

The Railway and Marine World

May, 1912.

The Grand Trunk Railway Grade Separation Work at Toronto.

The grade separation work on the G.T.R. near the western outskirts of Toronto on the Toronto-Hamilton section of the main line is rapidly nearing completion, work for the spring having been resumed recently. At the rate in which the work is being pushed to completion it will be finished in July or August. This portion of the work includes only the section from Strachan Ave. westward, the viaduct through the city forming another part of the comprehensive scheme of level crossing elimination along the Toronto waterfront.

The section here referred to may be divided into two subdivisions, the first of these extends from Strachan Ave. to

with the city under the Board of Railway Commissioners orders. In order to fully carry out the plan of level crossing elimination, it was found necessary to extend the separation work as far as Mimico, a total length of about six miles. The maximum gradients on the old line was 0.7%, while that of the work under construction is 0.4%.

At Dufferin St. the new rail level will be about 22 ft. lower than the old; at Dunn, Jamieson and Dowling Aves., it will be 25 ft. lower; in all these cases the highway is to be carried across at practically street level. At Sunnyside, the rail level is to be raised 4½ ft., with the highway carried on an overhead

additional right of way and finally build four tracks throughout nearly the whole of the length of this section. The width of the right of way was increased on the southerly side.

As the prime requisite was that train service should in no way be interfered with, special provisions had to be made with this end in view. Close alongside of the northern fence of the right of way, two temporary tracks were laid, as indicated to the extreme right in fig. 3, and on to these the traffic was diverted. This left all the new right of way strip, together with a good portion of the old right of way, clear for the excavating operations. The plan adopted was first

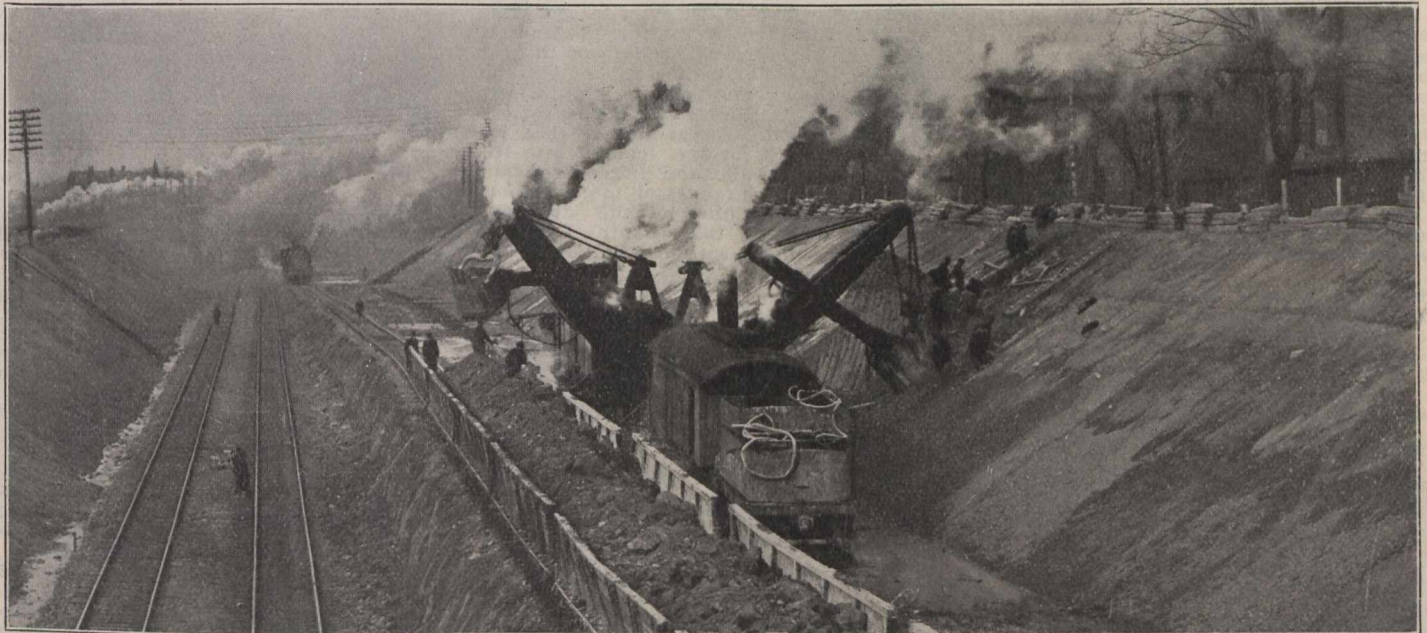


Fig. 1. Looking West from Dowling Avenue Bridge, Dec. 1, 1911.

Sunnyside, consisting of one long cutting, at places as much as 27 ft. deep, and the second extends from Sunnyside to Mimico, the western terminus of the grade separation as at present contemplated. This second section is almost entirely elevated on an embankment, the highest point being about 16 ft. above the former level.

The construction work was simplified to a considerable degree by the fact that the new grade is to have four new tracks instead of the two through tracks of the former level. The wider right of way made possible the construction of the roadbed half at a time, the other half being used temporarily for the construction machinery.

The Railway and Marine World for Aug., 1911, contained profiles of the grades as they formerly existed, and as they are to be eventually with a short description covering the scope of the work. This profile, fig. 2, together with a brief recapitulation, is here given for the benefit of those not aware of the scope of the work which is being carried out by the G.T.R. in conjunction

bridge with long approaches, a few hundred feet east of the present crossing. From Sunnyside to Ellis Ave., the track will be 14 ft. higher, with subways at Indian Rd., Howard Ave., Ellis Ave., Windermere Ave., Jane St., Queen St., near the Humber River; Salisbury Ave. and Church St., Mimico. The tracks across the Humber will be carried on a 4-track deck girder bridge of two spans, the centre resting on a pier sunk in the centre of the river.

The section of the work extending from Strachan Ave. on the east to Sunnyside, as the profile in fig. 2 indicates, extends through a heavy cutting all the way. In the former construction the right of way through the major portion of the distance, carried only two tracks, the section near the easterly end along the frontage of the National Exhibition grounds, where there are several sidings, being the only part with more than the two. It was found that to maintain traffic and carry on the construction work the same amount of right of way would be required for two as for four tracks; it was therefore decided to obtain the

to dig a cut of sufficient width to depress two of the ultimate four tracks, and after the completion of these two tracks, to divert on to them the traffic from the temporary tracks on the edge of the embankment, and then proceed with the excavation through the ground on which the temporary tracks stood, for the depression of the two northerly tracks.

In view of the fact that the maximum cutting ran as high as 27 ft. and the capacity of the shovels was only 10 ft. deep at a setting, it was necessary to work the cuttings in three levels. Commencing at both ends of the cutting on the southerly edge, the shovels ate their way into the cutting, working towards each other. A temporary track on the north embankment of the steam shovel cutting was advanced simultaneously with that of the steam shovel for the accommodation of work trains. In this manner excavation on the three levels was pushed successively to completion. Up to July 1, 1911, there were two shovels at work, and from that time on until the close of the season, early in

December, there were three. From 10 to 12 work trains were employed in removing the earth to the embankments under construction concurrently near the Humber end. The work at Dowling Ave., as it appeared June 18, 1911, is shown in fig. 3. It will be noticed that two levels had been partially put down. This illustration also shows the method of working to these levels, that on the left being the first to be lowered, followed by that in the centre, which will extend over the left portion, and finally lower these two levels to the proper depth. The temporary tracks on the embankment at the extreme right meanwhile divert the regular traffic.

Last autumn the double track cutting

ment. The most interesting point shown in this illustration is the method of carrying the gas main temporarily across the excavation. A cable, carried on posts on each side of the bridge, supports at intervals the elevated pipe line. The clean-cut appearance of the slope as it will finally appear on completion, is well shown in this illustration by referring to the appearance of the right-hand embankment. This slope will later be covered with turf.

With the exception of that portion of the cutting along the face of the exhibition grounds, which section is shown in fig. 6, the whole cutting has sloping earth embankments, battered $1\frac{1}{2}$ to 1. At the exhibition grounds, however, the

east, the northerly end coming out at the junction of King and Queen Sts. Forming part of this scheme, the roadway to the right in this illustration, is to be moved further in that direction, long approaches leading the roadway up to the bridge. As will be noticed to the right of the present highway, a trestle alongside of the road carries tracks leading from the cuttings further along, from which the work trains discharge their loads for building up the roadway approaches to the new bridge. The approach leads in a straight line to an abutment at the proper elevation, from which point the bridge curves off to the left over the tracks to the before-mentioned point. The portion of the

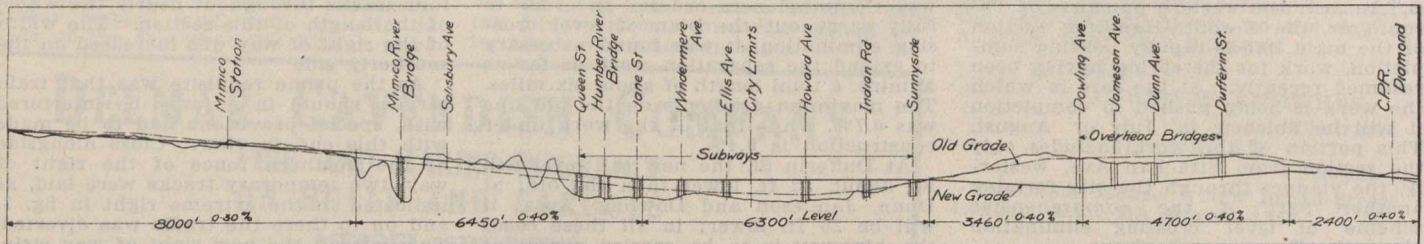


Fig. 2. Profile of G.T.R. Grade Separation Zone from Strachan Avenue, Toronto, to Mimico.

having been depressed to the required depth, the traffic from the upper temporary tracks was again diverted, this time on to tracks laid permanently at the bottom of the cut, as shown to the left in fig. 1, which is a view looking west towards Sunnyside from the temporary Dowling Ave. bridge. Work then proceeded on the depressing of the northerly half of the right of way, which is also to be seen in fig. 1. This shows the method of performing the work and illustrates the manner in which it was pushed, the two shovels working right up to each other, and

impossibility of procuring sufficient ground to give a sloping embankment, made necessary the use of a retaining wall, constructed of reinforced concrete of the form indicated. Some of the top moulds in place, with the method of raising the concrete by elevator, are shown in this illustration. The bridge abutment in the foreground is that for the Dufferin St. bridge, leading into the exhibition grounds, and in consequence is to be made larger and more elaborate than the balance of the overhead bridges through this South Parkdale district. A more simple method of car-

right of way in the immediate foreground in fig. 7 has not as yet been altered. When the highway is diverted to its final location on the right, the railway right of way will extend over the present position of the highway.

From Sunnyside to Mimico there is one long embankment. Previous to this change in grades, there was a small double track embankment from Sunnyside to the Humber River. The first operation, therefore, was to extend the embankment sufficiently northward to receive two tracks on the same level, on which temporary tracks were laid to carry the diverted traffic. With the exception of a short portion near Swansea, the elevated track is on an embankment. At the point mentioned, owing to the presence of buildings to the north cramping the right of way over towards the roadway, a concrete retaining wall of full height was required. Behind this wall and along this roadbed from Sunnyside to the Humber, the old embankment was raised by the excavated material from the easterly end of the work. This filling work was accomplished by means of a temporary trestle raised to the required height over the roadbed.

