion of traffic, and concluding that it was the best asked authority to construct the same within four years.

The Suburban Tramway and Power Co., a subsidiary of the M.S.R. Co., was also granted power to construct an underground system, and its name was changed to the Public Service Corporation. (April, pg. 311).

Moose Jaw, Sask.—Under the terms of a franchise recently approved of by the taxpayers, three miles of track have to be in operation this year and an additional three miles in 1911. The franchise has been granted to an Ottawa syndicate composed of J. B. McRae, consulting engineer; Dr. P. B. Nielon, E. J. Daly, barrister; A. H. Dixon, electrical engineer, of Ottawa, Ont., and J. T. Cashman, broker, of Moose Jaw.

Nelson Electric Street Railway.—The grading for the reconstruction and extension of the lines was reported completed, and the poles erected for the overhead work, April 30. Tracklaying and ballasting has been practically completed, and it is expected that the operation of the cars will be started early in June. (May, pg. 399.)

Niagara, St. Catharines and Toronto Ry.—We are officially advised that track is laid and ballasting about completed on the line between Welland and Port Colborne, Ont., and that the overhead work is being installed. The diamonds for the railway crossings and the protective crossings are expected to be delivered at an early date. It is expected, if nothing unforseen happens, to have this line opened for traffic by July 1. It has not been definitely decided when the proposed extension from Port Colborne to Fort Erie will be begun. (May, pg. 399.)

Nipissing Central Ry.—A regular half-hourly service was inaugurated on this newly completed line between Cobalt and Haileybury, Ont., April 30. From midnight until 5 a.m. the service is hourly, and cars run on Sundays between 7 a.m. and 11 p.m. It has been decided to build a subway under the Temiskaming and Northern Ontario Ry. at Browning St., Haileybury. (May, pg. 399.)

Ontario West Shore Ry.—We have received information to the effect that about 20 miles have been graded from

Goderich to Amberley, and that track has been laid between Goderich and Leaburn, about three miles. The company is not yet operating cars over any portion of its line; nothing has been done in the way of erecting a power house, and it is not known when the work on the dam for developing water-power will be started. The company expects to complete the 20 miles this year, as track laying and grading is being proceeded with. It is intended to carry the line to Kincardine, so far as the present plans have been disclosed. The company has on hand a locomotive and a number of construction cars. At a meeting of the Goderich Town Council, April 26, the Public Works Committee was authorized to confer with the company's representatives and prepare a draft agreement respecting the entry of the line into the town. (May, pg. 399.)

Ottawa Electric Ry.—Plans have been approved by the Ottawa city council for the extension of the street railway lines east and south, and it is expected that construction will be started immediately. (May, pg. 399).

People's Ry.—The city committee managing the Guelph Radial Ry. has notified the City Council that it sees no objection to granting a right-of-way for this projected railway to enter the city from Berlin, via Bridgeport, Bloomingdale and New Germany, Ont. (May, pg. 399.)

Quebec Ry., Light and Power Co.—We are officially advised that it has been decided to build an eight story building on the site at Jacques Cartier Market, lately acquired. Plans and specifications are not completed. The foundations will be made sufficiently strong to carry an additional four stories, should it be deemed advisable to add them later on. At first the company will require four floors for its own use, and will lease the balance for offices. Tenders for clearing away the old market buildings have been accepted and the work is in progress.

With reference to extensions of the company's lines, it is intended to build a double track extension westward from Maple Ave. to the top of Sillery Hill, 2.5 miles. Application has been made for the approval of location plans by the Board of Railway Commissioners, and as soon as this is received grading will be started. Rails and other material have been ordered, and it is expected to have the extension in operation early in the summer. It is not at present the company's intention to extend its lines to the Quebec Bridge site, nor is it intended to build a second track on the line between Montmorency Falls and Ste. Anne de Beaupre this year. (May, pg. 401.)

Regina, Sask.—The taxpayers on May 4, defeated the proposal to grant a franchise to a Winnipeg company to construct a street railway in the city, and on May 13, by a vote of 410 to 26, authorized the City Council to proceed with the construction of a street railway to be operated by the municipality. (May, pg. 401.)

St. Catharines, Ont.—An endeavor is being made to raise $50,000 in shares towards the erection of a high level bridge across the old Welland Canal. The plans provide for a bridge of sufficient strength and width to carry electric railway tracks, as well as a highway for general traffic. The bridge company has no direct connection with any electric railway.

St. John Ry.—A new switchboard is being placed in the company's power house at St. John, N.B., and there is being added to the power plant a 500 k.w. exhaust steam turbine, connected to a 750 k.w. motor generator set for street railway work. The additions to the plant are being supplied by the Canadian Westinghouse Co., Hamilton. (Jan., pg. 59.)

St. Thomas Street Ry.—It was decided at the meeting of the St. Thomas, Ont., City Council, April 28, to maintain for the present the roadbed of the municipal electric railway in the best possible shape, and make all preparations for the submission of a by-law at the elections in Jan., 1911, to make thorough repairs. (May, pg. 401.)

Sherbrooke Ry. and Power Co.—The Quebec Legislature has amended the company's charter of incorporation, giving it power to build extensions to engage in developing and distributing power, etc. The plans for the extensions have been prepared, and it is said that as soon as financial arrangements have been completed contracts will be let for the work.

The new company is preparing to make an issue of bonds to provide funds for retiring existing obligations and to provide funds for reconstructing the line and building extensions. (May, pg. 401.)

Toronto and York Radial Ry.—We are officially advised with reference to press reports as to the immediate construction of proposed extensions, notably one from the Scarboro line to Markham, that the company has not made any arrangements for, or given any consideration lately, to any plans for extending its lines. (May, pg. 401.)

Toronto, Niagara and Western Ry.—The Toronto City Council has been notified that the company is desirous of obtaining an order from the Board of Railway Commissioners permitting it to build its projected railway across Davenport Road and St. Clair Ave., in obtaining an entrance into the city. (July, 1909, pg. 523.)

Toronto Tube Railway proposals.—J. Forgie and C. M. Jacobs, who were engaged by the Mayor and City Engineer, to make a special report on the question of the construction of a tube railway in Toronto, arrived in the city May 18, to make their investigations. (May, pg. 401).

Winnipeg Electric Ry.—We are advised that the company, through its subsidiary the Winnipeg, Selkirk and Lake Winnipeg Ry., will probably undertake the construction of a line into Red River Park, belonging to the town of Selkirk, Man., this year.

Some residents of Kildonan, Man., are protesting against the agreement entered into between the municipality and the company, and are considering the desirability of testing its legality in the courts.

The question of an agreement for the extension of the Headingly car line to St. Francois Xavier is still under consideration. (April, pg. 313).

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for March, $255,423; working expenses $159,681; net operating earnings $95,742; renewal funds $17,852; net earnings $77,890; approximate income from investments $16,500; net income $94,390; against $186,724 gross earnings; $114,447 working expenses; $72,277 net operating earnings; $13,958 renewal funds; $58,319 net earnings; $13,550 approximate income from investments; $71,869 net income for March, 1909. Aggregate gross earnings for nine months ended Mar. 31, $2,224,324; net earnings including approximate income from investments, $955,538, against $1,712,281 and $783,133 for same period 1908-09.

Calgary St. Ry.—Gross earnings for Apr., $14,613.20; maintenance of way and structures $540.88; maintenance of equipment $656.93; transportation expenses $5,586.66; general expenses $443; total operating expenses $7,227.47; net earnings $7,385.73. Operating expenses per car mile, 14.193.

Cape Breton Electric Co.—Gross earnings for Feb., $18,454.43, against $15,891.54 for Feb., 1909. Net earnings, $2,162.20, against a loss of $622.44 for Feb., 1909. The deductions include operating expenses, interest charges and appropriations for sinking fund.

Gross earnings for 12 months ended Dec. 31, 1909, $240,708.87; operating expenses $142,501.67; net earnings $98,207.20; interest charges and taxes $48,940.22; improvement fund $11,500; dividends, preferred stock 6% $14,040; balance $23,726.98. The foregoing figures include one-half of the earnings and expenses of the Sydney and Glace Bay Ry. The company does the entire electric lighting and electric railway business in Sydney, the electric lighting in North Sydney, the ferry business between Sydney and North Sydney, and operates an interurban line between North Sydney and Sydney Mines. It owns $220,000 of the $423,000 outstanding first mortgage bonds, and half of the $500,000 capital stock of the Sydney and Glace Bay Ry., an interurban line between Sydney and Glace Bay, 19 miles. The company is managed by Stone and Webster, Boston, Mass.

Halifax Electric Tramway.—Railway receipts for April, $16,114.66, and for two weeks ended May 14, $7,020.46, against $14,495 and $6,623.70 for same periods 1909.

Hamilton St. Ry.—The earnings for the three months ended Mar. 31, were $81,052, an increase of about $13,000 over those for the same period 1909.

London and Lake Erie Ry. and Transportation Co.—The directors have been authorized to issue $750,000 of 40 year 5 per cent. bonds for the purpose of paying for the 28 miles of line, with its plant, equipment, machinery, franchises, etc., purchased at the sale of the South-Western Traction Co. The bonds are to be secured by a first mortgage to the Trusts and Guarantee Co., Toronto.

Montreal St. Ry.—Passenger earnings for April, $335,941.37; miscellaneous earnings $8,823.74; total earnings $344,765.11; operating expenses $190,842.05; net earnings $153,923.06; city percentage on earnings $29,850.28; interest on bonds and loans $14,732.98; rent leased lines $552.90; taxes $4,000; total charges $49,136.16; surplus $104,786.90; expenses per cent. of earnings 55.33, against $290,050.26 passenger earnings; $4,323.59 miscellaneous earnings; $294,373.85 total earnings; $170,551.62 operating expenses; $123,822.23 net earnings; $22,024.96 city percentage on earnings; $15,099.83 interest on bonds and loans; $498.67 rent leased lines; $3,000 taxes; $40,623.46 total charges; $83,198.77 surplus; 57.94 expenses per cent. of earnings; for Apr., 1909. Aggregate total earnings for seven months ended Apr. 30, $2,337,001.32; operating expenses $1,407,826.42; net earnings $929,174.90; total charges $284,114.59; surplus $665,060.31, expenses per cent. of earnings 60.24, against $2,107,716.40 aggregate total earnings; $1,320,135.34 operating expenses; $787,581.06 net earnings; $238,666.04 total charges; $548,913.02 surplus; 62.63 expenses per cent. of earnings for same period 1908-09.

Toronto Ry.—Gross earnings for March, $341,999; expenses $184,150; net earnings $157,849, against $298,142 gross earnings; $161,133 expenses; $137,009 net earnings for March, 1909. Aggregate gross earnings for three months ended Mar. 31, $974,274; net earnings $471,933, against $861,768 and $393,707 for same period 1909.

Winnipeg Electric Ry.—Gross earnings

for March, $254,070; expenses $133,265; net earnings $120,805, against $200,200 gross earnings, $102,734; expenses, $97,466, net earnings for Mar., 1909. Aggregate gross earnings for three months ended Mar. 31, $813,479; net earnings, $395,746, against $635,012 and $314,528 for same period 1909.

Toronto Ry. Extensions.