At the Humber, a new four-track deck plate girder bridge, having 2 spans, was built, 100 ft. each. While this bridge was under construction the two main lines from the high level on either side of the Humber were carried across on the old truss immediately north of the new bridge by means of ramps.

Near Sunnyside, as mentioned before, and as illustrated in fig. 7, the two northerly tracks alone have been elevated in anticipation of the use of the present highway for part of the roadbed when the highway is diverted to its ultimate location. Fig. 8 shows how the southerly ends of the subway abutments have been left for final completion when the property for the completion of the two final tracks at this point is available. This illustration also shows the way in which the elevated tracks were temporarily carried across the highways before the steel bridges were finally placed. The manner of performing this latter operation and the type of subway bridge used are shown in fig. 9.

This work is under the charge of J. R. W. Ambrose, Assistant Engineer, and D. McCooe, Superintendent of Grade Separation.

Other illustrations in connection with this grade separation work, will be found on pages 213, 214 and 215.

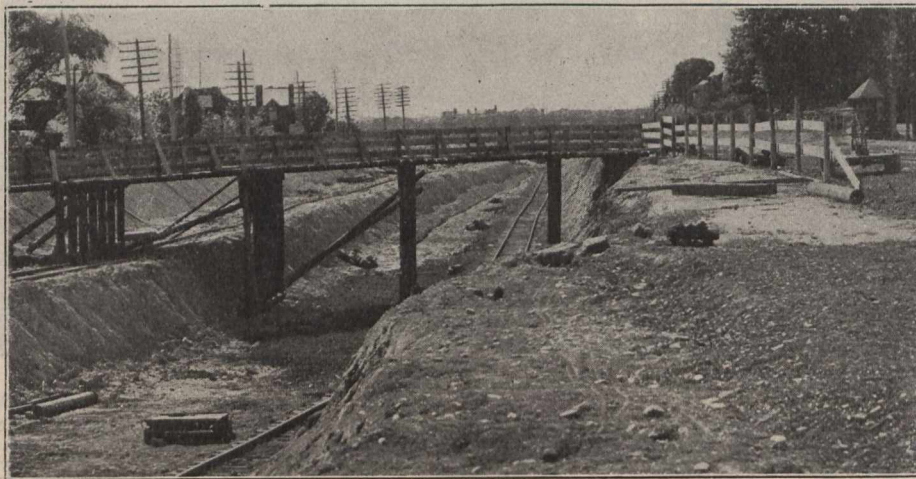


Fig. 3. Looking West, at Dowling Avenue, June 18, 1911.

fighting, so to speak, for the last shovelful.

Fig. 4 shows the same spot as that in fig. 1, and was taken at the same time, Dec 1, 1911, from a point a little further east. It illustrates the type of temporary bridge used to carry highways across the cutting while operations were in progress. A finished abutment for the final bridge is also shown. It will be noticed on the date mentioned, which was shortly previous to the suspension of work for the winter, the second pair of tracks had been nearly lowered to their final position, leaving but little excavation work to be carried on this spring.

The semi-finished cutting, looking east across Dunn Ave., on the same date, is shown in fig. 5. This also shows the temporary bridge, completed south side embankment and bridge abut-

rying the gas main across is here shown. The easterly limit of the cutting is also shown in the distance. The portion shown is the only part of the cutting to have a retaining wall.

The westerly end of the long cutting skirts the edge of the lake, as may be noticed in the distance in fig. 7. In fact, part of this work only required the reduction of the face of the cliff above the shore, the major portion of the additional right of way being obtained by building outward over the shore.

Sunnyside, the point of division between the elevation and depression of the tracks, is to have an overhead bridge with long approaches. In fig. 7, a view looking easterly across Sunnyside, shows the present level crossing of the highway on the left. The roadway for the new bridge is to be diverted so as to cross the tracks some distance further

AMERICAN RAILWAY ENGINEERING ASSOCIATION.

Summary of the Year's Investigations of the Various Standing Committees.

During the past year the Association's various standing committees have been continuing their investigations along the lines followed in the past, and have made a number of studies of new subjects, looking toward the establishment of uniformity in maintenance of way standards and the outlining of good practice in the work of that department. A summary of the work of the committees is given in the following account. The action of the convention held in Chicago recently

the Louisville and Nashville Rd, is also discussed.

During the past two years the committee has collected information as to the drainage laws of various states, but finds that since they are frequently changing and difficult of useful application without reference to the companies' attorneys, it seems impracticable to employ them. Consequently the committee suggests that its further work along this line be directed toward the benefit

ballast, 18 in. to 14 in. in depth, and an upper layer of stone ballast, 6 to 10 in. in depth, approximately 24 in. deep in the aggregate, with the same spacing of ties, will produce nearly the same result.

In regard to physical tests of stone for ballast, the committee reports an additional compression test, which the U. S. Office of Public Roads will make for the railways, and which it presents for addition to the other tests adopted in 1910. The committee advises that the description of the physical test, together with instructions for providing samples and blue prints of machines used, may be obtained by writing to the Department of Agriculture at Washington.

In its review of the use of gravel ballast the committee presents the results of determinations by a number of railways of the percentage of sand, gravel, dust and clay in the ballast used. This information is tabulated in the report, together with brief statements of the practice of a number of roads and the results which are being obtained by them from the use of gravel ballast. A description of the new gravel-washing plant of the Richmond, Fredericksburg and Potomac Rd. is presented as an appendix.

In view of the wide variation found in the character of ballast which is reported to give good results, the committee considers further investigation of this subject desirable.

In the discussion on this report one point brought out as bearing on the experiment on the Pennsylvania Rd. to determine the depth of stone ballast and stone ballast underlaid by cinders, being the experience of the Santa Fe with deep cinder ballast, which was later replaced with slag, the latter requiring much subsequent attention due to the settlement of the cinders beneath it. It was pointed out that here the composite ballasting showed up well in experiment but not in practice.

It was decided to make the following additions to, or changes in, the association's approved practice:—

A definition of the depth of ballast as the distance from the bottom of the tie to the top of the subgrade.

A standard compression test for stone

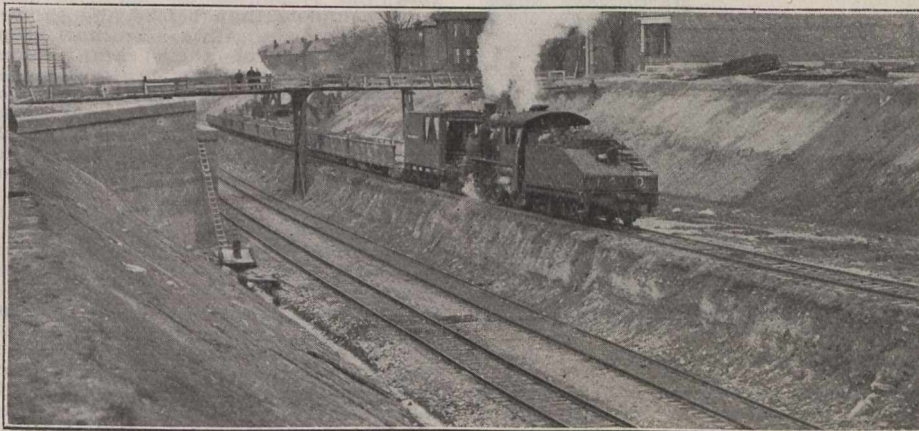


Fig. 4. G.T.R. Grade Separation. Dowling Avenue Bridge, Dec. 1, 1911.

establishes certain of the conclusions and recommendations embodied in these reports as the approved practice of the association.

Committee on Roadway

The work of this committee consisted of further investigations leading to the presentation of formulas of general application for the determination of waterway areas; a study of allowable unit pressures on roadbeds of different materials conferring with the committee on ballast; a study of tunnel construction and ventilation; and an investigation of agricultural drainage as affecting roadbeds. The first subject has been under consideration for several years and a considerable amount of data has been collected, and a general relationship also found between the best known waterway and runoff formulas. Since the previous convention the committee has directed its attention to the hydraulic features of the culvert, and reports progress, but does not go so far as to make any definite recommendation.

The committee has collected a considerable amount of additional data relative to the bearing power of soils, which is included in the report, and also presents a mathematical analysis of the action of pressures on soil composing a railroad subgrade based on Rankine's analysis of earth pressures. In this connection a form of field test of railroad subgrade material is suggested.

The committee has confined its attention to ventilation of tunnels in connection with the third subject. No definite conclusion has been reached, but the opinion is held that artificial ventilation is usually unnecessary in American steam railway tunnels of lengths less than 2,000 to 2,500 ft. The report states that probably the most efficient form of artificial ventilation for tunnels is to force air into one end by fans powerful enough to drive the smoke out ahead of the train. This system has been installed in several tunnels in this country, which are listed in the report. Experience with the clearing of smoke in several tunnels of

to the roadway to be derived by the construction of agricultural drainage work.

Committee on Ballast

This committee has been engaged in work leading to the determination of the proper depth of ballast for uniform distribution of loads on the roadbeds; on the fixing of physical tests of stone for ballast; and in the preparation of a review of the use of gravel ballast.

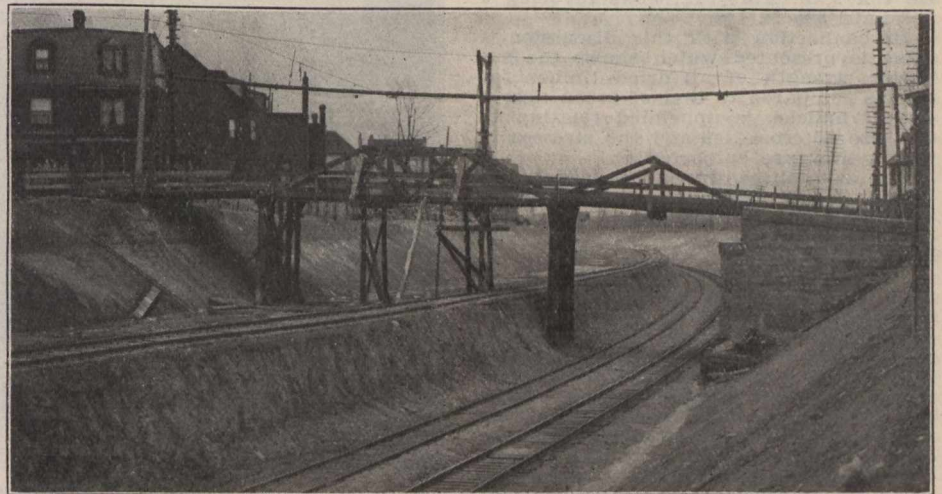


Fig. 5. G.T.R. Grade Separation. Dunn Avenue Bridge, Dec. 1, 1911.

As a part of the investigation of the proper depth of ballast the committee presents references to published accounts of investigations of this subject, calling particular attention to the experiments recently conducted on the Pennsylvania Rd. From its study of the data available the committee concludes that with ties 7 x 9 in. x 8 1/2 ft. spaced about 24 to 25 1/2 in. on centres, a depth of 24 in. of stone ballast is necessary to produce uniform pressure on the subgrade and a combination of a lower layer of cinder

to be used for ballast, this test to be added to the physical tests of stone for ballast already adopted by the association.

In addition to the adoption of these recommendations, endorsement was given to the conclusions of the committee on its study of the necessary depth of ballast for even distribution of loads.

Committee on Ties

This committee has had under consideration the subject of size of cross-tie

required for present stresses; the advisability of tie renewals in continuous stretches as compared to single-tie renewals; and experience with metal, composite and concrete ties. A large amount of information has been collected on each of these subjects and is included in the report.

Replies to a circular asking opinions as to the size of ties were received from roads representing about one-third of the total mileage in the association. From extensive tabulations of this material in the report it is found that there has been an increase in the number of

mittee presents a large amount of additional information in the form of brief reports from various roads using special forms of ties. From a study of this data the committee observes that the concrete tie, the combination concrete and metal tie and the combination asphalt and metal tie have not yet proved a success because of fracture caused by vibration, excessive weight and deterioration of asphalt filling. A combination tie of steel and wood is stated to give promise of developing an economic substitute, while the all-steel tie is believed to have proved satisfactory under heavy,

mental track maintained on that basis and that it was expected the ties could all be renewed when the rail was renewed.

The recommendation of the practice of single-tie renewals in preference to renewals in continuous stretches was adopted.

The association endorsed the conclusions of the committee in reference to its study of the size of ties and its study of metal, composite and concrete ties as presented in the review mentioned above.

Committee on Rail

This committee has prepared a study of rail failures and presents in its report a large amount of tabulated and analytical data on rail failures for the year ended Oct. 31, 1910. It was found that the responses to enquiries were more complete than before and showed that most of the railways are now keeping a record of their rail failures. Eighty-three companies furnished statistics relating to about 11,750,000 tons of rail. The report included summaries by sections, weights and kinds of steel; classification according to position in the ingot and a comparison of the wear of special rail.

As a result of its study of this information the committee makes the observation that accurate and specific information is not furnished for the determination of the value of different sections of rail because of the variations in traffic and roadbed conditions and in the conditions surrounding manufacture. It is believed that the difference in quality of material may eliminate differences in rail sections, but it is pointed out that the matter of desirable features of rail sections should be kept in mind at the same time that the present efforts toward improvement of material are made so that when a good quality of metal is attained there will also be a desirable rail section. It is observed that a study of these statistics furnishes information relative to the difference between Bessemer open-hearth and alloy steels and shows a relation between broken rails and failure of head, web

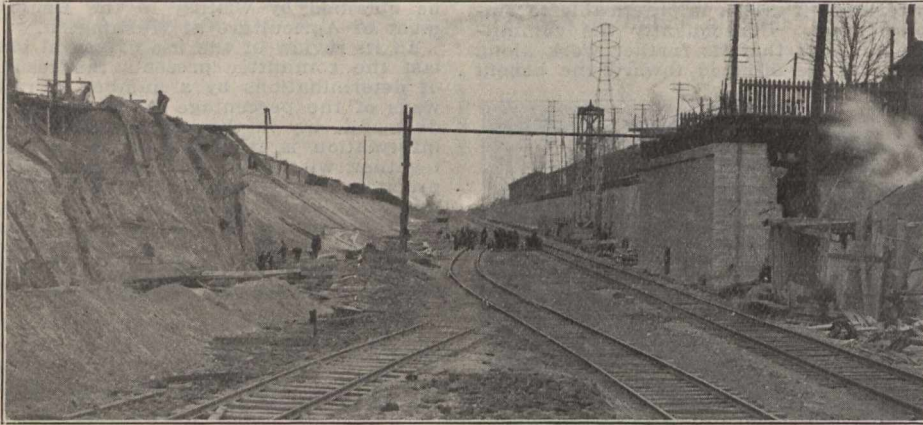


Fig. 6. G.T.R. Grade Separation. Shoring Wall at Exhibition Grounds, Dec. 1, 1911.

ties used per 30 ft. rail since 1905, the rail-bearing area now being about 40%, as against 35½% in the former year. It also appears that about 59% of the mileage reporting in the circular is of the belief that a 6 x 8 in. x 8 ft tie is too small and 96% of that mileage considers a larger tie desirable. It is found that 22 sizes of cross-ties are now in current use, with 47% of the mileage reporting using the 6 x 8 in. x 8 ft. size. It is pointed out that the sentiment is evidently in favor of a larger tie, but evidently the length has not been considered as much as the width and depth. Of the mileage reporting 18% uses a tie 8½ ft. in length and over 10% favors a tie 7 x 9 in. x 8½ ft., none favoring 6 x 8 in. x 8½ ft.

In connection with this discussion a table is presented which shows the superior strength of air-dried timber for ties as compared to that of green ties. A list of articles is appended relating to the size of cross-ties and the stresses to which they are subjected.

The committee draws the conclusion that it is not feasible to make a fixed rule for the size and spacing of ties based on the A, B and C classification of density of traffic due to the variation in the character of the subgrade, ballast, axle loads, tie timber and other considerations. In general, however, it is considered good practice for class A and perhaps class B roads to space ties 10 to 12 in. face to face, the width of tie being considered not so important with this spacing, provided that the minimum width of face of the ties is limited to 7 in.

The investigation relative to the advisability of renewals of ties in continuous stretches against single-tie renewals showed almost universal endorsement of single-tie renewals. Continuous renewals at station platforms, street crossings and similar places are favored by some. It is recognized that there would be advantages in continuous renewals in giving a uniform lift to the track and in reducing labor costs of renewals, but these are outweighed by the fact that single renewals keep the track as a whole in more uniform and safe condition and obtain the maximum life out of each tie.

As a result of its investigation of ties of other materials than wood, the com-

medium-speed traffic. It is believed that the fastenings for these ties will be further improved.

The discussion of this report brought up the question of computation of actual stresses in ties under given wheel loads. The opinion was expressed and sustained that enough information is now becoming available to permit approximate assumptions and exact methods of design somewhat similar to those for bridges and abutments. The President explained that progress had already been made along this line in Europe and

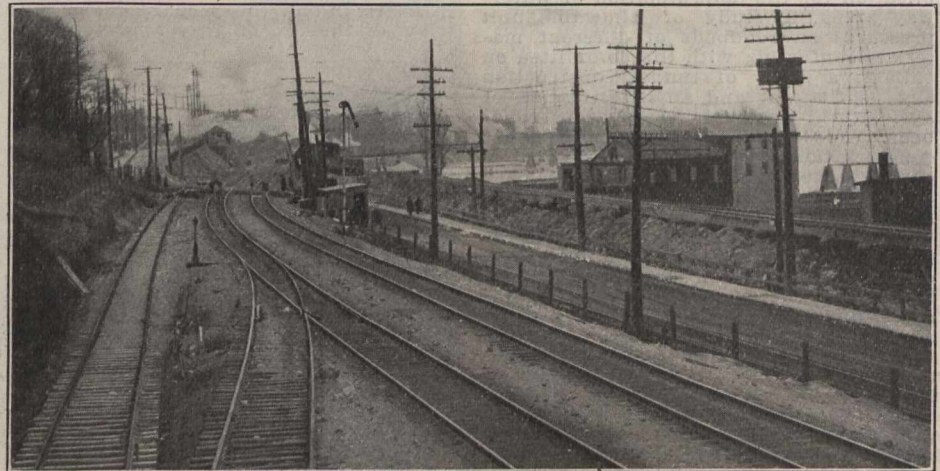


Fig. 7. G.T.R. Grade Separation. Looking East at Sunnyside, Dec. 1, 1911.

that it is proposed that the committee shall take up the subject.

Referring to the recommendation favoring single-tie renewals, Hunter McDonald gave some figures on an experimental mile of track laid in 1903, where he has applied the practice of renewals in continuous stretches, with the result that the maintenance account is so far about \$200 a mile cheaper than for single-tie renewals. He believes that the continuous system has its merits, but that railway officials have become accustomed to single-tie renewals and are not willing to go to the expense of trying the other plan. C. A. Morse stated that the Santa Fe had 22½ miles of experi-

and base. It also shows a difference between rails of different mills when the sections and chemical composition are practically the same.

M. H. Wickhorst, engineer of tests of the committee, has made an investigation to throw light on the relationship of the size of ingots of Bessemer rail steel to the segregation of the metalloids, locations of pipes and blow holes, and the properties of the rails. It was found that under the conditions of the tests, the carbon, phosphorus and sulphur collected or segregated toward the interior and upper part of the ingot and that, in a general way, such segregation increased with the size of the ingot. The

manganese segregated to a much smaller extent, while the silicon showed little tendency to segregate. The elements which segregated showed a lowering in the top part of the ingot below the average composition of the steel, and this lowering extended downward along the sides. The "negative" segregation increased with the size of the ingot and extended down farther along the sides. There was a region of negative segregation in the interior and lower part of the ingot, but the lowering of the elements was not as great in this region. It appeared that the material was distributed in the rail bar about the same, relatively, as in the ingot from which it was rolled.

Another investigation has been made by Mr. Wickhorst to determine the influence of the temperature of rolling on the properties of Bessemer rails. It indicated that the ductility and deflection in the drop test were little influenced by the rolling temperature. The number of blows to break the rails was uninfluenced by the temperature of rolling. The yield point and tensile strength in the tension tests were little influenced. The elongation in the tension test decreased some as the temperature increased. The influence of temperature showed most prominently in the tension test, in the reduction of area, which decreased as the temperature of rolling increased. The size of the grain shown by the microscope increased with the temperature. It appears that the ductility in the drop test with the head of the rail in tension more nearly indicates the ductility of the interior metal as measured in the tension test than does the ductility in the drop test with the base of the rail in tension, which is usual in inspection work.

An analysis of U.S. Government investigations of rail ingots at the Watertown arsenal, embodied in the report of tests at the arsenal for 1909 has also been made by Mr. Wickhorst.

J. T. Richards, Chief Engineer of Maintenance of Way, Pennsylvania Rd., has prepared a study of the compara-

He thinks the drop test does not go quite far enough and that more information is needed on the elastic limit and also upon the fibre stresses in rails. He also pointed out that if a high ductility in a crosswise direction were required in the drop test there would probably be fewer base fractures.

He said that carbon may vary considerably in different parts of a rail and that it should be examined carefully for it. Chemical composition, he believes, should be determined by the physical requirements of fibre stress and rolling

was adopted, some paragraphs of which however, are not considered as final, in that sufficient information is not yet in hand to make these sections mandatory. These paragraphs include provisions for modification of carbon for low phosphorus, for the fixing of average carbon, for ductility and for permanent set.

Committee on Track

The work of this committee has been directed toward the preparation of general specifications covering material and workmanship for frogs, crossings and

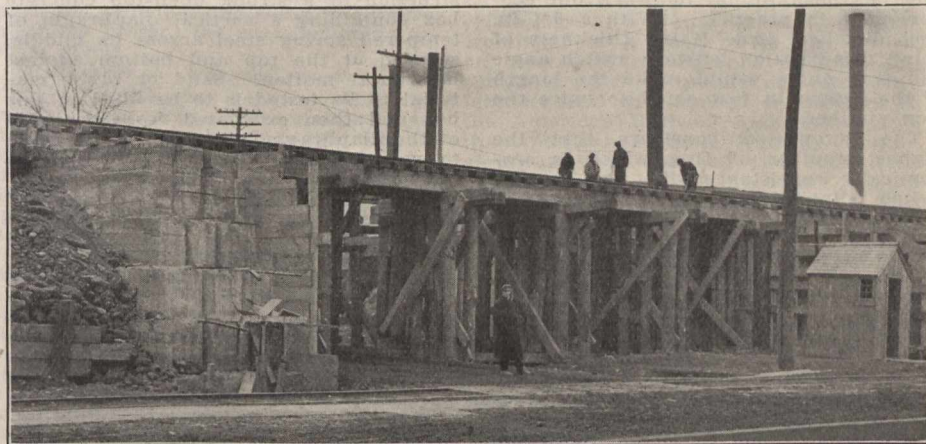


Fig. 8. G.T.R. Grade Separation. Keele Street Subway, Dec. 1, 1911.

resistance, and that a steel harder than a mild steel is necessary, though not so hard as to be brittle. He favors medium carbon in a zone around 0.65 to 0.70. He stated that the rapid alterations of stress may produce a change in the properties, the wheel pressures producing internal strains which might result in failure. To illustrate, he cited the case of a steel cylinder in which very high internal strains were induced by tapping continually with a light hammer, the bore becoming enlarged.

switches, including the use of manganese and other special alloys; specifications for track bolts, nuts, locks, tie plates, common track spikes and screw spikes; and the study of designs for main-line turnouts. Specifications for frogs, crossings and switches have been prepared and are included in the report. On the second subject the committee is formulating principles as to the functions, material and form of tie plates and track fastenings, but the work has not progressed far enough to be presented in the report. Work on the design of turnouts has been held in abeyance pending the adoption of standard numbers of frogs and lengths of switches.