Judgment was delivered May 18 on the application of the Toronto Ry., to the Ontario Railway and Municipal Board, for approval of the routes selected by the company and submitted to the City Engineer, to enable it to carry out the Board's order of Dec. 8, 1908, and to restrain the city from preventing the company from proceeding with the work. The decision of the Board is interesting, in view of the decision of the Judicial Committee of the Privy Council in London, Eng., Mar. 18, and also of the legislation passed during the closing hours of the last session of the Ontario Legislature, both of which were published in full in our April issue. The judgment, which was delivered by Chairman J. Leitch, K.C., and concurred in by the other members, A. B. Ingram and H. N. Kittson, is as follows:—

"The company alleges that it requires and has selected Teraulay St. from Queen St. to Agnes St., thence west along Agnes St. and across University Ave., through Anderson St. and along St. Patrick to Bathurst St., Victoria St. from Adelaide St. to Wilton Ave., Wilton Ave. from Victoria St. and across the new bridge over the Don to east of Broadview Ave., Shuter from Yonge to Victoria St., Harbord St. from Spadina to Ossington Ave., Louisa St. from Teraulay St. to James St., and James St. from Louisa to Queen St., for the extension of its car lines, and that it has prepared plans the same as the plans of other portions of its railway, and has submitted them to the City Engineer, and asks the Board's approval. These streets are in addition to Adelaide St. from Jarvis to Bathurst St., Bay St. from Front to Queen St., University Ave. from Queen to College St., Richmond St. from Victoria to Church St., and Wellington St. from Church to York St., which were the subject of the Board's order of Dec. 8, 1908, and of the subsequent appeal which ended in the Privy Council. These streets are necessary for the construction of the 15 miles of double track and for the operation of the 100 new cars which the Board ordered the company to construct May 17, 1907.

Counsel for the city raised the question that the plans which the company submitted to the City Engineer were insufficient, but that question was set at rest by the company undertaking to furnish him with any further details or drawing which he may require. The city also relied on the provisions of 10 Edward VII., chap. 81, which provides that the company cannot commence the construction of extensions without first having obtained the Board's permission and approval. Counsel for the city addressed to the Board a very lucid exposition of the intent and design of the legislation of last session and the policy which should be adopted in its application: that it is perfectly clear that the legislation of last session was intended to secure a reasonable, proper and adequate railway service for the public, and to prevent the company from selecting streets for the construction of extensions of their lines that were not necessary and convenient for the public service and in the public interests. He urged very strongly on the Board that the company should not be permitted to construct lines on University Ave. in particular. The Board has no quarrel with his exposition of the law, but is of opinion that the legislation is not retroactive in so far as University Ave. and the other streets selected by the company, and which were the subject of the Board's order of Dec. 8, 1908, and of the appeals to the Court of Appeal and Privy Council, are concerned. To hold that the Board has power to prevent the construction of the company's lines on those streets would be to invite reversal by the Court of Appeal and the Privy Council, and would tie up the construction of extensions for another two years. The lines selected by the company, and which were the subject of the Board's order of Dec. 8, 1908, will have to rest where the judgment of the Court of Appeal and Privy Council left them.

In reference to the streets which are the subject of this application, since the argument counsel for the company has addressed a letter to the Board saying that the Manager had instructed him to amend his application by striking out the lines on Louisa St. from Teraulay to James St., and on James St. from Louisa to Queen St., and to say that upon full consideration of the matter, and after considering the argument presented by the city's counsel upon the subject, with which he was impressed, it is the desire of the company to withdraw that part of the application. The Board, therefore, only requires to deal with the remaining streets:—Teraulay, Agnes, St. Patrick, Victoria, Wilton Avenue, Shuter, and Harbord. So far as the proposed extensions on these streets are concerned, the Vice Chairman and Mr. Kittson have inspected them, and have carefully considered whether or not they are necessary or convenient for the public service, and whether or not lines on them would be in the public interest. Their examination of these streets, and taking into account the number of people to be carried, corroborates the evidence of the company that these lines were selected by the company in the public interest. Both the city and the company, while disagreeing as to some of the streets, agree that the extensions are an absolute necessity for the public and should be built at once. The extensions covered by the order of Dec. 8, 1908, and by this application will require about 26 miles of single track. The Board is of opinion that the public interest will be served by approving the application of the company, and thereby securing the construction of the new lines and cars, and we approve and order accordingly. There will be no costs, but the company will require to affix $20 in stamps to the formal order."

Grand Trunk Pacific Ry.—Replying to a question in the House of Commons April 28, the Minister of Finance stated, that the amounts of G.T.P.R. bonds guaranteed to Mar. 31, was:—By the Dominion of Canada, £5,200,000; by the G.T.R., series A., £2,100,000; series B., £1,354,000; Lake Superior branch, £1,550,000; Prairie section, £10,000,000. All of these bonds had been issued Mar. 31.

New Brunswick Public Utilities Commission.—The members of this Commission have been appointed as follows:—D. McVince, K.C., Woodstock, Chairman; O. M. Melanson, merchant, Shediac, and G. O. D. Otty, barrister, Hampton; with F. P. Robinson, Fredericton, as Secretary.

Intercolonial Ry.—Parliament has voted $7,000,000 for the I.C.R., and $35,000 for the Windsor branch on account of collection of revenue for the current year.

Prince Edward Island Ry.—On account of collection of revenue the Dominion Parliament has voted $455,000 for the expenses of the current year.

Power Brakes for Electric Cars.

On Nov. 25 last the Board of Railway Commissioners' secretary notified electric railway companies under its jurisdiction that the Board would on Dec. 7 consider the question of air brake equipment on the Hamilton and Brantford Ry. and the Hamilton Radial Electric Ry., and also a proposed order requiring all electric railways subject to the Board's jurisdiction to equip their cars with automatic air brakes, as well as hand brakes, as an additional safeguard in case of damage or breakage to the air brake equipment. The President of the Canadian Street Railway Association wrote the Board's secretary suggesting that the hearing be deferred, and that the question be taken up between the Association's Executive and one of the Board's officials, so that it might be thoroughly gone into and some mutually satisfactory conclusion recommended to the Board. The Board's Secretary replied that the request would be considered when the case came up for hearing.

At the Board's sitting on Dec. 7, Col. H. H. McLean, M.P., one of the Association's counsel, requested that the hearing be adjourned on account of the short notice given to companies, and that the whole question be referred to the Board's Chief Operating Officer to hold a conference with the Association's executive committee, so that it might be fully discussed. The Board granted an adjournment of the hearing until Feb. 4, and on Jan. 11 the conference between the executive and the Chief Operating Officer was held, the Association being represented by D. McDonald, President; J. Anderson, Vice President; J. E. Hutcheson and Acton Burrows, Secretary-Treasurer. E. P. Coleman, Manager of Railways, Dominion Power and Transmission Co., represented the two Hamilton companies named in the proposed order. On behalf of the Association it was contended that the proposed order was altogether too sweeping in its character, and that power brakes were not necessary on single truck cars, and on the smaller double truck cars. It was finally decided to hold tests of power and hand brakes at Ottawa under the Association's auspices, at which the Chief Operating Officer would be present or represented and the Board's hearing was further adjourned to May 3. The Association's Secretary-Treasurer proceeded to make arrangements for holding the tests, and the President appointed J. E. Hutcheson, Ottawa Electric Ry.; D. E. Blair, Montreal St. Ry., and W. R. McRae, Toronto Ry., to take charge of them. The Secretary Treasurer also obtained a mass of information from Canadian and U.S. sources in support of the Association's contention that the proposed order was unnecessary. This was submitted to the Chief Operating Officer, and as a result of conferences between him and J. E. Hutcheson and E. P. Coleman, a modification of the proposed order was suggested requiring that all electric railways subject to the Board's jurisdiction should within three years equip all passenger cars of 37 ft. or more in length over all, or weighing 35,000 lbs or more, with power brakes to be approved by the Board, in addition to hand brakes.

When the matter came up for decision on May 3, the members of the Board present took the ground that three years was too long a period to allow. A. H. Royce and J. E. Hutcheson appeared for the Association, and E. P. Coleman, representing the Hamilton companies named, strongly urged its adoption, but the Board decided otherwise and passed the following order, 10462:—

"The air brake equipment on Ham-

ilton & Brantford Ry. and Hamilton Radial Electric Ry.; and the proposed order requiring all electric railway companies subject to the Board's jurisdiction to equip their cars with automatic air brakes, as well as hand brakes, as an additional safeguard in case of damage or breakage to the air brake equipment: It is ordered as follows:—1. On or before June 1, 1911, all electric railway companies under the Board's jurisdiction shall equip all rolling stock in use by them of 37 ft. or over in length, or of the weight of 35,000 lbs. or more, with power brakes, to be approved of by the Board, in addition to hand brakes and proper sanding appliances. 2. Immediately upon the completion of said equipment, the same railway companies shall notify the Board thereof and furnish a detailed account of the rolling stock so equipped.

In preventing by the incontrovertible evidence submitted, the passing of the drastic order first proposed, the Association's executive performed a valuable service to electric railway companies. J. E. Hutcheson devoted considerable time to the presentation of the matter, and is entitled to the warmest thanks for the excellent work done.

Electric Railway Notes.

The Winnipeg Electric Ry. has added to its rolling stock a new pay-as-you-enter car, built at its own shops.

The B.C. Electric Ry. has received five 30 ft. semi-convertible double-ended pay-as-you-enter car bodies from the Ottawa Car Co.

A passenger on a Montreal street car pleaded guilty May 11, to using an old transfer. A second charge of punching holes in it with attempt to deceive is pending.

The Calgary St. Ry. has received three pay-as-you-enter cars from the Preston Car and Coach Co., Preston, Ont., each 45 ft. long, and has also ordered three similar cars from the Ottawa Car Co., Ottawa, for delivery in June.

The Nipissing Central Ry. is issuing workmen's tickets at a rate of 21 trips for $1 between Cobalt and Haileybury, Ont. A half-hourly service is given between 5 a.m. and midnight, and hourly during the intervening time.

The London and Lake Erie Ry. and Transportation Co. is operating a Sunday service of cars between London and Port Stanley. Some residents of both places are protesting and are considering the propriety of taking legal proceedings against the company.

The Toronto Ry., as a contribution to the Y.M.C.A. building fund in Toronto, promised that the receipts, comprising cash and the value of tickets, deposited in the fare boxes, above $5,000 on May 7, should be handed over. The donation was $10,315.56.

H. M. Hopper, heretofore Secretary-Treasurer St. John Ry., St. John, N.B., has been appointed General Manager, Secretary and Purchasing; vice W. Z. Earle, Manager, resigned. A. Seely, heretofore Auditor, has been appointed Treasurer.

The report of the appointment of W. H. Elson, mentioned in our last issue, has been confirmed as Trainmaster for B.C. Electric Ry., interurban lines, New Westminster, Lulu Island and Eburne, with office at Vancouver. He was formerly C.P.R. conductor at Revelstoke.

W. T. Piggott, who has resigned the General Managership of the Windsor, Essex and Lake Shore Rapid Ry., through pressure of other business, will continue to act as director of the company in which he has a considerable interest, but will devote his time chiefly to his lumber interests at Chatham, Ont.

The Nipissing Central Ry., operating between Cobalt and Haileybury, Ont., reports the road open for traffic. During the first day 2,300 passengers were carried on the two cars, after which an accident to the machinery caused a stoppage for three days. The service was resumed May 4, and on the succeeding day, 3,500 passengers were carried.

In connection with the act passed last session of the B.C. Legislature, to which reference was made in our last issue, providing for the inspection of tramways, which, for the purpose of the act, includes street railways, Wm. Ray of Vancouver, has been appointed Inspector of Tramways, reporting to the Attorney General.

The Calgary St. Ry. Commissioners have increased the wages of employes, from 21c. to 25c. an hour for the first year, and 27c. for the second year. An agreement has been signed for two years at fixed rates of pay, on the understanding that no organization of any kind is to take place, the commission being the sole judge of qualifications.

The Toronto postmaster has issued an order to carriers of special delivery letters, by which they are forbidden to ride on cars free, from May 2. R. J. Fleming, Manager Toronto Ry., interviewed the Postmaster General recently, regarding an increase in the grant from the Department for carrying postmen free, which it is claimed is being carried on at a considerable loss.

A. Eastman, heretofore General Passenger Agent Utica and Mohawk Valley Ry., Oneida Ry., and Syracuse Rapid Transit Co., Syracuse, N.Y., has been appointed General Manager Windsor, Essex and Lake Shore Rapid Ry., vice W. T. Piggott, resigned, but who remains as a director. P. H. Scott, heretofore in Pere Marquette Rd. service, London, Ont., has been appointed Traffic Manager. Offices, Kingsville, Ont.

A Vancouver dispatch of May 20 says only three damage actions against the B.C. Electric Ry., arising out of the accident on the interurban line at Lakeview in Nov., 1909, resulting in 14 persons being killed, have yet reached trial. The first was brought by T. E. Slayton's widow. The company did not deny liability. The jury assessed the damages at $14,000. The judge, without a jury, gave T. E. Turtle's widow $8,000 damages. The jury awarded J. D. Taylor, for the wreck of his nervous system, $15,000. Several cases were settled out of court. Others will come up at the end of the criminal assizes.

A. Eastman, who has been appointed General Manager Windsor, Essex and Lake Shore Rapid Ry., was from 1892 to 1901, freight and ticket clerk and telegraph operator G.T.R., Detroit, Mich., and assistant agent M.C.R., Detroit; 1901 to 1902, travelling express passenger agent Detroit United Ry.; 1902 to 1903, general express agent Utica and Mohawk Valley Ry.; 1903, division superintendent Detroit United Ry.; subsequently, general express agent Utica and Mohawk Valley Ry, Oneida Ry., and Syracuse Rapid Transit Co., and in 1908 he was appointed General Passenger Agent of these railways, which position he held to May 1, the date of his present appointment.

The recent case of J. M. Selkirk and W. Simpson of Leamington, against the Windsor, Essex and Lake Shore Rapid Ry., and W. Newman and A. J. Nelles, which was dismissed, as against the company, and decided against the other two defendants, the plaintiffs being awarded $1,000 and costs, has been in the courts again, and the previous judgment reversed on the appeal of the two defendans. Mr. Justice Riddell found that the provisional directors had no power to bind the company, yet unorganized, by making the contract in question as a corporate liability, and therefore placed liability for the amount on the two officers who executed the contract, on the ground that they had represented the competence of the company as a matter of fact and so become answerable in damages to the amount of the bond; but by the special act, the provisional directors may agree to pay for the services of persons who may be employed by the directors for the purpose of assisting the directors in furthering the undertaking or for the purchase of the right of way, and any agreement so made shall be binding on the company. The first judgment was set aside, and judgment entered against the company for $1,000 and costs.

The Ontario Divisional Court has confirmed a judgment of $245.45 given by a lower court in favor of W. N. Warburton, for alleged wrongful dismissal from the position of Manager of the Windsor, Essex and Lake Shore Rapid Ry.

The Third Avenue Rd. Co. of New York tried a gasoline-electric car on its crosstown lines last winter. Now another type of car is being tried, and a comparison will be made of the two. The new car is a reconstructed horse car provided with storage batteries and a pair of five horse-power motors. The battery is placed under the seats of the car, and has a rating of 420 ampere-hours at 84 volts. It is made up of 29 plates per cell, and there are 44 cells at each side of the car. The gases that are generated by the battery are carried off by a ventilating system and exhaust under the rear platform. The car weighs only six tons fully loaded. It has been found to consume in actual service only 0.54 watt-hour per ton mile, while maintaining a speed of six miles an hour with nine stops per mile.

Ottawa Electric Railway Wages.

As a result of negotiations between the Ottawa Electric Ry. Co. and its employes, J. S. Hutcheson, Superintendent, issued the following bulletin recently:—

The following is the schedule of wages, etc., for Conductors and Motormen to take effect May 1:—1st year's service, 19c. per hour; 2nd year's service, 20c. per hour; 3rd year and after, 22c. per hour.

Sunday work will be paid for 2c. per hour advance on the above rates. Regular men will only be booked to work alternate Sundays without their consent. They will, however, be expected to work when booked, unless given leave of absence. Spare men will be expected to work every Sunday if required, but leave of absence may be had occasionally on application to the Inspector.

The rates for work on snow sweepers and plows will be as follows:—From 6 a.m. to 12 midnight, 22½c. per hour; from 12 midnight to 6 a.m., 24c. per hour.

The hours of work for regular men will be as at present, 10 hours constituting a day's work, or as near 10 hours as the schedule of runs will permit. Men will not be expected to work beyond the full day unless they are agreeable to do so, or in case of absolute necessity.

Clothing of Conductors and Motormen will consist as follows:—For summer: full suit, coat, vest and pants; for winter: trousers every year, overcoat every second year. All conductors and motormen must be so provided. The Company will pay full cost of such clothing for all men in the service over one year; and half the cost of those in their first year. Uniform caps and badges will be supplied by the Company without charge.

MARINE DEPARTMENT.

Dominion Marine Association.

PRESIDENT, F. Plummer, Toronto; COUNSEL, F. King, Kingston, Ont.

Great Lakes and St. Lawrence River Rate Committee.

CHAIRMAN, E. E. Horsey, Kingston, Ont.
SECRETARY, Jas. Morrison, Montreal.

International Water Lines Passenger Association.

PRESIDENT, W. M. Lowrie, New York.
SECRETARY, M. R. Nelson, New York.

The Shipping Federation of Canada.

PRESIDENT, A. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

Ship Masters' Association of Canada.

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

The Water-Carriage of Goods Act.

Following is the full text of that important measure which was passed at the Dominion Parliament's recent session:—

1. This Act may be cited as The Water-Carriage of Goods Act.

2. In this Act, unless the context otherwise requires:—

(a) "goods," includes goods, wares, merchandise, and articles of any kind whatsoever, but does not include live animals;

(b) "ship" includes every description of vessel used in navigation not propelled by oars;

(c) "port" means a place where ships may discharge or load cargo.

3. This Act applies to ships carrying goods from any port in Canada to any other port in Canada, or from any port in Canada to any port outside of Canada, and to goods carried by such ships, or received to be carried by such ships.

4. Where any bill of lading or similar document of title to goods contains any clause, covenant or agreement whereby:—

(a) the owner, charterer, master or agent of any ship, or the ship itself, is relieved from liability for loss or damage to goods arising from negligence, fault, or failure in the proper loading, stowage, custody, care or delivery of goods received by them or any of them to be carried in or by the ship; or,

(b) any obligations of the owner or charterer of any ship to exercise due diligence to properly man, equip, and supply the ship, and make and keep the ship seaworthy, and make and keep the ship's hold, refrigerating, and cool chambers, and all other parts of the ship in which goods are carried, fit and safe for their reception, carriage and preservation, are in any wise lessened, weakened or avoided; or,

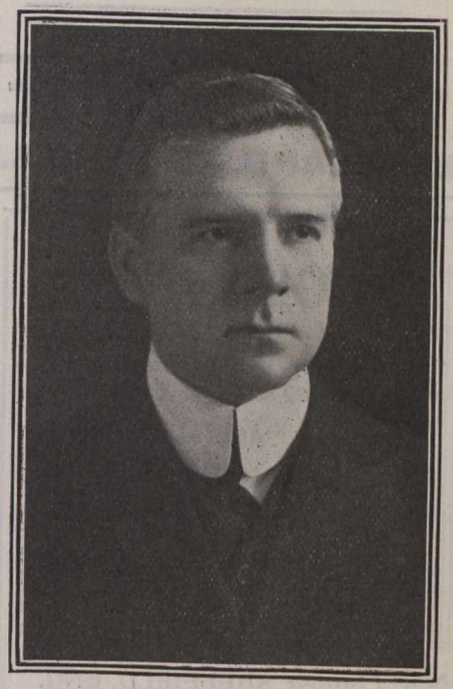
(c) the obligations of the master, officers, agents, or servants of any ship to carefully handle and stow goods, and to care for, preserve, and properly deliver them, are in any wise lessened, weakened or avoided;

such clause, covenant or agreement shall be illegal, null and void, and of no effect, unless such clause, covenant or agreement is in accordance with the other provisions of this Act.

5. Every bill of lading, or similar document of title to goods, relating to the carriage of goods from any place in Canada to any place outside of Canada shall contain a clause to the effect that the shipment is subject to all the terms and provisions of, and all the exemptions from liability contained in, this Act; and any stipulation or agreement purporting to oust or lessen the jurisdiction of any court having jurisdiction at the port of loading in Canada in respect of the bill of lading or document, shall be illegal, null and void, and of no effect.

6. If the owner of any ship transporting merchandise or property from any port in Canada exercises due diligence to make the ship in all respects seaworthy and properly manned, equipped and supplied, neither the ship nor the owner, agent or charterer shall become or be held responsible for loss or damage resulting from faults or errors in navigation or in the management of the ship, or from latent defect.

7. The ship, the owner, charterer, agent or master shall not be held liable for loss arising from fire, dangers of the sea or other navigable waters, acts of God or public enemies, or inherent defect, quality or vice of the thing carried, or from insufficiency of package, or seizure under legal process, or for loss resulting from any act or omission of the shipper or owner of the goods, his agent or representative, or from saving or attempting to save life or property at sea, or from any deviation in rendering such service, or other reasonable deviation, or from strikes, or for loss arising without their actual fault or privity or without the fault or neglect of their agents, servants or employes.



FRANK PLUMMER,
General Manager Canadian Lake Transportation Co., Ltd., and President Dominion Marine Association.

8. The ship, the owner, charterer, master or agent shall not be liable for loss or damage to or in connection with goods for a greater amount than $100 per package, unless a higher value is stated in the bill of lading or other shipping document, nor for any loss or damage whatever if the nature or value of such goods has been falsely stated by the shipper, unless such false statement has been made by inadvertence or error. The declaration by the shipper as to the nature and value of the goods shall not be considered as binding or conclusive on the ship, her owner, charterer, master or agent.

9. Every owner, charterer, master or agent of any ship carrying goods, shall on demand issue to the shipper of such goods a bill of lading, showing, among other things, the marks necessary for identification as furnished in writing by the shipper, the number of packages or pieces, or the quantity or the weight, as the case may be, and the apparent order and condition of the goods as delivered to or received by such owner, charterer, master or agent; and such bill of lading shall be prima facie evidence of the receipt of the goods as therein described.

10. In case of wood goods, notwithstanding anything in the charter party, bill of lading, or other shipping document, the owner, charterer, master, or agent of the ship, or the ship itself, shall only be bound to deliver to the consignee, the pieces received from the shipper, and shall not be held responsible for deficiency in measurement; and any words inserted in any charter party, bill of lading or other shipping document for the purpose of making the owner, charterer, master or agent of the ship, or the ship itself, liable for deficiency in measurement in such case shall be illegal, null and void and of no effect.

11. When a ship arrives at a port where goods carried by the ship are to be delivered, the owner, charterer, master or agent of the ship shall forthwith give such notice as is customary at the port, to the consignees of goods to be delivered there, that the ship has arrived.