This matter of frogs and switches has been under consideration several years. In determining the length of switches the committee reports that provision should be made for the following general classes of turnouts: (1) Those to be operated over the divergent route at the maximum practicable limited speed; (2) main-line turnouts and cross-overs to be operated over the divergent route at low speed; (3) yard turnouts, and (4) turnouts requiring frogs of large angle. Bearing upon this is the question of economical cutting of the 33-ft. rail. Objections which were presented to the use of the full 33-ft. rail are that the length, being the same as that of the stock rail, is such that one joint of the latter must necessarily come near the point of the switch and the other joint ahead of and near the heel of the switch, often necessitating the clipping of the angle bars; and also the great length of laterally unsupported rail. On these points the committee is of the opinion that the location of the joints of the stock rail 40 in. ahead of the point and heel of the switch is not seriously objectionable, and that the clipping of the angle bars is not an expensive operation and does not seriously weaken the joint; also that switches 33 ft. and even 45 ft. long have been successfully used to such an extent that there seems to be little ground for apprehension on account of the length of laterally unsupported rail.

It is stated that the longest switch points should be used in those turnouts where the highest speed is desired, and that since these switch points necessarily get severe usage they should be made of the very best rail. These considerations lead the committee to the

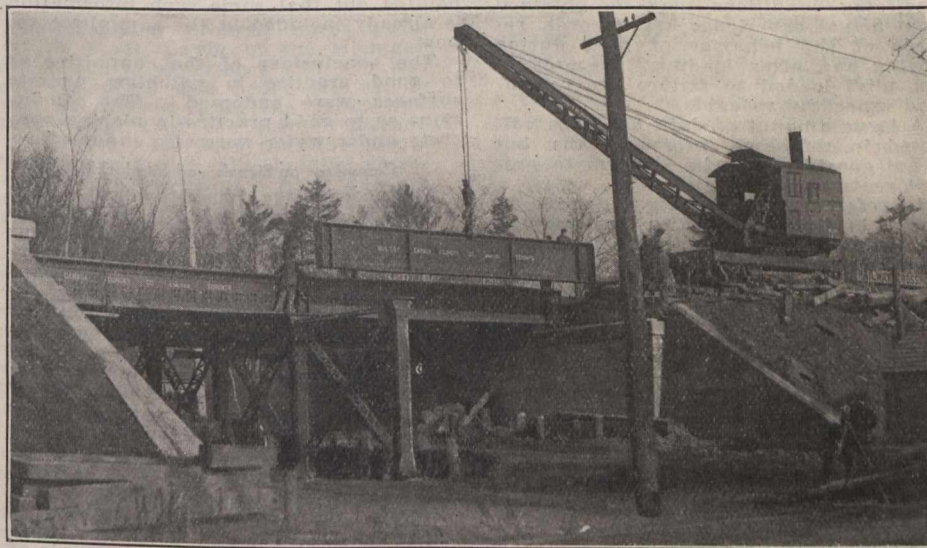


Fig. 9. G.T.R. Grade Separation. Locating a Subway Girder.

tive wear of Bessemer, open-hearth and nickel-steel rails on that road, which is appended to the report.

The committee presents a set of rail specifications and reports progress on recommendations for a standard rail section.

In the discussion, E. Howard, of the U.S. Bureau of Standards, stated that he believes the rail tests have not yet covered some important points. Speaking of the influence of ductility and the indications of the drop test, he stated that these show principally that the metal is well worked, which is already established by the fact that it has become a rail.

A point of discussion receiving considerable attention was brought up by L. C. Fritch, suggesting that a test piece should be taken from each ingot. He believes that in addition to the present prescribed tests, a piece should be taken from the A rail of each ingot, nicked and broken. If it shows no interior defect the rails of the ingot should be accepted. Otherwise the A rails should be rejected and a test piece broken from the B rail, and so on. It was pointed out that some Canadian mills have voluntarily proposed a somewhat similar plan.

A set of specifications for steel rails

opinion that the length of switch points for the four classes of turnout above mentioned should be respectively 33 ft., 22 ft., 16½ ft. and 11 ft.

A theoretical investigation of the rate of turning of a locomotive at the switch point and of the angle between the stock rail and a line passing through the truck centres of a car leaving the switch, indicates that an approximate balance between the deflection through the switch point and the deflection through the lead is attained when the switch angle equals one-fourth the frog angle. This proportion has been found to work out economically in practice. With a 6¼-in. heel distance and ¼-in. thickness of point, this relation between switch angle and frog angle would make the length of the switch in feet equal to twice the frog number.

The committee considers that the highest number of frog which is economically consistent with the longest switch point is desirable for turnouts of the first class and that frogs over no. 14 should have a 33-ft. point; 22-ft. points should be provided for frogs over no. 10 up to and including no. 14; 16½-ft. switch points for frogs over no. 6 up to and including no. 10; and 11-ft. points for no. 6 and under, where they are required. Frogs nos. 8, 11 and 16 are believed to meet all general requirements for yards, main-track switches and junctions. It is believed that new work should be laid out as far as practicable for these three frogs, so as to effect the gradual elimination of frogs of other numbers, lessen the cost of manufacture and decrease the amount of stock carried.

Discussion of this report centred on the lengths of switch points and the numbers of frogs which were recommended. In further explanation of the committee's selection of frogs nos. 8, 11 and 16 to serve all ordinary purposes, the chairman stated that though the no. 11 and no. 16 were not yet in very general use, they meet the present tendencies for sharper frogs for high speeds and modern equipment, give the most economical use of rails, and serve practically the purpose of a number of other frogs now in use, reducing the stocks required. The lengths of switch rail selected were explained to make economical use of the rail, to make possible the exact determination of the quality of the rail, in that they are made from the standard 33-ft. rail which is marked as to its position in the ingot. It was argued that they meet the present tendency for longer switch points. It was stated that in France and Germany switch points longer than 33 ft. are in use.

The Association adopted a set of general specifications for frogs, crossings and switches, together with plans for nos. 8, 11 and 16 rigid frogs, no. 11 spring frog and 11-ft., 16½-ft., 22-ft. and 33-ft. switches.

The recommendation was adopted that 16½-ft. switch points be used for frogs over no. 6, up to and including no. 10; 22-ft. points for those over no. 10, up to and including no. 14; 33-ft. points for those over no. 14 and 11-ft. points for no. 6 and under where they are required. Frogs nos. 8, 11 and 16 are recommended as meeting all general requirements for yards, main-track switches and junctions, and it is recommended that these three frogs be used in new work as far as practicable to effect the elimination of frogs of other numbers and thereby lessen manufacturing costs and decrease stocks carried.

Committee on Wooden Bridges and Trestles

This committee has been investigating the following subjects: formulas for use in determining the strength of sheet piling; equipment required for pile driving; special methods of driving sheet piles in cofferdams where conditions do not permit the use of ordinary equip-

ment; experience on the bearing power of piles and on the practical results of the use of formulas; the use of guard rails for wooden bridges and trestles, fire protection of wooden trestles.

An experimental method has been devised for determining the distribution of pressure on sheet piling as an aid in the work of the committee, and it was hoped that experiments would be carried out during the past year, but so far it has been impracticable to make arrangements for such. The procedure suggested for these experiments was the construction of a strong open-top concrete box containing a vertical diaphragm of tempered spring steel across its middle, secured at the top and bottom against horizontal motion. Sand or other material to be tested is to be filled in this box and then excavated from one side of the diaphragm, templates being made to record the curve of the diaphragm due to the pressure of the sand. To determine the amount and distribution of the pressure, the diaphragm would then be removed from the box and placed horizontally, supported at its end at the same points as formerly, and loaded with metal strips in such way as to obtain the same curve as that recorded by the templates. The total pressure and centre of pressure could thus be determined experimentally and could be checked mathematically from the recorded curve of flexure. It is believed that this apparatus could also be used for testing such materials as semi-fluid mud and ballast, and that it could be used to determine the pressure on abutments.

No data is given in the current report on the second and third subjects under consideration. In regard to pile-driving experience giving information on the practical use of formulas, the committee found that only a few roads kept records of their pile driving in form for use in its investigations. The committee is of the opinion that a pile-driving formula should be based on theoretical considerations, but that there are so many modifying conditions that the final formula must be more or less empirical. These modifying conditions may be obtained from actual experience and records, records of the behavior of piles during driving and after loading. Records of test piles loaded to failure are considered especially valuable.

A large amount of data has been collected in reference to guard rails, but is not considered to be in form to present recommendations.

In reference to the fire protection of timber bridges and trestles, the committee found that 62% of the 110,000 miles reporting adopted either full-ballast decks, floors protected by a thin covering of ballast or other light material or by sheet metal in such cases where fire protection was considered necessary.

Committee on Masonry

This committee has made a study of the waterproofing of masonry; methods of patching and repairing plain and reinforced concrete; methods of depositing concrete under water; and the unification of Portland cement specifications. Replies to a circular letter, which are abstracted in the report, show that waterproofing is being done throughout the country, but that the methods used are very much the same as previously reported. Some of the replies indicate that impervious concrete can be made without special waterproofing by using a suitable gradation of aggregates and cement and reinforcing the concrete to counteract temperature and shrinkage stresses and by using care in depositing to obtain a dense concrete.

It is observed that in using such materials as felt with coal tar, pitch or asphaltum, fair results are obtained when the weather conditions are favorable and when the work can be done without interference, working continuously until completed; but when such

work is done at an unfavorable season, or at separate periods, or in separate sections, under difficulties, or where undue haste is necessary, the results have generally been unsatisfactory.

Relative to methods of patching and repairing concrete, the committee has found that most of its replies contain useful information. These replies are abstracted in the report and certain methods are described, together with comments on their service.

In its investigation of depositing concrete under water the committee finds that nine methods are being employed effectively.

In regard to the unification of Portland cement specifications, the committee has been represented during the year at several meetings of committees representing the U. S. Government departments, the army, the American Society of Civil Engineers, American Society for Testing Materials and Association of Portland Cement Manufacturers. At these meetings agreement was reached upon all points excepting the use of the Vicat needle vs. the Gilmore needle in determining the time of set and the Vicat needle vs. the ball tests in determining normal consistency. The result has been that the Government's representatives have recommended the latter test in each case for the standard Government specification, which agrees with the present standard of the association, but uniformity among all those represented has not yet been attained on these points.