12. Everyone who, being the owner, charterer, master or agent of a ship—

(a) inserts in any bill of lading or similar document of title to goods any clause, covenant or agreement declared by this Act to be illegal; or makes, signs, or executes any bill of lading or similar document of title to goods containing any clause, covenant or agreement declared by this Act to be illegal;

without incorporating verbatim, in conspicuous type, in the same bill of lading or similar document of title to goods, section 4 of this Act; or,

(b) refuses to issue to a shipper of goods a bill of lading as provided by this Act; or,

(c) refuses or neglects to give the notice of arrival of the ship required by this Act;

is liable to a fine not exceeding $1,000, with cost of prosecution; and the ship may be libelled therefor in any Admiralty District in Canada within which the ship is found.

2. Such proportion of any penalty imposed under this section as the court deems proper, together with full costs, shall be paid to the person injured, and the balance shall belong to his Majesty for the public uses of Canada.

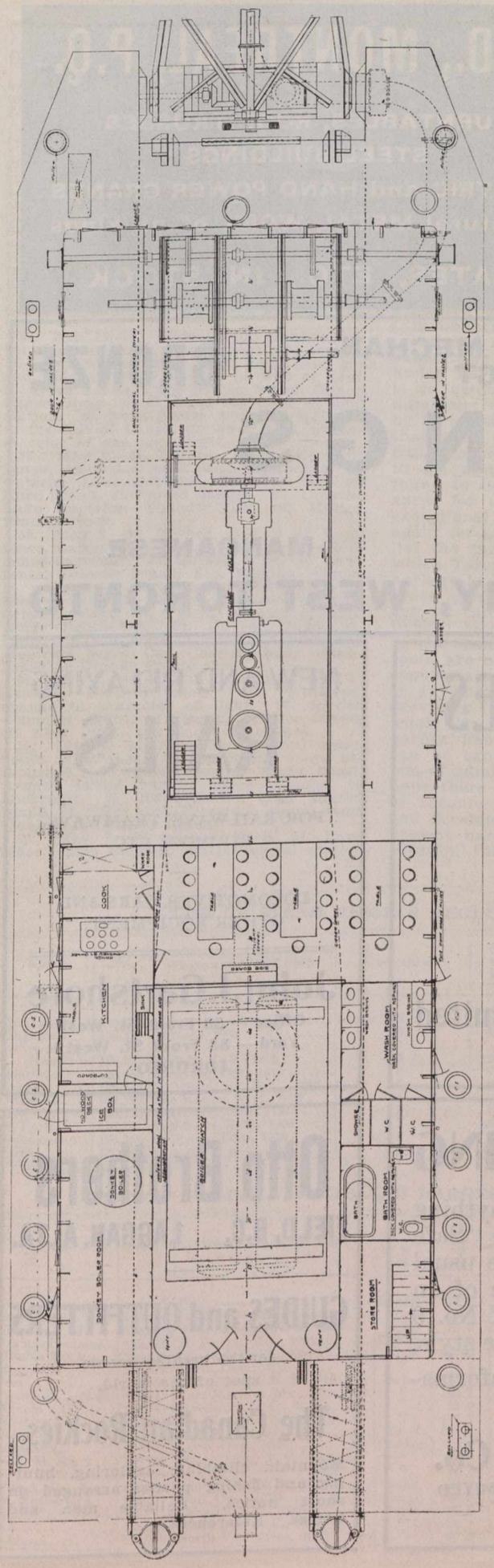
13. Every one who knowingly ships goods of an inflammable or explosive nature, or of a dangerous nature, without before shipping the goods making full disclosure in writing of their nature to, and obtaining the permission in writing of, the agent, master or person in charge of the ship, is liable to a fine of $1,000.

14. Goods of an inflammable or explosive nature, or of a dangerous nature, shipped without such permission from the agent, master or person in charge of the ship, may, at any time before delivery, be destroyed or rendered innocuous, by the master or person in charge of the ship, without compensation to the owner, shipper or consignee of the goods; and the person so shipping the goods shall be liable for all damages directly or indirectly arising out of such shipment.

15. This Act shall not apply to any bill of lading or similar document of title to goods made pursuant to a contract entered into before this Act comes into force.

16. This Act shall come into force September 1, 1910.

The name of the steamboat Columbia has been changed by order in council to Yennek.



THE DREDGE SHUNIAH.

The Great Lakes Dredging Co.'s suction dredge, which was launched at the Polson Ironworks, Toronto, May 14, and named Shuniah, is said to be the largest dredge built in Canada. Its dimensions are:—Length, 125 ft.; beam, moulded, 40 ft.; depth, moulded, 9 ft., and it has been designed to dredge to a depth of 35 ft. The total weight is 800 tons, and it has capacity for dealing with 1,000 tons of solid matter per hour. It is of steel construction throughout, with deckhouse 96 by 32 by 9 ft., providing accommodation for a crew of 25. On account of its large capacity, it has been built somewhat heavier than the average dredge, and it has been made as nearly as possible unsinkable and fireproof. The machinery includes dredging pump with 22 ins. inlet, and discharges and runners 78 ins. diar., pump shaft 8 ins. diar., made in two parts to facilitate removal, coupled by large clamps, and supported external to the pump. The pump is connected to a marine type, vertical triple expansion engine, with cylinders 15, 22 and 36 ins. diar., by 18 ins. stroke, capable of running at 200 revolutions a minute, and of developing 700 i.h.p., with steam supplied at 190 lbs. pressure. The boiler is of the safety water tube marine type, equipped with mechanical stoker and forced draught. The cutter head consists of a single steel casting, 70 ins. diar. by 56 in. long, with eight extra heavy spiral blades, adapted for hard digging. The cutter shaft is driven through three sets of gears by means by a 10 by 14 double reversing steam shovel type of engine in the hold. The gear driving consists of, for the first and third pairs, pinion and spur, and for the second pair, mitres, mounted on a single steel casting base to prevent spreading. The suction pipes consist of lap welded steel tube, 20 ins. diar., connected through cast steel swivel elbows. A five drum winch, driven by 8½ by 8 in. double cylinder reversible engine, is also provided. Two drums 16 ins. diar. will be used for raising the spuds and one similar drum will raise the digging ladder; two 24 in. drums will be used to operate the bow swinging lines. The drum shaft is of hammered steel 6 ins. diar., connected to the engine by two gear reductions. The spud and ladder hoist clutches will be operated by hand, and the swinging clutches by compressed air. The two spuds are of wood, heavily reinforced with steel bars and provided with a wing pointed steel casting point about 54 ins. long, and are attached to the hull by circular keepers to prevent rotation when the dredge swings. A steel gantry is also provided to raise the spuds to the level of the bottom of the hull. The auxiliary pumps include two 7½ by 5 by 6 duplex feed pumps, and one 10 by 6 by 12 simplex pump for general purposes, operated by compressed air, supplied by a Westinghouse 11 ins. air compressor, with the necessary tubes and flanges. A surface condensing outfit is also provided on account of the muddy water to be dealt with, to protect the boiler, etc. The dredge is equipped with a 15 k.w. turbo generating set for electric light and for the 14 in. searchlight. There is also being supplied with the dredge 3,500 ft. of piping and pontoons for transporting and discharging the dredged material at one operation without the use of scows. The general plan on this page shows the location of the machinery, and the method of conveying the discharge pipe, which is a departure from the means usually adopted.

Canadian Northern Steamships Limited.

The Canadian Northern Steamships' service between England and Canada was inaugurated, May 13, when the s.s. Royal Edward sailed from Avonmouth for Montreal. A number of guests were invited to join the vessel at Glasgow, for the trial trip down the coast, the Lord Mayor and a number of the civic officials of Bristol being included, when congratulatory speeches were made by the Lord Mayor, Hon. Robt. Rogers, Minister of Public Works for Manitoba, and others, and responded to by President W. Mackenzie. The vessel sailed from Avonmouth, May 13, at 8.10 p.m., and passed Cape Race, May 17, at 6 a.m., ship's time; Father Point, May 18, at 5.8 p.m., and arrived at Quebec, May 19, at 1.30 a.m., leaving there at 8.30 a.m. and arriving at Montreal, May 19, at 6.18 p.m. The official time occupied in the voyage from Avonmouth to Father Point, is 5 days, 22 hrs., 41 mins., and the average speed from North Point to Father Point, pilot to pilot, was 18 3-4 knots an hour. The daily record of distances covered is as follows:—

May 13—	Steaming time	15	hrs.	50	mins.....	278 knots.
14—	"	25	"	23	"	447 "
15—	"	24	"	46	"	466 "
16—	"	24	"	47	"	472 "
17—	"	24	"	30	"	440 "
18—	"	24	"	52	"	480 "
19—	"	13	"	41	"	245 "

It is claimed that this was a record voyage from Great Britain by the southern route via Cape Race.. The vessel was met at Montreal by D. D. Mann, Vice President; D. B. Hanna, Second Vice President, and other officials.

A Montreal dispatch of May 18, announces the earliest opening of the Straits of Belle Isle for navigation on record by the s.s. Manchester Mariner, bound from Montreal to Manchester. In previous seasons no vessel has attempted the northern passage until the end of June, and sometimes the first week in July.

An Ottawa dispatch of May 20, says an order in Council has been passed amending the regulations passed under the petroleum and naphtha inspection act to allow tank ships to carry in bulk petroleum and naphtha used for other than illuminating purposes. Heretofore tank vessels have been allowed to carry these cargoes in bulk only when used for illuminating purposes; now they will be able to carry naphtha used for supplying motive power.

Notices to Mariners.

The Department of Marine has issued the following:—

31. Apr. 8.—75. Ontario, Georgian Bay, buoys in Collingwood harbor and approaches to be numbered. 76. Georgian Bay, Parry Sound ship channel buoys to be numbered.

32. Apr. 11.—77. British Columbia, tidal results on the Pacific coast.

33. Apr. 21.—78. Ontario, entrance to Georgian Bay, Tobermory, hand fog horn at light station. 79. Ontario, Georgian Bay east side, approach to Parry Sound, Seguin bank, change in character of gas buoy light. 80. Georgian Bay east side, approach to Parry Sound, Red rock, change in character of light. 81. Ontario, River St. Mary, Sault Ste. Marie Canadian canal, change in position of front light of upper entrance range, new lighthouse. 82. Manitoba, Lake Winnipeg, Gull Harbor, Black Bear island, Cox reef and George island, hand fog horns at light stations.

34. Apr. 22.—83. Nova Scotia, Halifax harbor, McNab island, Government rifle ranges. 84. Nova Scotia, south coast, Egg island gas and whistling buoy, change in color of light. 85. Nova Scotia, Cape Breton island, Gut of Canso, Bear island, hand fog horn at light station. 86. Nova Scotia, southern approach to the Gut of Canso, Cerberus rock, change in color of gas buoy light.

35. May 2.—87. Ontario, Lake Erie, Port Dover, position of back range lighthouse. 88. Ontario, Lake Superior, Thunder bay, off Hare island, uncharted danger. 89. Ontario, Lake Superior, Thunder bay, off Mutton island, wreck.

36. May 2.—90. Quebec, Gulf of St. Lawrence, Gaspe coast, Grand Pabos, light established on wharf. 91. Quebec, River St. Lawrence, Orleans island, Ste. Famille, change in position of back range lighthouse. 92. Quebec, River St. Lawrence, Orleans channel, Orleans island, St. Pierre, position of front range lighthouse. 93. Quebec, River St. Lawrence, ship channel between Quebec and Montreal below Cap Charles, buoy established on Grande Pointe shoal.

37. May 3.—94. British Columbia, Strait of Georgia, Burrard inlet, Point Atkinson, change in character of light. 95. British Columbia, Strait of Georgia, Cortes island, off Reef Point, gas buoy established.

38. May 4.—96. Nova Scotia, west coast, South West shoal, Tusket River, buoys established. 97. Nova Scotia, south coast, Ragged Island harbor, name changed to Lockeport. 98. Nova Scotia, Cape Breton island, St. Peter inlet, Freestone island, name changed to Gregory island.

39. May 7.—99. Quebec, River St. Lawrence, Cape Salmon, marine signal station established. 100. Quebec, River St. Lawrence, ship channel between Quebec and Montreal, Lake St. Peter, Pointe du Lac, temporary light at site of old pier. 101. Quebec, Lake Memphremagog, Magog, light established on wharf.

40. May 9.—102. Quebec, River St. Lawrence, White island, reef lightship, change in characteristic of fog alarm.

Toronto's Inadequate Port.

The Norwegian steamship Odland arrived in Toronto, May 8, with 1,500 tons of pig iron from England, and found on her arrival that there was no pier for her to tie up to, and no appliances available for unloading. Yet Toronto is a port having a very considerable trade; is under the control of a board representative of the Board of Trade, the City Council and the Dominion Government, and on the harbor of which large sums have been and are being spent under Parliamentary authority. There is an extensive waterfront, there are numerous wharves, all of which owned by or leased to steamship companies, so that when a cargo like this reaches the city in a non-line vessel, it has no place to go, and even if a place could be found to tie up to, there are no appliances for unloading. While this is an exceptional case, and it may not occur again for a long time, it brings into relief the fact that the conditions under which Toronto harbor—in common with harbors in other parts of the Dominion—are administered, are out of date, and are not calculated to attract trade. The present facilities for caring for the passenger steamboat traffic to and from Toronto are not adequate, but while these should be increased it is doubtful whether any large expenditure in the way of providing for a casual bulk freight trade would be justified. At any rate it is hardly likely that much improvement can be expected from the present system of administration, therefore the only hope there is that the marine interests of Toronto will be adequately cared for and developed is by the abolition of the present harbor authority, and the substitution therefor of a new body with specific powers, and authority to raise money by way of debentures to provide such additional facilities as are imperatively necessary, and to do what is possible in the way of attracting to the port such trade as may be legitimately handled there.

Atlantic and Pacific Ocean Marine.

The Allan Line s.s. Mongolian has been completely overhauled, and equipped with a wireless telegraph installation.

The s.s. Rakaia, the first vessel of the Montreal-Australia service, in which the C.P.R. is interested, arrived at Montreal, May 11.

The Department of Marine is moving the buoys marking the Crane Island channel to give a greater width of passage. It is stated that there is now a depth of 30 ft., at low water from Quebec to the Gulf.

The Union Steamship Co. of New Zealand is reported to have decided to build a sister vessel to the recently constructed s.s. Makura for the services between Vancouver, B.C., and Australasian ports.

Capt. A. H. Vipond of the Allan Line s.s. Virginian, has resigned after nearly 50 years of ocean navigation. He has been with the Allan Line for about 34 years, having previously been with the Castle Line.

A preliminary enquiry, held by Capt. Riley, into the causes of the grounding of the Allan Line s.s. Grampian, early in May, near Cap a la Roche, showed that the vessel drifted from her course during bad weather, during which it was impossible to see any distance, and that the accident was unavoidable.

The Allan Line is asking tenders for the construction of two turbine driven steamships, 700 ft. long, to have an average speed of 22 knots an hour, with accommodation for 2,300 passengers. It is said that the building of these vessels is conditional on the granting of certain Government subsidies.

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING APRIL, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Cascapedia ..	104,632	Dundee, Scotland, 1895.....	Screw 260 n. h. p..	245.2	35.2	15.0	1849	1185	Quebec, Que.....	Quebec Steamship Co., Quebec, Que.
Cingalee.. ...	126,419	Toronto, 1905	" 10 " ..	65.5	13.0	5.0	59	18	Toronto..... ...	Minister of Public Works, Ottawa.
* City of Hamilton	126,526	Buffalo, N. Y., 1871	" 80 " ..	220.0	32.5	14.0	1574	869	Ottawa.....	Montreal and Lake Erie Steamship Co., Ltd., Montreal
Ilderim	126,466	Kingston, Ont., 1910	" 8 " ..	57.0	9.6	4.5	18	12	Kingston, Ont.. ..	J. H. Davis, Kingston, Ont.
Nootka	126,745	N. Vancouver, B. C., 1910 ..	" 1 " ..	40.0	10.3	5.0	19	13	Vancouver, B. C.....	F. Keeling, Vancouver, B. C.
Onawana.....	126,712	The Range, N. B., 1909	" 13 " ..	52.7	13.0	5.2	30	20	St. John, N. B..	A. V. Rowan, M. O., Fredericton, N. B.
Skill	126,746	Vancouver, B. C., 1910	" 2 " ..	42.0	11.0	3.9	14	10	Vancouver, B. C.....	Nanaimo Fish and Bait Co., Nanaimo, B. C.
W. Earlton...	126,747	Van Anda, B. C., 1908.....	" 1 " ..	35.5	9.4	4.3	14	10	" "	W. J. Gillis, Van Anda, B C.
Wanakewan..	126,465	Kingston, Ont., 1910.....	" 8 " ..	70.2	15.4	5.2	68	44	Kingston, Ont.....	J. H. Davis, Kingston, Ont.
Ysidro	126,748	Vancouver, B. C., 1910	" 2 " ..	39.0	8.9	5.0	12	8	Vancouver, B.C.....	W. S. Buttar, Vancouver, B. C

* Formerly Japan.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING APRIL, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Beacon Bar	126,711	U. S., ——	Dredge	77.6	30.3	6.0	197	St. John, N. B..	J. E. Moore and G. McAvity, St. John, N. B.
Camille D.....	126,390	Levis, Que., 1904.....	Scow	84.5	33.8	6.0	197	Quebec, Que.....	Compagnie Etienne Dussault, Levis, Que.
Charles A. H....	122,188	West Arichat, N. S., 1909.....	Schr.	35.0	10.5	5.0	10	Arichat, N. S.....	C. V. Herbin, Arichat, N. S.
Francis Lemoine..	126,952	St. Pierre, Miq., 1901.....	Dredge	78.0	30.0	6.0	232	Montreal	F. Lemoine, Montreal.
Himble No. 1	126,514	Victoria, B. C., 1909.....	Scow	90.90	30.4	7.0	154	Victoria, B. C..... ...	Victoria Contracting Co., Victoria, B. C.
Horace D	126,389	Levis, Que., 1908..... ...	"	84.5	33.8	6.0	195	Quebec, Que.....	Compagnie Etienne Dussault, Levis, Que.
Jost.....	126,592	Port Greville, N. S., 1910	Schr.	134.1	32.2	11.2	299	Parrsboro, N. S.....	H W. Elderkin, M. O., Port Greville, N. S.
Leonard C.....	126,713	East Machias, Me., 1872.....	"	103.7	26.5	8.6	144	St. John, N. B.....	J. J. Christopher, Hopewell Cape, N. B.
Nonobiki	126,744	Steveston, B. C., 1910.....	"	51.0	13.0	4.9	25	Vancouver, B. C.....	M. Minakata, Vancouver, B. C.
Novelty.....	126,811	Port Greville, N. S., 1910.....	"	117.7	30.6	11.1	246	Lunenburg, N. S.....	D Ritcey, M. O., Riverport, N. S.
Poltalloch.....	102,822	Belfast, Ireland, 1893.....	Bk—B	284.4	42.0	24.4	2139	Victoria, B. C.....	Ship Poltalloch Co., Victoria, B. C.
Stephen D..	126,841	Levis, Que., 1904.....	Dredge	71.4	29.0	6.1	211	Quebec, Que.....	Compagnie Etienne Dussault, Levis, Que.
T. F. M. No. 2 ...	126,753	Ogdensburg, N. Y., 1892.....	"	71.0	22.0	4.5	151	Montreal.....	T. F. Moore Co., Montreal.
T. F. M. No. 4 ...	126,754	" " 1895.....	"	76.4	23.7	3.6	143	"	" " " "
Uda A. Saunders	126,590	Lunenburg, N. S., 1910.....	Schr.	108.4	25.8	10.8	95	Lunenburg, N. S.....	S. Corkum, M. O., Lunenburg, N. S.
W. Rutherford ...	126,527	Hull, Que., 1910.....	Barge	108.0	22.8	7.2	147	Ottawa.	Ottawa Transportation Co.. Ottawa.
X.....	126,741	Victoria, B. C., 1909	Scow	71.1	28.8	7.6	159	Vancouver, B. C.	Union Steamship Co. of B. C., Ltd., Vancouver.
XI.	126,742	Vancouver, B. C., 1909.....	"	76 7	28.6	7.7	159	" " ...	" " " " "
XII.....	126,743	North Vancouver, B. C , 1909	"	77.3	28.7	7.7	161	" "	" " " " "

Capt. Rollo, of the Thomson Line s.s. Iona, was presented with a walking cane by the Montreal Harbor Commissioners recently, his vessel being the first trans-Atlantic vessel to enter Montreal harbor this season. G. W. Stephens, Chairman, is reported to have stated that the old custom of making a presentation to the captain of the first ocean vessel arriving in each season, would be revived.

The Shipping Federation of Canada received a wireless message from Belle Isle, May 22, that three large passenger vessels had passed through the Straits of Belle Isle. These were the s.s. Cassandra of the Donaldson Line, the C.P.R. Empress of Ireland, and the Allan s.s. Tunisian. Although the Straits have been used by cargo vessels, the Manchester Mariner having passed outward May 17, this is the earliest date on record that the Straits have been used by passenger liners. Usually the latter take the southern route, via Cape Race, until July. The Empress of Ireland reported having passed 11 icebergs from the Straits to a point nine miles east.

Maritime Provinces and Newfoundland.

The Nova Scotia Legislature has voted various sums totalling $73,000 in aid of steamboat, packet and ferry services in the province.

The name of the schooner Cymbeline, no. 88,438, registered at Arichat, N.S., has been changed by order in council to Florrie V.

The Levis Ferries Ltd.'s ferry steamboat Levis was launched at Levis recently and christened by Miss M. Demers, daughter of the president.

The name of the schooner W. E. Young, no. 83,174, registered at Lunenburg, N.S., has been changed by order in council to Clara Hamilton.

The name of the steamboat Frederick A., no. 103,773, registered at St. John, N.B., has been changed by order in council to Kenton.

The name of the schooner Ada Louise, no. 90,737, registered at Charlottetown, P.E.I., has been changed by order in council to Flora T.

The Government steamship Stanley will sail from Halifax, N.S., during June, for Hudson Bay, with a surveying party. She will probably return in Aug.

An order in council has been passed defining the limits of the Minas Pilotage District as all the navigable waters south of a line drawn from Cape Blomidon to the south extremity of the largest of Five Islands, and fixing the pilotage rates.

The Government steamboat Gulnare left Pictou, N.S., May 9, with a number of Marine Department officials on an inspection trip to the Magdalen Islands, Chaleur Bay, Gaspe Basin and Labrador, in order to report as to the advisability of erecting lighthouses and other public works at various points there.

The schooner Sweet Marie, was driven ashore at Kouchibouac, N.B., May 5, during a storm, while bound from Campbellton, N.B., to Charlottetown, P.E.I., and became a total loss. She was built at Charlottetown in 1907, her dimensions being, length 75.8 ft., breadth 21.3 ft., depth 7 ft., tonnage 77 register, and was owned by M. P. Hogan, Charlottetown.