Discussion of the recommendations as to methods of patching concrete brought up the question of the use of patented compounds. The committee explained that such materials had not been definitely considered for strictly patching purposes, since their cost is stated to be much more than that of cement, and cement seems to answer satisfactorily. The opinion was expressed that information should be obtained on such special preparations if it is found that they meet conditions where plain concrete does not appear to answer, but it was pointed out that some such information is already included in the committee report.

The conclusions of the committee as to good practice in patching concrete surfaces were endorsed. The conclusions as to good practice in placing concrete under water were also endorsed.

Committee on Signals and Interlocking

This committee has prepared a new insulation-resistance table to be added to its revised specifications for various kinds of insulated wire and has prepared a report on uniform signaling, conferring with the American Railway Association. This latter report contains majority and minority recommendations. The majority presents a signaling scheme in which there are included, in addition to the fundamental positions of "stop," "proceed with caution" and "proceed," a number of supplementary indications covering cases where it is desired to give advance information as to the condition of the block ahead. The minority report provides for positions of the signal covering only the three fundamentals and the supplemental signals of "proceed at low speed" and "proceed at medium speed," the view being held that advance information should not be given and that each signal should have no relation to those in advance or in the rear, but should be observed as the train comes to it.

Committee on Records and Accounts

This committee has continued its study of forms, but has spent the greater part of its time this year in a study of economical ways of managing a storehouse so as to assure a minimum stock of materials at all times. This latter investigation has been based on the effects of storehouse management on the broader

economies of maintenance and operation.

From a study of the report of the Interstate Commerce Commission for 1909 it is found that the wages of labor of the classes whose efficiency depends to a great extent on having proper materials and tools represents about 29% of the total operating expenses, and that the interest on the total value of materials and supplies on hand, at 5%, amounts to about 2.2% of the wages of those employees. Assuming it possible to reduce the stock 50%, it is pointed out that the annual saving would be only 1.1% of the amount paid in wages, so it is believed that even a slight loss in the efficiency of the labor, through failure to secure materials and tools as required, will soon absorb much more than the amount saved by reduced investments in stock. It is therefore believed that the most important function of a storehouse is the prompt delivery of materials and tools so that delays to labor may be reduced to a minimum.

In order to facilitate prompt delivery the committee states certain general principles governing storehouse management, which include standardization of materials and instructions for their use in order to reduce to a minimum the number of items of material of the various classes carried in stock; classification for economical handling; proper stock account for prompt replenishment; notification of shipment in distribution; and efficient organization of the storekeeper's department.

Committee on Rules and Organization

This committee has continued its compilation of rules for the government of maintenance of way employees, which has been carried on for several years past, and has also given attention to the formulation of rules in the nature of specifications or instructions regarding the conduct of work. In the latter connection the committee presents instructions in regard to the maintenance of the proper cross-section of roadbed, the provision of drainage, ballasting, handling of ties, handling of rail and surfacing.

The discussion brought out a statement by E. R. Lewis, of the Michigan Central Rd., of experience with ties laid heart-side down and heart-side up, in which he differed from the committee, which stated that the former method is preferable. He finds that the heart-side up gives better spike-holding power and produces less trouble from warping and checking, due to its denser wood. Further discussion led to the alteration of the committee recommendation to allow ties to be laid either way to obtain the best bearing.

Instructions for the conduct of track work were adopted as presented in the report with several minor changes. These instructions cover the maintenance of the subgrade, ballasting, placing ties, laying rail and surfacing.

Committee on Water Service

Investigation is in progress by this committee on the subjects of the design and relative economy of track pans; deep-well pumps; reinforced concrete for water tanks and supports; and water treatment.

Progress is reported on the study of track pans, and it is stated that extensive tests are in progress on the Pennsylvania Rd. at Atglen, Pa.

In its report on concrete for water tanks the committee makes reference to a number of cases of this type of construction and presents a discussion of the advantages of concrete for this purpose and the disadvantages which must be overcome in adapting it. General specifications are presented in the report for reinforced-concrete stand-pipe water tanks for railways, and sketches are given for a tank of this type and also for a concrete tank on a reinforced-concrete substructure.

Progress is reported on the investigation of water treatment and the report presents a paper giving an account of an experience with locomotive boiler corrosion, which followed a partial installation of water softeners, where small pumps were added to discharge soda ash in solution into the tanks.

In the discussion a set of specifications for steel water and oil tanks was adopted as representing good practice. They are intended for tanks requiring plates not more than $\frac{5}{8}$ -in. thick and of open-hearth steel. Some changes were made in the specifications as printed in the report, the principal one being to eliminate for the present the parts referring to special steels.

Committee on Yards and Terminals

This committee has been investigating situation plans of passenger stations; development in mechanical freight handling; the design and operation of hump-yards; situation plans for engine terminals; and methods of handling baggage, express and mail at passenger terminals.

Reference is made to a number of installations for mechanical freight handling which are being studied, but it is pointed out that sufficient time has not yet elapsed since their installation to enable all points as to their utility to be determined, and consequently full report on the systems is held over for future presentation. A list of published accounts of freight-handling installations is included in the report.

The committee has prepared a typical situation plan for a division engine terminal and presents this with a discussion of the considerations influencing the planning of such a layout.

The committee reports progress on its other investigations, but is holding the data collected for future presentation.

In the discussion the following principles were adopted as governing the oil of lower grades; these are the same design of a division locomotive terminal: The locomotive terminal should be so located as to afford easy access to both main line and yards, with the fewest possible reverse or conflicting movements; and the facilities provided should be arranged to permit of the most direct and rapid handling of a locomotive in its terminal in the order of its needs.

Committee on Iron and Steel Structures

As a part of the work of this committee a further investigation has been made of secondary stresses by means of field tests. A special form of extensometer for measuring such stresses has been developed and manufactured and has been used for several weeks in the field. The instrument has been developed along the lines of the extensometers used in impact tests, but to secure sensitivity the principal bearings were made with knife edges, and instead of using a pencil for securing a continuous record a ray of light has been utilized to make the record by allowing it to pass through a minute perforation in a disc at the end of a long lever, the path of this ray of light being photographed on a moving slip of sensitized paper. It is stated that the instrument has proved satisfactory in practical operation and that a very good record has been obtained. The sensitized paper was developed in the field so that results were quickly obtained. Several field tests were made, but the results have not yet been put in form for presentation.

Progress is also reported on the subject of instruction and guidance of inspectors in mills, shops and field, and it is expected that the results will be available within a few months.

On the subject of the design of built-up columns the committee reports that it is working with the joint committee of the American Society of Civil Engineers, and that a very comprehensive programme is planned which should add

greatly to the present knowledge of the subject. Practical work on this subject has not yet been taken up.

The work of the committee along the line of specifications for the erection of steel bridges has resulted in the preparation of a set of such specifications, which are included in the report.

A set of specifications for the erection of railway bridges was adopted as presented in the committee report with some slight changes.

Committee on Electricity

The committee on electricity has directed its attention to the subject of clearances and transmission lines and crossings. As a result of its year's work on clearances a clearance diagram for third-rail lines is presented, and conferences held with similar committees of the American Railway Association, and the American Electric Railway Engineering Association lead the committee to believe that similar diagrams will be recommended to those associations. The clearance lines have been established from a study of the clearance diagrams of all principal railroads in the U.S. using third rail. Practically all of the mileage thus represented, with the exception of some interurban electric roads and elevated roads in cities, will clear with this diagram.

As the result of its work on transmission lines and crossings, which has been carried on in conjunction with committees of other interested technical associations and representatives of the telephone and telegraph companies, a set of specifications is presented and is included in the report.

Discussion on this report was chiefly in relation to details of the specifications for transmission lines and crossings, the specifications being adopted with certain revisions, bringing them into accord with those of other interested associations, and giving promise, it was explained, of thus attaining a uniform specification for this country.

A definition of third-rail gauge was adopted, stating that it shall be the distance measured parallel to the plane of the top of both running rails between the gauge of the nearest running rail and the inside gauge line of the third rail.

A standard clearance diagram was adopted, showing lines for equipment and permanent way structures adjacent to the third rail and for the third-rail structure.

A set of specifications for overhead crossings of electric light and power lines was adopted along lines which it is believed will make it conform to a uniform standard for this continent.

Conservation of Natural Resources

This committee has made an extensive investigation of tree planting and general reforestation and of coal and fuel oil resources, collecting information concerning the United States and Canada. A large amount of this material has been presented in the report as progress information. A review has been made of the subject of tree planting and to this there is appended a bibliography of articles pertaining to the U.S. timber sources.

Attention is drawn to the enormous consumption and waste and the loss by fire, and it is shown that experience abroad proves that damage by forest fires is preventable. The consumption of timber in the U.S. (not including fire losses) is 230 cu. ft. per capita, as against 37 cu. ft. in Germany and 25 cu. ft. in France.

As the result of its work on coal and fuel oil resources the committee presents a number of abstracts of important papers on the subject, together with statistical information and specifications, much of this material having been taken from reports issued by the Government.

Signs, Fences and Crossings

The chairman of this committee explained that the investigations of fence

wire to secure a quality resisting corrosion had met with the co-operation of wire manufacturers and that a large amount of data had been collected which should warrant definite conclusions next year. Up to the present time it appears that wire galvanized after weaving has proved most durable. It was also stated that the tendency toward concrete fence posts was becoming very pronounced and should soon furnish valuable information, but that the period of service is as yet too short.

Relative to forms of flangeways at crossings it was stated that a special roller filler is being tried which should prove a distinct advance.

Discussion of railway signs pointed toward the desirability of uniformity throughout the country as both advantageous for the railways and the public. It was stated that the railways and the public utilities commissions of several States have already taken up this matter and that the railways should take some early action.

The report of the committee on signals and interlocking was presented as information and there was no discussion.

Committee on Wood Preservation

This committee recommended that ties should be grouped for treatment: (1) Those of the two general species of hardwoods and pines should be grouped separately; (2) heartwood and sapwood pine ties should be kept separate; (3) green and seasoned ties should be kept separate, and (4) ties of approximately the same period of seasoning should be put together for treatment. These recommendations were adopted.

The revised standard specifications provide that the oil shall be "the best obtainable grade of coal-tar creosote; a pure product obtained from coal-gas tar or coke-oven tar, and free from any tar (including coal-gas tar or coke-oven tar), oil or residue obtained from petroleum or any other source." At 38 degs. C., it must be liquid and of at least 1.03 specific gravity; it must give no distillate below 200 degs. C., not over 5% below 210 degs. not over 25% below 235 degs. and the residue above 355 degs. C. (if over 5% in quantity) must be soft. The oil must not contain over 3% water. Specifications were submitted also for oil of lower grades; these are the same as above, except that the distillate below 210 degs. and 235 degs. may be 8 and 35% for no. 2 oil and 10 and 40% for no. 3 oil, while the specific gravity for the no. 3 is 1.025.

Discussion of this report centred on the proposed revisions to the specifications for creosote oil. Objection was made to the presentation of a specification for a no. 2 and a no. 3 grade on the ground that it might lower the standards of quality of the treatment. The committee explained that this was done simply to meet a commercial condition which cannot well be avoided in that creosote meeting the no. 1 specification cannot be had in a great many cases. The no. 2 and no. 3 specifications, which differ from the no. 1 only in allowing slightly greater percentages of distillation, meet the needs of many cases and may offer some price advantages. It is stated, however, that where these grades are used it is desirable to inject a greater quantity per cubic foot. It was pointed out that there are cases where the use of such grades would be economical, because of the probability of ties wearing out in the track before they were made useless by decay.