Notice has been issued that four spar buoys have been placed at intervals between Thrum Cap shoal and the eastern passage at Halifax, N.S., each painted red, with cross heads painted red and white, to mark the limits of the danger zone in the neighborhood of the rifle ranges there. A red flag will be hoisted at the south end of McNab's Island when shooting is in progress.

The ss. Belle of Scotland sailed from Sydney, N.S., May 2, with about 6,000 tons of rails, for the G.T.P.R. at Prince Rupert, B.C. The voyage by way of the Horn is expected to take about 70 days. This vessel is one of several which have recently, at stated intervals, left Sydney for Prince Rupert, under charter to the Dominion Steel Co., with rails. So far each has completed the voyage without accident or loss of any kind.

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in April :

ARTICLES.			CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound	Net tons	5,447	.....	5,447
Grain	"	Bushels	4,549,528	.....	4,549,528
Building stone	"	Net tons	.....	.....	.....
Flour	"	Barrels	386,583	.....	386,583
Iron ore	"	Net tons	937,049	.....	937,049
Pig iron	"	"	1,850	.....	1,850
Lumber	"	M. ft. B.M.	6,025	.....	6,025
Silver ore	"	Net tons	.....	.....	.....
Wheat	"	Bushels	7,926,518	.....	7,926,518
General merchandise	"	Net tons	4,270	....	4,270
Passengers	"	Number	218	.....	218
Coal, hard	Westbound	Net tons	179,596	.....	179,596
Coal, soft	"	"	360,327	.....	360,327
Flour	"	Barrels	400	.....	400
Grain	"	Bushels	.....	.....	.....
Manufactured iron	"	Net tons	24,833	.....	24,833
Iron ore	"	"	.....	.....	.....
Salt	"	Barrels	46,676	.....	46,676
General merchandise	"	Net tons	62,070	.....	62,070
Passengers	"	Number	396	.....	396
Vessel passages		Number	768	.....	768
Registered tonnage		Net	1,812,404	.....	1,812,404
Freight—Eastbound		Net tons	1,325,379	.....	1,325,379
" —Westbound		"	633,534	.....	633,534
Total freight		"	2,958,913	.....	1,958,913

The Canadian canal opened Apr. 12.

Province of Quebec Marine.

The Montreal Harbor Commissioners have ordered a dipper dredge hull from the Polson Iron Works, To-

ronto, length 104 ft., breadth 36 ft., depth 9¾ ft. The machinery and equipment will be installed at Montreal.

The Richelieu and Ontario Navigation Co. has declared its usual quarterly dividend of 1¼%, payable June 1 to shareholders of record at May 20.

The Department of Public Works is having built at the Polson Iron Works, Toronto, a twin screw steamboat for service on Lake Deschenes, Que. Her dimensions will be, length 45 ft., breadth 11½ ft., draught 3½ ft. The hull will be of steel and oak planking, and she will be equipped with a 6x7 high pressure engine and Fitzgibbon boiler.

The Snowdon Shipping Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of $10,000, and office at Montreal, to own and operate steam and other vessels, and to carry on the general business of ship-owner and common carrier on the high seas and within inland navigation. The provisional directors are: G. I. Dewar, Ottawa; W. A. Taft, Arlington, Mass.; W. H. Chandler, Newton, Mass.; J. B. Fallon, Boston, Mass.; W. McKissock, Boston, Mass.

The Governor General in Council has sanctioned the repeal of sec. 20 of the Quebec Harbor Commissioners' by-laws, and the substitution of by-law 107, as follows:—"All steamships and all sailing vessels in tow in passing up or down through the harbor on the north (Quebec) side of the river while between the Mariner's Chapel and the entrance to the Louise docks shall keep out at least one-half cable's length from the front of the wharves. No ocean steamship in passing down through the harbor of Quebec shall exceed half speed between Cap Rouge point and the eastern boundary of Indian Cove and in passing up between the eastern boundary of Indian Cove and the site of the Quebec bridge."

Ontario and the Great Lakes.

The Department of Railways and Canals has let the contract for the construction of section 6 of the Trent Valley canal to Haney, Quinlan and Robertson, Montreal and Toronto.

The Department of Marine has placed four spar buoys and a gas buoy on Grubb's Reef in Lake Erie. This is considered a dangerous point, the steamboat George Stone, with six of her crew, being lost there last October.

The Government drydock at Kingston was handed over to the Kingston Shipbuilding Co., Ltd., May 2. The company has a lease of the property for 21 years at a rental of $10,000 a year. It is intended to extend the property considerably and improve the existing buildings and plant.

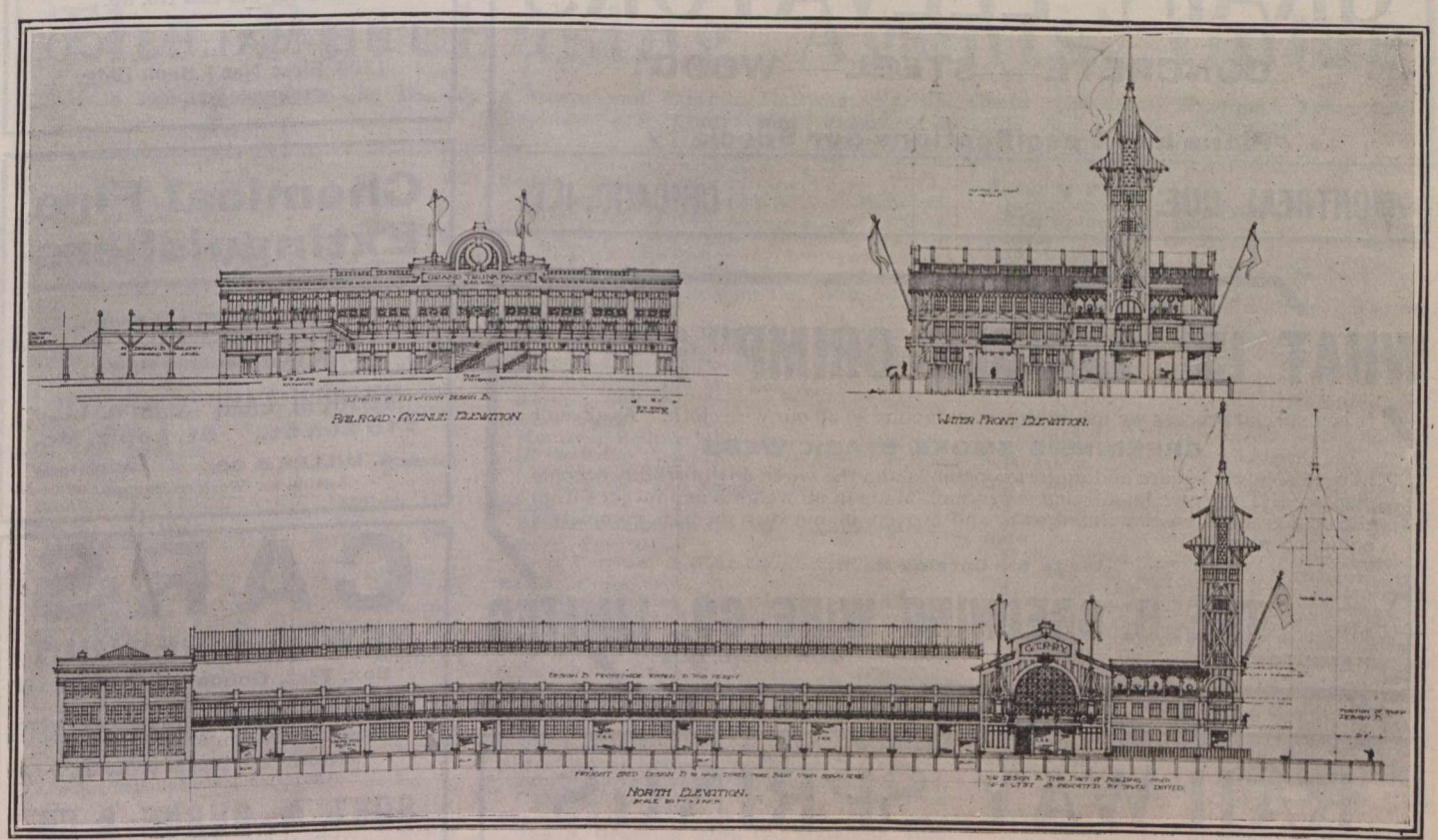
The Montreal and Lake Erie Steamship Co.'s steamboat City of Montreal arrived in Chicago, May 13, being the first time for eight years that an all water service has been operated between Montreal and Chicago. It is stated that the company will operate its vessels on this route throughout the season in both passenger and freight trades.

The Keenan Towing Co., Ltd., has been incorporated under the Ontario Companies act, with a capital of $40,000 and offices at Owen Sound, to carry on a general transportation and towing business and for such purposes to own and operate steam and other vessels. The provisional directors are, J. E., J. C. and W. P. Keenan, Owen Sound.

The U.S. Lake Survey reports the levels of the Great Lakes in feet above tidewater for April, as follows:—Superior, 601.60; Michigan and Huron, 580.27; Erie, 572.04; Ontario, 245.97. As compared with the average April levels for the past ten years, Superior was 0.39 ft. below; Michigan and Huron, 0.26 ft. below; Erie, 0.28 ft. below, and Ontario, 0.40 ft. below.

The Toronto Ferry Co. is having a ferry steamboat built at the Polson Iron Works, Toronto, which is, in the main, a duplicate of its steamboat Bluebell. The dimensions are: length 150 ft., breadth 45 ft. overall, depth 8 ft. 4 ins. She will be equipped with inclined compound engines with cylinders 17 and 34 ins. diar. by 48 ins. stroke, supplied with steam from a Clyde boiler 10" 6' by 11 ft. She will have capacity for about 3,000 passengers.

The Cornwall and Montreal Transportation Co., a recently organized company, is reported to have purchased the Montreal and Cornwall Navigation Co.'s steamboat Filgate, which it will operate on a semi-weekly service between Montreal and Cornwall. She was built at Montreal in 1879, her dimensions being: Length, 158 ft.; breadth, 25.4 ft.; depth,



GRAND TRUNK PACIFIC DOCK CO.'S BUILDINGS AT SEATTLE, WASH.

The building illustrated above will be erected on what was formerly known as the Flyer Dock property, acquired by the company at the end of last year. A pier 600 ft. by 130 ft. will be built and as soon as the sub-structure is sufficiently under way, a large warehouse and office building, of which the above is the preliminary sketch, will be erected. It is intended that the street front of the building will be three stories high, with stores on the ground floor, and offices above. The warehouse will have the second story devoted to ticket offices and about 45 other apartments, which will be rented for business purposes. At the outer end of this will be a large waiting room, with roof garden overhead. The dock and buildings will cost about $200,000, and when completed, will be the most handsome and up to date water terminal on the Pacific coast, and will possess many features which are not surpassed by similar terminals on the eastern coast.

7.8 ft.; tonnage, 425 gross, 237 register, and she is equipped with engine of 100 n.h.p., driving a paddle.

The steamboat which was recently purchased in Kingston by Capt. Argue, of Parry Sound, which it was reported was to be operated between Parry Sound and Little Current, as mentioned in our last issue, is being run between Point au Baril Station dock and the Point au Baril hotels and cottages, in connection with the C.P.R. The vessel has been named Wanakewan, has been specially built for this traffic, and has seating accommodation for 125 passengers.

The Algoma Central Steamship Line's steamboat Thomas J. Drummond, which was launched at Dumbarton, Scotland, May 3, has been specially designed and constructed for the rail trade. Her dimensions are, length overall, 257 ft., between perpendiculars, 247 ft. 9 ins., beam 43 ft. 8 ins., depth 26 ft. The machinery consists of triple expansion engines, with cylinders 20½, 33 and 54 ins. diar. by 36 ins. stroke, supplied with steam at 190 lbs., by two Scotch boilers 10 ft. 6 ins. by 14 ft. diar.

Inland Lines, Ltd., has been incorporated under the Dominion Companies Act, with a capital of $3,500,000, and office at Hamilton, Ont., to carry on a general navigation business, and in connection therewith to own and operate steam and other vessels, dock and shipbuilding yards, wharves, piers, etc., and any other facilities conducive to the company's objects. The provisional directors are: W. Southam, J. P. Steedman, J. I. Hobson, F. A. Magee, Hamilton, and J. Playfair, Midland. The chief object of the company is the taking over of the Inland Navigation Co., the Midland Navigation Co., and the Empress Transportation Co., as outlined on pg. 237 of our March issue.

Manitoba, Saskatchewan and Alberta.

The Northern Fish Co.'s steamboat Chieftain opened the navigation season on Lake Winnipeg April 23, when she sailed from Selkirk with supplies for northern ports.

The opening of the St. Andrew's locks on the Red River, near Winnipeg, took place May 2, when the Government steamboat Victoria made the passage. The formal opening will, it is said, take place later in the season, when several members of the Dominion Government will attend.

A Winnipeg dispatch says the Hyland Navigation and Trading Co. operating steamboats on the Red River, mostly in the excursion business, has bought five acres at the foot of Lusted St., in the north end of Winnipeg, as a dock site. It is preparing to build scows and tugs for the freight business from Lake Winnipeg, made possible by the opening of St. Andrew's locks.

B.C. and Pacific Coast Marine.

The Comet Transportation Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of $15,000, to own and operate steam and other vessels, and to carry on a general transportation and trading business.

The stern wheel steamboat which the C.P.R. is having built at Polson Iron Works, Toronto, for service on the Arrow Lakes, will be 200 ft. long, 38 ft. wide and 7½ ft. deep. She will be equipped with tandem compound engines, with cylinders 16 and 35 ins. diar. by 96 ins. stroke, supplied with steam by a large locomotive boiler. The parts will be shipped to Nelson, on completion, where they will be fitted up.

The s.s. Bruno, which has been purchased by the G.T.P.R. for its Pacific Coast service, arrived at Vancouver towards the end of May. Her name has been changed to Prince Edward, and she has been thoroughly overhauled since being purchased. She was built at Hull, Eng., in 1892, her dimensions being: Length, 232 ft.; breadth, 30 ft.; depth, 14.1 ft.; tonnage, 841 register. She was built to Lloyds' highest classification, and has a speed of about 13½ knots, and capacity for 1,200 tons, and accommodation for 50 first class passengers, in addition to third class. The route on which she will run is between Prince Rupert and Portland Canal ports.

Castings, Iron
Allis-Chalmers-Bullock Ltd.....Montreal.
Canada Iron Corporation, Ltd....Montreal.
Kerr Engine Co.....Walkerville, Ont.
Russel Wheel & Fdry. Co....Detroit. Mich.

Castings, Iron and Steel
American Brake Shoe & F'dry Co Mahwah.

Castings, Malleable
Galt Malleable Iron Co.....Galt, Ont.
Taylor & Arnold.....Montreal.

Castings, Manganese Steel
Lumen Bearing Co. ...West Toronto, Ont.
Montreal Steel Works, Ltd.....Montreal.

Castings, Steel
American Vanadium Co.....Pittsburg, Pa.
Canada Iron Corporation, Ltd....Montreal.
Montreal Steel Works.....Montreal.

Chains
B. J. Coghlin & Co.....Montreal.

Chisels for Pneumatic Chipping Hammers
Cleveland Punch & Shear Wks., Cleveland

Closets, Car
Duner Co.....Chicago, Ill.

Coal
Nova Scotia S. & C. Co., New Glasgow, N.S.

Compressors, Air
Allis-Chalmers-Bullock Ltd.....Montreal.
The American Well Works ....Aurora, Ill.
Canadian Rand Co.....Montreal.
The Holden Co., Ltd. .....Montreal.
Vandeleur & Nichols.....Toronto.

Concrete Mixers and Rock Crushers
F. H. Hopkins & Co. .....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co. .....Toronto.

Contractors' Supplies
F. H. Hopkins & Co.....Montreal
Rice Lewis & Son.....Toronto.
Peteler Car Co. .....Minneapolis, Minn.
Russel Wheel & Fdry. Co....Detroit, Mich.
Toronto Pressed Steel Co.....Toronto.

Conveyors, Coal and Ash
Babcock & Wilcox, Ltd.....Montreal.

Copying Presses
James Smart Mfg. Co.....Brockville, Ont.

Couplers, Car and Locomotive
Canadian Car and Foundry Co....Montreal.
McConway & Torley Co....Pittsburgh, Pa.
Montreal Steel Works, Limited..Montreal.
Taylor & Arnold.....Montreal.

Cranes
Brown Hoisting Machinery Co..Cleveland.
Northern Engineering Works, Detroit, Mich.

Cranes, Electric
Babcock & Wilcox.....Montreal.
Dominion Bridge Co.....Montreal.
Mussens Limited.....Montreal.
Northern Engineering Works, Detroit, Mich.

Cranes, Locomotive
American Hoist and Derrick Co..St. Paul.
The Males Co. .....Cincinnati, O.

Cranes, Wrecking
Mussens Limited.....Montreal.

Crowbars
B. J. Coghlin & Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto.

Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Preston Car & Coach Co...Preston, Ont.

Cuts
Acton Burrows, Limited.....Toronto.

Cylinders
American Vanadium Co.....Pittsburg, Pa.

Derailing Devices
General Railway Signal Co., Rochester, N.Y.

Derricks
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Mussens Limited.....Montreal.

Diaphragms for Vestibules
Guilford S. Wood .....Chicago, Ill.

Dies
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Ditchers
M. Beatty & Sons.....Welland, Ont.

Diving Outfits
John Date.....Montreal.
Mussens Limited.....Montreal.

Doors, Steel Rolling
Mussens Limited.....Montreal.

Door Signs
Acton Burrows Limited.....Toronto.

Draft Gear
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.
Standard Coupler Co.....New York City.
T. H. Symington & Co.....Baltimore, Md.
Waugh Draft Gear Co.....Chicago, Ill.

Draughtsmen's Supplies
John A. Hart & Co.....Winnipeg.

Dredges
M. Beatty & Sons.....Welland, Ont.
Polson Iron Works, Ltd. .....Toronto.

Drills, Air
Canadian Rand Co.....Montreal.

Drills, Flat Twisted
Cleveland Punch & Shear Wks., Cleveland

Dry Goods
The Hudson's Bay Co.....

Dump Cars (Contractors')
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Peteler Car Co. .....Minneapolis, Minn.

Dynamos
Northern Electric & Mfg. Co.....Montreal.
Vandeleur & Nichols.....Toronto.

Dynamo and Electric Castings
American Brake Shoe & F'dry Co.Mahwah.

Economizers
Babcock & Wilcox (Ltd.).....Montreal.

Electric Apparatus
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur and Nichols.....Toronto.

Electric Car Route Signs
Acton Burrows Limited.....Toronto.
Preston Car & Coach Co...Preston, Ont.

Electric Light Plant
Allis-Chalmers-Bullock Ltd.....Montreal.

Elevators, Grain
John S. Metcalf Co.....Chicago, Ill.

Enameled Iron Signs
Acton Burrows Limited.....Toronto.

Engines, Automatic
Robb Engineering Co., Ltd..Amherst, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Corliss
Allis-Chalmers-Bullock Ltd.....Montreal.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Gas
Allis-Chalmers-Bullock Ltd.....Montreal.
Vandeleur & Nichols.....Toronto.

Engines, Gasolene
Canadian Fairbanks Co., Ltd.....Montreal.
Ontario Wind Engine & Pump Co.Toronto.
Vandeleur & Nichols.....Toronto.

Engines, Hoisting
Allis-Chalmers-Bullock Ltd.....Montreal.
American Hoist and Derrick Co..St. Paul.
M. Beatty & Sons.....Welland, Ont.
Dominion Equip't & Supply Co., Winnipeg.
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd. .....Toronto.
Russel Wheel & Fdry. Co....Detroit, Mich.

Engines, Stationary and Marine
I. Matheson & Co. .....New Glasgow, N.S.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.

Engines, Steam
Allis-Chalmers-Bullock Ltd. ....Montreal.
Vandeleur & Nichols.....Toronto.

Explosives
Standard Explosives Limited ...Montreal.

Express Office Signs
Acton Burrows Limited.....Toronto.

Fencing
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co., Owen Sound.

Ferro-vanadium
American Vanadium Co.....Pittsburg, Pa.

Fire Appliances
Miller Chemical Engine Co., Chicago, Ill.
Missouri Lamp & Mfg. Co., St. Louis, Mo.

Flags
The Hudson's Bay Co. .....

Flour
The Hudson's Bay Co. .....

Forgings
American Vanadium Co.....Pittsburg, Pa.
Canadian Car and Foundry Co....Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co. .....Cobourg, Ont.
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Pittsburg Forge & Iron Co., Pittsburg, Pa.
Standard Steel Works Co., Philadelphia, Pa.

Foundry Appliances
Goldschmidt Thermit Co. .....Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.

Frames, Steel for Cars
Canadian Ry. Equipment Co., Welland, Ont.

Frogs
Canadian Ramapo Iron Wks., Niagara Falls.
Peteler Car Co. .....Minneapolis, Minn.

Furnaces, Corrugated
Continental Iron Works.....Brooklyn, N.Y.

Fuse Batteries
Standard Explosives Limited....Montreal.

Fuse Detonators
Standard Explosives Limited....Montreal.

Fuses, Electric
Standard Explosives Limited....Montreal.

Gaskets
Franklin Mfg. Co. .....Franklin, Pa.
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Gates
New Brunswick Wire Fence Co., Moncton.
Owen Sound Wire Fence Co..Owen Sound.

Gates, Crossing
General Railway Signal Co. Rochester, N.Y.
The N. L. Piper Ry. Supply Co..Toronto.

Gauges, Locomotive
Taylor & Arnold.....Montreal.

Gears
American Vanadium Co.....Pittsburg, Pa.

Generators, Electric
Northern Electric & Mfg. Co.....Montreal.

Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd. .....Toronto.
Vandeleur & Nichols.....Toronto.

Groceries
The Hudson's Bay Company.....

Guides and Outfitters
Otto Bros. ..... Field, B.C.

Hammers, Cast Steel
American Brake Shoe & F'dry Co.Mahwah.
James Smart Mfg. Co....Brockville, Ont.

Handcars
Canadian Fairbanks Co., Ltd.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Rice Lewis & Son.....Toronto.

Hardware
The Hudson's Bay Co.....
Rice Lewis & Son.....Toronto.

Hats
W. H. Coddington .....Hamilton, Ont.

Headlights
Commercial Acetylene Co. ..... Toronto.
The N. L. Piper Ry. Supply Co..Toronto.
Pyle National Elec. Headlight Co..Chicago.

Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.

Heaters, Feedwater
Robb Engineering Co., Ltd..Amherst, N.S.

Heating, Car
Canadian Gold Car H'g & L'g Co.Montreal.
Safety Car Heating & L'ting Co.New York.

Hoists, Electric
American Hoist & Derrick Co....St. Paul.