S. R. Church, from the manufacturer's point of view, stated that any of these three oils would prove an effective preservative. He also observed that there is a constant effort among the manufacturers to improve quality.

The following principles governing the grouping of timbers for antiseptic treatment were adopted, which are expected

to be supplemented by further conclusions made from future work.

Ties of approximately the same period of seasoning should be grouped together for treatment; green ties should never be mixed with seasoned ones.

Pine ties should be separated on the basis of heartwood and sapwood; it would also be advisable in some cases to group hardwoods on the same basis, but it is not generally practical to do so.

Grouping on the basis of species and families, as for example, red oaks, pines, beech, etc., if a further division into heartwood classes is made with pine is usually a satisfactory practice. From this it follows that red oak, beech, long-leaf pine, loblolly pine and gum should be treated separately. Birch and hard maples and certain other combinations depending on the locality, can be grouped together to advantage.

The separation in the yard, on the basis of the ties are to be grouped for treatment, is an essential and economical practice.

Changes in the adopted specifications for creosote oil, recommended by the committee, were approved as follows: The first clause of the standard specification was revised to state that creosote oil shall be a pure product from coal gas tar or coke oven tar and free from any foreign admixture, including coal gas tar or coke oven tar. A specification was also added for a no. 2 grade of creosote oil, differing from the no. 1 in that it permits greater percentages of distillation; and for a no. 3 grade, showing higher distillations than the no. 2.

Buildings.

The report consisted mainly of information in regard to various roof coverings (supplementing the report of 1911), and several drawings showing different styles of flashing used for roofs and walls, and methods of laying asbestos shingles.

Grading of Lumber.

The committee submitted definitions of defects and rules for the grading of lumber, which represent specifications for maintenance-of-way lumber, as it can be purchased in the market at present. Similar matter was presented at the 1911 meeting, but was not then adopted. The report was adopted without discussion.

Uniform General Contract Forms.

The association approved the recommendation that a two-page general agreement be used as a folder within which the other portions of a contract can be bound, thus permitting a concise contract form or a large contract form, according to the requirements of the case. A two-page form for this purpose was adopted as presented by the committee. A partial set of general conditions for a construction contract was also adopted, but the committee proposes to add other paragraphs in the future to make it complete.

Safety in Steel Rails.—A joint committee of railway officers and steel-rail manufacturers, organized to consider what can be done to make steel rails less liable to breakage and more durable, was held in New York city recently. It was conceded that improvements can and ought to be made by both sides. Every reasonable effort will be made promptly in this direction. A subcommittee of six was appointed, three representatives of the railways and three of the steel manufacturers to consider the whole subject matter and report their conclusion and recommendation at a future meeting of the general committee.

U. S. courts have recently decided cases for damages against the C.P.R. for forest fires in Maine in 1898, due to sparks from locomotives. The amounts awarded aggregate \$139,400, being about half what was claimed.

Victoria Rolling Stock and Realty Co. of Ontario, Ltd.

Following are extracts from the report for the year ended Feb. 15, 1912, presented at the annual meeting in Toronto, March 6:—

The company has not issued any new debentures, and outstanding debentures against leases have been reduced by \$160,000. The profit on the year's business, after charging up directors fees and expense account, was \$30,488.09, out of which a dividend of 6%, or \$14,400, has been paid, leaving \$16,088.09 carried forward to profit and loss account, which now amounts to \$50,500.11.

ASSETS.	
Obligations on leases	\$1,065,675 00
Debentures held by company and accrued interest	107,324 61
Cash in bank	71,833 83
Call loans	175,000 00
	\$1,419,833 44

LIABILITIES.	
Capital stock subscribed	\$600,000 00
Capital stock paid up	\$ 240,000 00
Debentures outstanding	1,120,000 00
Interest accrued on same	9,333 83
Balance at credit of profit and loss account	50,500 11
	\$1,419,833 44

PROFIT AND LOSS ACCOUNT.	
Balance at credit of profit and loss account, Feb. 15, 1911	\$ 34,412 02
Rents received and accrued on leases and interest on advances and debentures held by company	82,664 21
	\$117,076 23
Interest paid and accrued on debentures	\$ 49,996 83
Expense account	879 29
Directors' fees last year	1,300 00
Dividend account	14,400 00
Balance carried forward	50,500 11
	\$117,076 23

MEMORANDUM RE ROLLING STOCK.	
Original cost of rolling stock held under existing leases	\$2,939,370 00
Amount paid in on account by railway companies in addition to interest	1,819,370 00
Total amount of the company's debentures outstanding	\$1,120,000 00

The directors and officers for the current year, who were re-elected, are as follows:—President, Sir Edmund B. Osler; Vice President, W. D. Matthews; Managing Director, R. A. Smith; other directors, D. Coulson, Hon. J. S. Hendrie, F. G. Osler, D. C. Wilkie.

Improved Mikado Type Locomotive.

A forward step in locomotive design was recently made by the American Locomotive Co. in the construction of a Mikado (2-8-2) type locomotive for the Chesapeake and Ohio Ry. A very complete interchangeability of parts has been obtained between this locomotive, designed for heavy moderate speed freight service, and a Mountain (4-8-2) type locomotive built for severe passenger service in hilly country on the same road. Practically all the important parts are capable of an interchange, these including such members as cylinders, crossheads, pilot, pistons, bearings, springs, throttle, side rods, crank pins, trailing truck, and numerous other parts of equal importance. In all, there are nearly 60 main parts that are the same on both locomotives. This duplication of parts is said to have been made without any sacrifice in the efficiency of the newer locomotive. The principal change in the design, due to the shorter wheelbase, occurred in the boiler, which was shortened the desired amount through reducing the lengths of combustion chamber and smokebox, the tubes remaining as before.

Mackenzie, Mann and Co., Ltd., have ordered recently 75,000 tons of steel rails from the Dominion Iron and Steel Co., and 50,000 tons from the Algoma Steel Co., for use on the various Canadian Northern Ry. lines.

Simple Mallet Locomotive Built by the Canadian Pacific Railway.

In the March issue of *The Railway and Marine World*, a detailed description of a series of Mallet locomotives built by the C.P.R. for use in the mountain service on the British Columbia Division was given. It was mentioned that the fifth of the series was to differ from the other four in that it was to be simple with 20 x 26-in. cylinders on both frames, instead of 23 x 26-in. on the rear, and 34 x 26-in. on the front frames, as in the compounds. This simple Mallet is numbered 1955, the others running from 1951 to 1954.

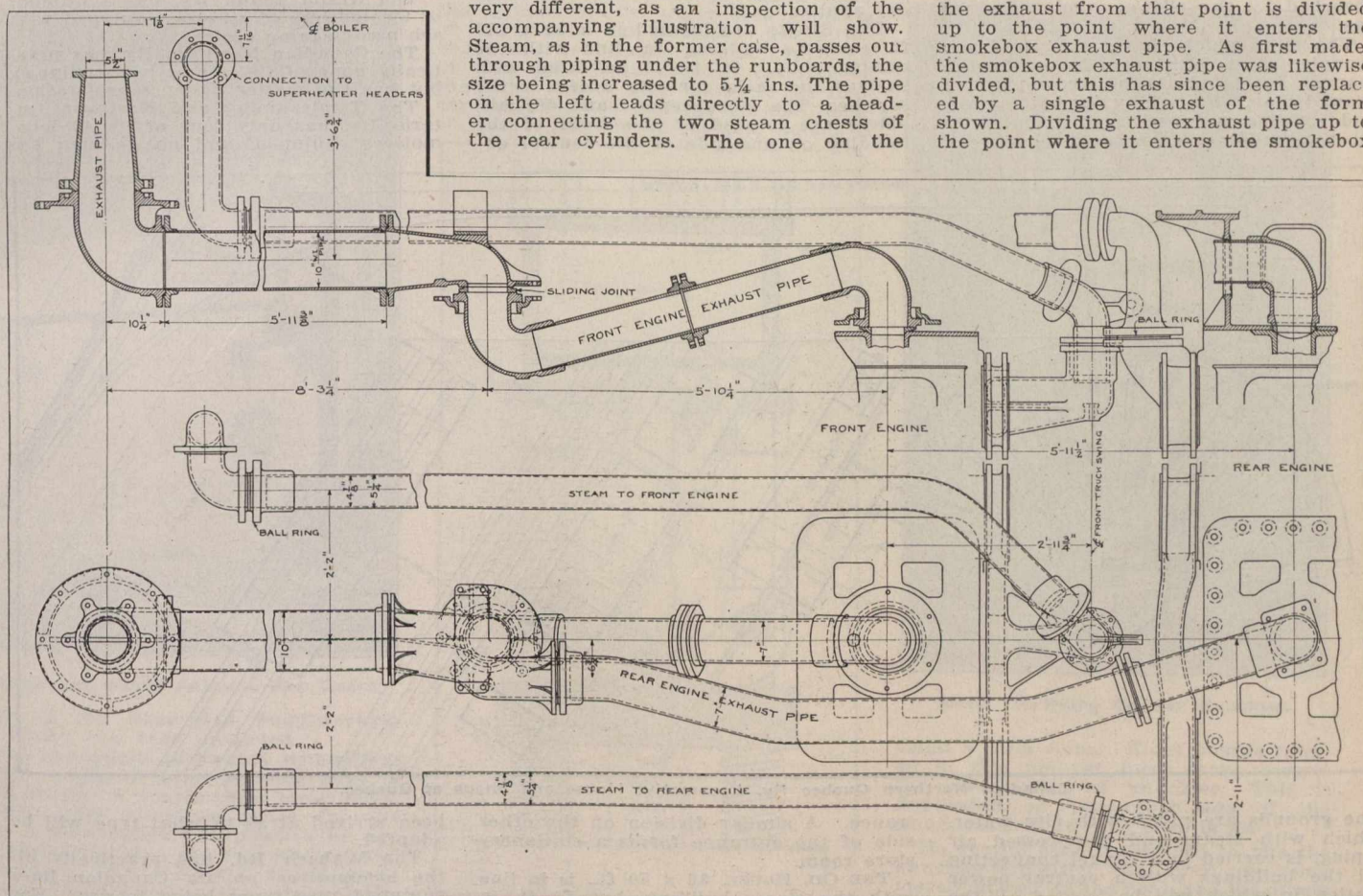
The general design of this locomotive has been carried out on the same general lines as the compounds, except that the boiler was increased slightly to give a greater heating surface, and the valve

steam in exhausting from these cylinders, passed straight out through the valve body to a small header on the ends of the valve chambers, connecting then through a looped pipe to the low-pressure cross-over header. The connection between the two engines through this looped pipe, is through a swivel joint located directly over the point of junction of the two frames. From the low-pressure cross-over header the steam is passed into the low-pressure chests, which are of the outside admission type. The exhaust from these cylinders passes out from the valve chambers to a common exhaust pipe, 9 ins. diameter, leading to the exhaust pipe in the smokebox. This 9-in. pipe is designed to adjust itself to the different positions of the front truck by having the ends swivelled, one end in addition having a slip joint that allows the pipe to lengthen slightly when the engine is taking a curve.

The piping in this simple engine is very different, as an inspection of the accompanying illustration will show. Steam, as in the former case, passes out through piping under the runboards, the size being increased to 5 1/4 ins. The pipe on the left leads directly to a header connecting the two steam chests of the rear cylinders. The one on the

the connection on the boiler and that on the front cylinders is very slight, expansion joints capable of meeting a wide range of extension are not a necessity. Instead, sufficient extension can be obtained by having the faces of the elbows slide on the faces of the ball rings. The method of thus allowing the faces to slide within limits is obtained by a simple change in design. A large retaining ring, bored out 1 1/2 in. larger in diameter than the flange of the elbow, is held in position by studs carrying small coiled springs, of 200 lbs. capacity each, between the flange and the nuts of these studs. This allows the joint to slip within the limitations set by the bore of the retaining collar, and at the same time maintain a steam-tight joint.

The front sliding joint connection is attached directly to the lower face of the Y-connection casting, the rear engine exhaust passing through a flanged connection face. As before mentioned, the exhaust from that point is divided up to the point where it enters the smokebox exhaust pipe. As first made, the smokebox exhaust pipe was likewise divided, but this has since been replaced by a single exhaust of the form shown. Dividing the exhaust pipe up to the point where it enters the smokebox



Steam Piping Arrangement for the Canadian Pacific Ry. Simple Mallet Locomotive.

gear was changed to suit the new single-expansion cylinders. The cylinders, steel castings as in the compounds described in the last issue, and similar in construction, are all made from the same pattern, both pairs having outside admission. This feature results in both the front and rear valve gears being duplicates. The valve travel was increased from 5 1/2 to 6 1/2 ins. in order to obtain a greater cut-off, the maximum being at 88% of the stroke.

The arrangement of steam piping, one of the most prominent points of difference in these locomotives, is shown completely in the accompanying illustration. In the compounds, the steam passed back from each side of the superheater header through the smokebox sides to 5-in. pipes passing along under the run-board on each side to the high pressure cylinders located one on each side of the forward end of the rear frame. The high-pressure cylinders, being of the inside admission type, meant that the

right leads back to the swivel connection located directly over the point of juncture of the two frames, passing down into a cross-over header connecting the front cylinder steam chests. The four cylinders being of the outside admission type with the exhaust passage coming up through the top of the valve chest, make a good arrangement of exhaust piping, as the illustration points out. The exhaust from the rear engine passes through a 7-in. pipe leading over the front cylinders and under the boiler to a Y-connection. The front engine exhausts from both engines pass on into a 10-in. pipe divided down its centre by a 1/4-in. plate, leading into the smokebox, exhausting at that point through a 5 1/2-in nozzle.

The exhaust from the front engine is the only one requiring flexible connections, and as the relative movement of

exhaust pipe, has the advantage of making the draft more continuous, and what is more important, keeps it from losing strength. Were the exhaust of both cylinders to pass into the large volume of the 10-in. pipe, provided the latter were not divided, this pipe, from its volume, would act as a receiver, reducing the intensity of the draft.

The only other simple Mallet in America that is known to the writer, is one recently built by the American Locomotive Co., for the Pennsylvania Rd. This was claimed by the builders to be the only one then existing, and as far as known, none has since been constructed, other than the C.P.R. locomotive under discussion. The Pennsylvania locomotive is so different in construction from this simple Mallet as to make a fair comparison impossible. The C.P.R. locomotive was the first to be put into regular service, the other having been subjected to considerable experimenting before it was finally put into service.

The C.P.R. locomotive was in regular service last October, while the Pennsylvania one, as far as can be ascertained, was not working before the end of November.

The writer is indebted to the C.P.R. Motive Power Department for the information contained in the foregoing.

Canadian Northern Quebec Railway Locomotive House and Shops at Quebec.

The Canadian Northern Quebec Ry. is building a roundhouse and shops at Quebec for joint use with the Quebec and Lake St. John Ry. The location is on the outskirts of the city, just across the St. Charles River, at a point where the two railway lines come together in the old village of Limoilou, which was absorbed by the city a couple of years ago.

The site, which is practically level, occupies some 20 acres laid out in the manner indicated in the accompanying ground plan. Electricity for both power and lighting purposes is distributed to all the buildings from outside sources.

for locomotive repairs. It is a reinforced concrete building 62 x 168 ft., provided with both standard and narrow gauge tracks down the centre, the latter connecting with the narrow gauge system in the roundhouse. One corner of the shop is partitioned off for the boiler room, and contains the heating apparatus and the necessary auxiliary equipment. All the machine tool equipment is to be contained in the machine shop, with none in the drop pit part of the roundhouse, this being the reason for these two buildings being located adjacent to each other. The machinery from the old shops is to be installed, together with a considerable quantity of new machinery to cope with the increasing rolling stock.

THE CASTING SHOP or foundry is housed in a concrete building, 50 x 80 ft., located parallel to the machine shop with an intervening space of 50 ft. It is to be equipped with the latest in foundry appliances.

THE STORES are located in a 50 x 130 ft. concrete building in line with the casting shop. It is to be fitted with shelves and racks for easy access to the supplies. The storekeeper's and officials' offices are located at the front of the building on one side of the central en-

required at present and in the near future the shops will be of sufficient capacity to meet all demands.

Self Clearing Ash Pans for Locomotives.

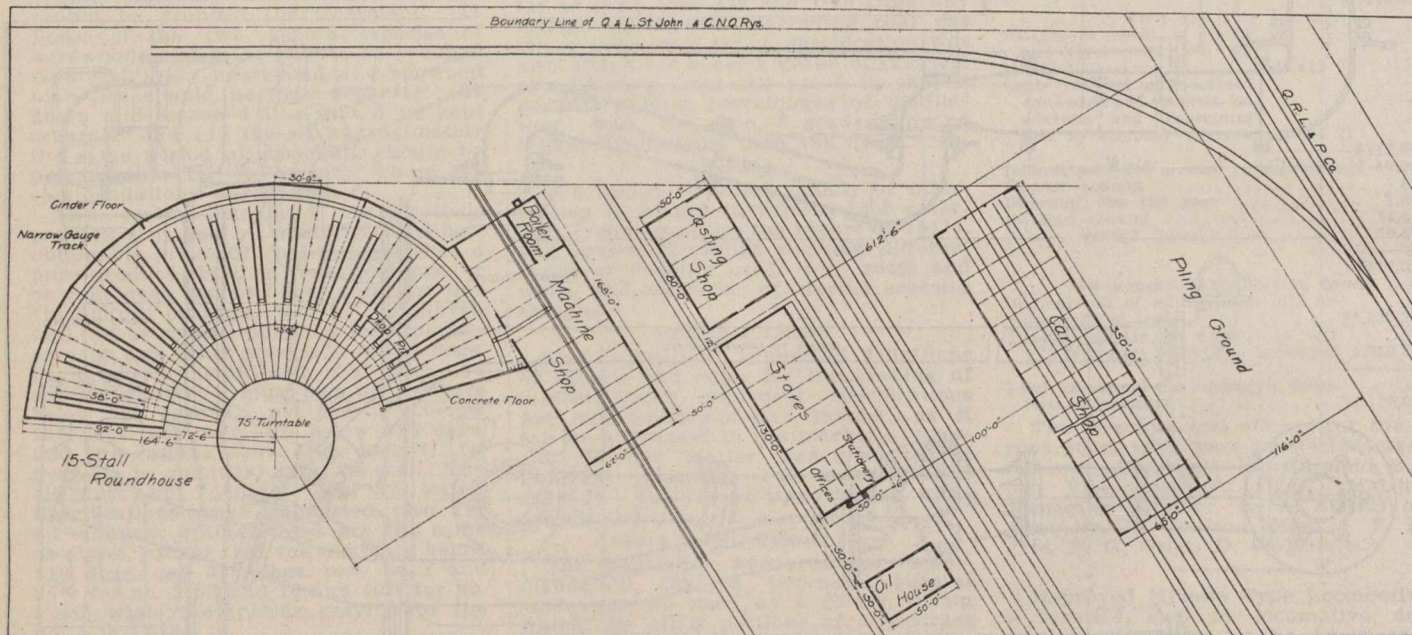
Mention was made in The Railway and Marine World for March that the Board of Railway Commissioners had passed an order requiring that all railways under its jurisdiction must by Dec. 31, 1913, equip their locomotives with ash pans that may be dumped without the necessity of any employe going under the locomotive to do so. In order to ascertain the extent to which dumping ash pans are used in Canada, we communicated with the larger railways and have elicited the following information:—

The Canadian Pacific Ry. has about 25% of its locomotives equipped with a standard type of self-clearing ash pan.

The Grand Trunk Ry. has a number of locomotives of all sizes equipped with ash pan cleaning devices.

The Canadian Northern Ry. has practically none of its locomotives equipped, but has the matter under consideration.

The Temiskaming and Northern Ontario Ry. has only four of its 40 locomotives equipped, and no decision has



Canadian Northern Quebec Ry. Locomotive House and Shops at Quebec.

The grounds are piped with city water, which with steam and compressed air piping, is carried in a tunnel connecting all the buildings with a central power station in which will be located all the heating apparatus, compressors and water pumps.

All the buildings are single story, constructed throughout in a fireproof manner of reinforced concrete. Entrance to all the buildings from the tracks is from the lower end.

ROUNDHOUSE.—A 15 stall roundhouse is located at the left end of the grounds. It is divided into three 5 stall sections by two fire walls, with communication between the sections through doors at the rear. A 75 ft. turntable provides access to all the stalls. The two sections to the left have cinder floors, while the third is laid with concrete for washout purposes. This latter section also has a connecting drop pit under three of its stalls, each equipped with hydraulic jacks for lowering driving wheels, etc. Around the rear wall of the roundhouse, there is a narrow gauge track for the carrying of parts, leading into the machine shop by means of a couple of small turntables.

MACHINE SHOP.—Along the right edge of the roundhouse is the machine shop

trance. A similar division on the other side of the entrance forms a stationery store room.

THE OIL HOUSE, 30 x 50 ft., is in line with the stores building, but 50 ft. in front, designed in the most approved manner. Self-measuring oil pumps located along the side walls, connect with the oil supply tanks in the basement, where they are away from disturbing influences. The whole structure is of reinforced concrete.

THE CAR SHOP, located 100 ft. to the right of the last row of structures, is a reinforced concrete building, 65 x 350 ft., extending some distance below the position indicated as its end in the plan. There are three repair tracks extending the length of the building. One end of the shop is to be set aside for the necessary wood-working machinery.

PLILING GROUND.—Alongside the car shop there is a strip of land 116 ft. wide for timber, car repair parts, and sundry outdoor stores.

The shops as at present planned are not very extensive, as the intention is to only handle such rolling stock there as terminates at that point. This will include the Quebec and Lake St. John Ry. and the eastern end of the Canadian Northern Quebec Ry. For the purposes

been arrived at as to what type will be adopted.

The Wabash Rd. has practically all the locomotives on its Canadian lines equipped, two types being in use. For shallow ashpans, the swipe system is used, by which the ashes are blown out by steam pressure, while a self dumping ashpan is applied on the deeper types of pans.

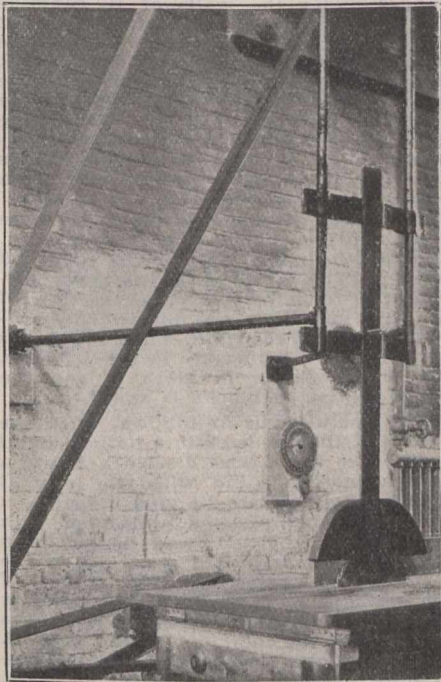
Largest Railway Terminal in Germany—The central station at Frankfort which has heretofore held the record for size among the railways terminals in Germany, must now give place to the station at Leipzig, which has been building for the last nine years and has just been completed at a cost of \$34,000,000, an outlay represented not so much by ornament and decoration as by enormous size for the accommodation of freight as well as passenger traffic.