Hoists (Pneumatic)
Taylor & Arnold.....Montreal.

Hollow Staybolt Iron and Steel Bars
Falls Hollow Staybolt Co.Cuyahoga Falls.

Hoppers, Car (Wet or Dry)
Duner Co.....Chicago, Ill.

Hose, Air Brake and Steam
Guilford S. Wood .....Chicago, Ill.

Hydrants
Canadian Fairbanks Co., Ltd.....Montreal.
Kerr Engine Co.....Walkerville, Ont.

Illustrations
Acton Burrows Limited.....Toronto.

Injectors
T. McAvity & Sons .....St. John, N.B.

Inspections
R. W. Hunt & Co. .....Montreal

Insurance, Accident
Can. Casualty & Boiler Ins. Co., Toronto.
Canadian Ry. Accident Ins. Co....Ottawa.
Imp. Guarantee & Acc. Ins. Co., Toronto.
London Guar. & Accident Co., Ltd., Toronto

Insurance, Boiler
Canadian Casualty & Boil. Ins. Co.Toronto.

Insurance, Vessel
Burnett, Ormsby & Clapp, Ltd., Toronto.

Interlocking Plant and Signals
General Railway Signal Co. Rochester, N.Y.
Montreal Steel Works.....Montreal.
Saxby and Farmer, Ltd.....Montreal.

Iron and Steel Bars
Hamilton Steel & Iron Co., Ltd., Hamilton.

Iron, Pig
Hamilton Steel & Iron Co., Ltd., Hamilton.
Nova Scotia S. & C. Co., New Glasgow, N.S.

Iron Signs
Acton Burrows Limited.....Toronto.

Iron Staybolt Bars
Falls Hollow Staybolt Co Cuyahoga Falls.

Jacks
Canadian Fairbanks Co., Ltd.....Montreal.
Dominion Equip't & Supply Co., Winnipeg.
H and E Lifting Jack Co..Waterville, Que.
F. H. Hopkins & Co, Ltd.....Montreal.
Montreal Steel Works, Ltd.....Montreal.
Mussens Limited.....Montreal.
A. O. Norton.....Coaticook, Que.
James Smart Mfg. Co.....Brockville, Ont.
A. R. Williams Mchy. Co., Ltd....Toronto.

Japans
The Dougal Varnish Co. Ltd....Montreal.

Journal Bearings
Canadian Bronze Co.....Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Kerr Engine Co.....Walkerville, Ont.
Jas. W. Pyke & Co.....Montreal.

Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Journal Jacks
A. R. Williams Mchy. Co., Ltd.. .Toronto.

Lager Beer, &c.
E. L. Drewry..... .....Winnipeg.

Lagging and Covering, Locomotive
Franklin Mfg. Co. .....Franklin, Pa.
Taylor & Arnold..... Montreal.

Lamps, Arc
Northern Electric & Mfg. Co.....Montreal.

Lamps, Incandescent
Canadian Westinghouse Co..Hamilton, Ont.

Lamps and Lanterns
The Hudson's Bay Company.....
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.

Lamps, Switch
The N. L. Piper Ry. Supply Co..Toronto.

Lathes
John Bertram & Sons Co.....Dundas, Ont.

Laths
J. Harrison & Sons Co..Owen Sound, Ont.

Lighting, Car
Canadian Gold Car H'g & L'g Co.Montreal
Safety Car H't'g & L't'g Co..New York.

Lights, Contractors' and Wrecking
F. H. Hopkins & Co.....Montreal.
International Marine Signal Co. ..Ottawa.
Mussens Limited.....Montreal.

Locomotives (Compressed Air)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co...Kingston, Ont.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives (Electric)
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.).Montreal.

Locomotives (Logging)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.

Locomotives (Rack)
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co....Kingston, Ont.
Montreal Locomotive Works.....Montreal.

Locomotives (Steam)
American Car & Equip. Co....Chicago, Ill.
Baldwin Locomotive Works..Philadelphia.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
Canadian Locomotive Co....Kingston, Ont.
Dominion Equip't & Supply Co., Winnipeg.
J. T. Gardner.....Chicago, Ill.
Hicks Locomotive & Car Works..Chicago.
The Males Co. .....Cincinnati, O.
Montreal Locomotive W'ks. .....Montreal.
Vulcan Iron Works.....Wilkesbarre, Pa.

Lorries, Trackla ying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.

Lubricators
McCord & Co.....Chicago, Ill.
Taylor & Arnold.....'..Montreal.

Lumber
Parry Sound Lumber Co.....Toronto.
J. Harrison & Sons Co., Owen Sound, Ont.

Machines and Plant, Contractors'
American Hoist & Derrick Co...St. Paul.
M. Beatty & Sons..... Welland, Ont.
R. M. Burns & Co.....Chicago, Ill.
Canadian Fairbanks Co., Ltd.....Montreal.
J. T. Gardner.....Chicago, Ill.
General Railway Signal Co., Rochester, N.Y.
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.
Toronto Pressed Steel Co.....Toronto.

Machines and Tools, Prospecting
The American Well Works ....Aurora, Ill.

Machines and Tools, Well Drilling
The American Well Works ....Aurora, Ill.

Machines, Boring and Turning
John Bertram & Sons Co.....Dundas, Ont.

Machines, Car Shop
John Bertram & Sons Co., Ltd., Dundas
Cincinnati Punch & Shear Co., Cincinnati, O.
Greenlee Bros. & Co. .....Chicago, Ill.

Machines, Cement
Jas. W. Pyke & Co.....Montreal.

Machines, Drilling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Hoisting
American Hoist & Derrick Co....St. Paul.
Brown Hoisting Machinery Co..Cleveland.

Machines, Logging
Russel Wheel & Fdry. Co....Detroit, Mich.

Machines, Milling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Planing and Shaping
John Bertram & Sons Co.....Dundas, Ont.
Cleveland Punch & Shear Wks., Cleveland

Machines, Radial Drilling
John Bertram & Sons Co.....Dundas, Ont.

Machines, Shaping
John Bertram & Sons Co.....Dundas, Ont.

Machines, Slotting
John Bertram & Sons Co.....Dundas, Ont.

Machines, Straightening
Cleveland Punch & Shear Wks., Cleveland

Machines, Track
Greenlee Bros. & Co. .....Chicago, Ill.

Machines, Tracklaying
F. H. Hopkins & Co.....Montreal.

Machines, Wood and Iron Working
Canadian Fairbanks Co., Ltd.....Montreal.

Machine Tools
John Bertram & Sons Co.....Dundas, Ont.
Cincinnati Punch & Shear Co., Cincinnati, O.
Pratt & Whitney Co. .....Dundas, Ont.

Manhole Frames and Covers
American Brake Shoe & F'dry Co.Mahwah.
Canada Iron Corporation, Ltd....Montreal.

Marine Repairs
Goldschmidt Thermit Co.....Toronto.

Marine Supplies
Rice Lewis & Son.....Toronto.

Metal, Anti-friction
W. Abbott.....Montreal.

Metal, Babbit
Tallman Brass & Metal Mfg. Co. Hamilton.

Metals
Goldschmidt Thermit Co.....Toronto.

Metal Work, Structural
Canadian Bridge Co.....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive W'ks (Ltd.).Montreal.
Jas. W. Pyke & Co.....Montreal.

Milepost Numbers
Acton Burrows Limited.....Toronto.

Motors
Canadian Fairbanks Co., Ltd.....Montreal.
McCord & Co.....Chicago, Ill.

Motors, Electric
Allis-Chalmers-Bullock Ltd.....Montreal.
Canadian Crocker Wheeler Co., Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co.....Montreal.
Vandeleur and Nichols.....Toronto.

Motor Generator Sets
Allis-Chalmers-Bullock Ltd.....Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur and Nichols.....Toronto.

Motors, Turntable
Taylor & Arnold.....Montreal.

Nickel
The Orford Copper Co.....New York.

Nickel for Nickel Steel
The Orford Copper Co.....New York.

Numbers
Acton Burrows Limited.....Toronto

Nut Locks
Positive Lock Washer Co....Newark, N.J.

Nuts, Clevis
Cleveland City Forge & Iron Co., Cleveland.

Nuts, Square and Hexagon
Montreal Rolling Mills Co.....Montreal.
Toronto Bolt and Forging Co.....Toronto

Oakum
The Hudson's Bay Company.....

Office Fittings
Can. Office & Sch'l Furniture Co..Preston

Office Signs
Acton Burrows Limited.....Toronto.

Oils
Galena Signal Oil Co..Franklin & Toronto.

Packing
The N. L. Piper Ry. Supply Co..Toronto.

Paints
Standard Paint & Var. Co., Windsor, Ont.

Patterns
Hamilton Pattern Works....Hamilton, Ont.

Pile Drivers, Railway
F. H. Hopkins & Co.....Montreal.
Mussens Limited.....Montreal.

Pinch Bars
The N. L. Piper Ry. Supply Co..Toronto.

Pipe, Culvert (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe, Gas (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe, Sewer (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Pipe Stocks
Butterfield & Co.....Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.

Pipe, Water (Cast Iron)
Gartshore-Thompson Pipe Co....Hamilton.

Planers
John Bertram & Sons Co.....Dundas, Ont.

Platforms, Steel
Standard Coupler Co.....New York City.

Ploughs, Contractors'
Mussens Limited.....Montreal.

Poles
J. Harrison & Sons Co., Owen Sound, Ont.

Porter
E. L. Drewry.....Winnipeg

Posts
J. Harrison & Sons Co., Owen Sound, Ont

Powder, Blasting
Standard Explosives Limited.....Montreal

Preservative for Hose
Guilford S. Wood .....Chicago, Ill.

Printing
Southam Press.....Toronto

Pumps
Canadian Fairbanks Co., Ltd.....Montreal
S. F. Bowser & Co., Limited.....Toronto
Ontario Wind Engine & Pump Co..Toronto.
James Smart Mfg. Co.....Brockville, Ont.
Vandeleur and Nichols.....Toronto.

Pumps, Centrifugal
The American Well Works ....Aurora, Ill.
M. Beatty & Sons .....Welland, Ont.

Pumps, Deep Well, Steam and Power
The American Well Works ....Aurora, Ill.

Pumps, Fire Pressure
The American Well Works ....Aurora, Ill.

Pumps, Irrigating
The American Well Works ....Aurora, Ill.

Pumps, Reclamation
The American Well Works ....Aurora, Ill.

Pumps, Sprinkler Systems
The American Well Works ....Aurora, Ill.

Pumps, Underwriters' Fire
The American Well Works ....Aurora, Ill.

Punches and Shears
Cincinnati Punch & Shear Co., Cincinnati, O.
Cleveland Punch & Shear Wks., Cleveland

Rail Benders, Roller
Dominion Equip't & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Montreal Steel Works.....Montreal.

Rail Drilling Machines
A. B. Jardine & Co.....Hespeler, Ont.

Rails (new)
Dominion Iron & Steel Co....Sydney, N.S.
Drummond, McCall & Co. .....Montreal.
J. T. Gardner.....Chicago, Ill.
J. J. Gartshore.....Toronto.
F. H. Hopkins & Co...'.....Montreal.
Peteler Car Co. .....Minneapolis, Minn.

Rails (for relaying)
F. H. Hopkins & Co...'.....Montreal.
J. J. Gartshore.....Toronto.
Mussens Limited.....Montreal.
Jas. W. Pyke & Co.....Montreal.

Rail Joints
Goldschmidt Thermit Co.....Toronto.
The Rail Joint Co. of Canada....Montreal.