During Feb., 12 employes were killed and 31 injured in the course of their work connected with the operation of Canadian railways. Of the fatalities, five were due to persons being run over, three to being crushed between cars, two to derailments, and one each to being struck by a train and to falling material.

Railway Mechanical Methods and Devices.

Saw Guard at the Michigan Central Railroad Car Shops.

Prevention of industrial accidents occupies a very important position in the minds of those responsible for the physical welfare of their workmen. Railway shops have kept well in the van in this movement for better safety devices on dangerous machinery, such as saws and machines of a similar nature. In this connection, the Michigan Central Rd. St. Thomas, Ont. shops afford a good example in some particulars of what is being done in that connection, for the writer on going through them was impressed with the manner in which



Simple and Easily Adjusted Saw Guard.

some of the dangerous wood-working machinery had been protected.

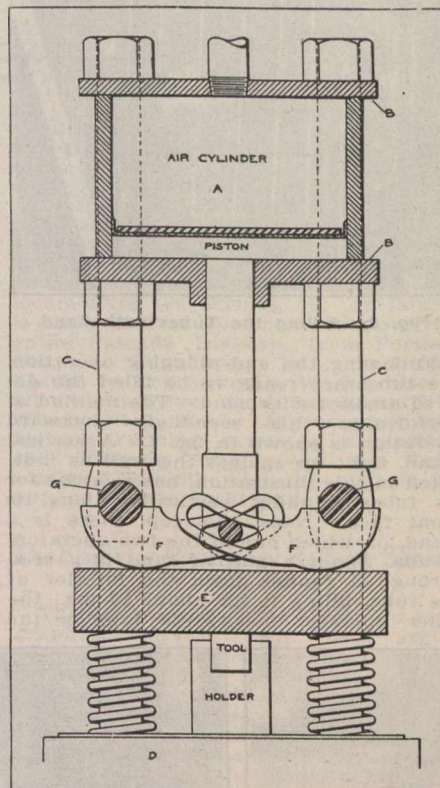
The saw guard illustrated herewith is a fair sample of what is being done in these shops. A simple sheet metal hood, giving ample clearance space for the saw, is held securely in position by two pipe supports from the roof girders, and is laterally braced in the manner indicated. This holds the saw rigidly, the vibration of the saw not affecting it in any way. The vertical strip holding the guard, slides through guides in the vertical pipe supports, and may be secured in a number of positions by the insertion of pins in the holes provided. This permits of the hood being kept down as low on the work as practical clearance limits will permit, leaving no dangerous space through which the workman's fingers might slip. At the same time the guard may be lifted completely out of the way, when not required, for a special job. The construction is especially simple, and should appeal to all car shop foremen.

A Dynamometer Car of unusually high capacity has been put in service on the Atchison, Topeka and Santa Fe Ry. It is designed to take and safely record a shock of 1,000,000 lbs. at the drawbar, and is mounted on a steel frame of a very solid construction as necessitated by the nature of the work to be performed. The recording apparatus is operated by electric power.

Pneumatic Tool Holder used by Pere Marquette Railroad.

The accompanying illustration shows a novel device for holding lathe tools on such jobs as require a frequent changing of the tool relatively to the work. Such a condition exists in car and driving-wheel lathes, where it is necessary to shift the tool quite often to give the correct tire contour. The tool here shown was designed by F. C. Pickard, Machine Shop Foreman at the P.M.R., Grand Rapids shops, and is being adapted by other shops of the system.

The device consists of an air cylinder A, held between plates B, which form the cylinder heads; other arrangements of the cylinder are possible. These two heads are held together and supported by four bolts C on the tool carriage of the lathe D, the bolts being at the four corners. On this carriage the tool holder rests. The top of the tool holder is



Pneumatic Lathe Tool Holder.

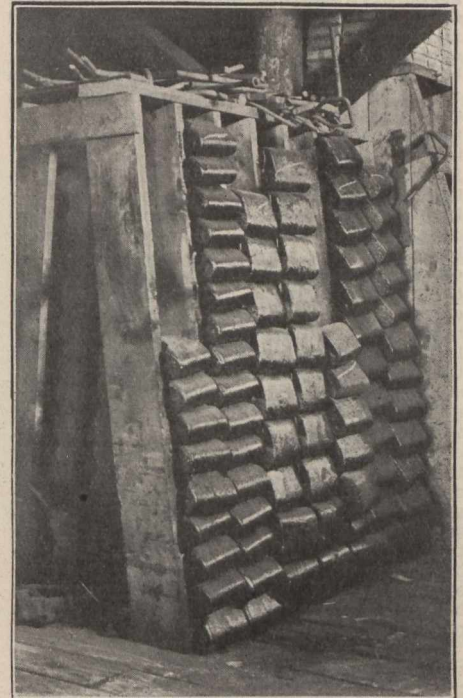
cut out just to fit the 1¼-in. steel used for the tool. This part of the design is one of the most important features, for, by the use of a tool properly supported on all sides, as in this case, the section of the tool may be materially decreased, resulting in a considerable saving in expensive high-speed steel.

Over the tool, there is a clamp plate E, supported by coiled springs over the corner bolts, normally keeping the clamp-plate clear of the tool. Pressing down on this clamp-plate when it is in use, are two cams F, pivoted on cross-arms G between the bolts C at the sides, and operated by a plunger in the air cylinder A. A tight, positive grip is thereby obtained on the tool, controlled by the air valve above the cylinder, and which, of course, may be arranged where desired by piping.

The C.P.R. has, according to press reports, arranged with the Trans Siberian Ry. for round the world tickets, to go into effect May 1.

Stand for Coupler Knuckles at the Central Vermont Railway Shops

A convenient method of piling coupler knuckles is shown in the accompanying illustration of the practice in the Central Vermont Ry. stores department at St. Albans, Vt. The stand, comprising a series of racks, is of a very simple construction. The individual units of the stand are made up of rough boards placed face to face a sufficient distance apart to allow the entry between them of the hinge portion of the knuckle. The edges of the boards are inclined slightly from the perpendicular, giving the face of the



Stand for Piling Coupler Knuckles.

stand a little slope. Eight boards ranged in this manner form rack recesses for seven piles of knuckles. This is duplicated on the other side of the stand, making 14 rack piles in all.

No special care is required to pile the knuckles in position, the lowest one being merely placed on the floor, and the others in a pile above, the sloping face of the stand preventing them from falling out. In a rack of the capacity shown, each unit holds about 16, making a total rack capacity of 224 knuckles. The principal advantage of such a scheme of storing lies not so much in the saving in floor space, which is very slight, but rather in the convenience and accessibility, the knuckles being easy to get at, and making a neat arrangement both from the standpoint of appearance and storekeeping.

This arrangement is not exactly a new one, but there are so few places where it is in use that a spreading abroad of its advantages would seem desirable.

Eastern and Western Railway Mileage.

—Senator Lougheed announced in the Senate recently that on Jan. 1 there were 14,800 miles of railway in Canada east of Lake Superior. On the same date being in operation, and 11,280 miles west of Lake Superior. On the same date 2,200 miles were officially regarded as being under construction east of Lake Superior, and 4,800 miles west of it.

Making Superheater Tubes at the Montreal Locomotive Works.

An interesting operation is that of making tubes for superheaters such as the Vaughan-Horsey type, the steps in the process of manufacture of which are outlined in this article, the Montreal Locomotive Works practice being the one considered. The initial steps in the production of these tubes occur in the blacksmith shop, under the direction of J. G. Boyer, Blacksmith Shop Foreman. As this part of the process is the only one of particular interest, the description will be confined to it.

The tubes in the several stages of completion are shown together in fig. 1. The original tubes appear as at A, plain tubes as they come from the mill. They are first taken to the upsetting machine, where the ends are upset in the usual form of upsetting dies to the form indicated at B. In this operation, the end is heated for a short distance, and gripped in the upsetting machine just back of the red-hot portion, by the cross ram, the dies of which are formed to the outside shape of the completed flanged end, the end plunger with guiding tit to enter the tube bore and prevent it from crushing, upsetting the end to this shape. There is also a back stop for keeping the tube from slipping in the dies while upsetting. A flash which runs back from the upset end may be noticed on the lower end of the tube as at B, the flash forming a cup ring around the edge. The tubes in this state are next taken to a small hollow-spindle engine lathe, the flash being there removed, and the end machined all over to the required end shape, size gauges being employed. This leaves the tube end in the shape indicated at C. The most interesting part of the work commences at this stage of the proceedings. The machined end is heated as before, and a small iron plug of a diameter corresponding to the internal diameter of the tube, driven lightly in the end, this operation on completion leaving the tube end as at D. The reasons for this will become apparent when the next operation is explained.

The great difficulty to be overcome in the bending of tubes is the tendency they have towards collapsing, especially if bent to a very sharp radius. There are several means of overcoming, or at least counteracting, this tendency, the more common of these means being that

break up to accommodate the bending of the tube, this breaking up presenting sufficient resistance to keep the walls out into their normal circular form. In the case of these superheated tubes, the supporting medium is common sand, held in position by a piece of waste packed in on top of the sand, so that while solid, it has sufficient give to accommodate the tube in bending.



Fig. 2. Filling the Tubes with Sand.

Following the end-plugging operation, the tubes are ready to be filled the desired amount with sand. The method of performing this seemingly awkward operation is shown in fig. 2. A vertical stand, built up against the wall as indicated in this illustration, has recesses for six tubes standing vertically along its front face. Near the top there is a stand, on which one of the two operators stands. About a pint of sand is poured through a funnel down the interior of the tube, filling it for about 10 ins., the other operator meanwhile tapping the

operation is a continuous one, both operators being at all times employed. A whole batch of tubes is prepared in this way at one time.

The next operation is that of bending to the required angle—slightly more than 90 degrees on account of the small reverse curve a little further along the tube. The process of bending is shown by fig. 3. Fig. 4 illustrates the mechanism of the bending machine, which bends the tube ends to the shape shown at E, fig. 1. Referring to fig. 4, the construction of the device is as follows: On a stationary base A, there is mounted block B, recessed as shown at C to form a half shape of the tube end, that is to say, this block contains the lower half of the impression of the completed end of the tube, following a line through the centre of the tube. Another block D sliding on guide surfaces E of the base casting A, and prevented from lifting by flanges under the walls of B, contains the corresponding half impression of the downwardly projecting end of the tube, that is, the part at F. This block D may be moved back and forth by the fulcrumed lever G, connected to the block through the link H. When the link G is thrown into its horizontal position to the left, the half sections of the die at F are in tight contact with each other.

Pinned on this sliding block D, there is an arm I, to which is rivetted a die J, forming the upper half of the tube end former. This contains, on its lower surface the form of the upper section of the tube end, from the downwardly projecting end to the right. Thus the forms for the tube bending are in three blocks, the lower section in block B and the upper section in blocks D and J.

The operation is as follows: With the handle K thrown back into its horizontal position so as to raise die-block J into a vertical position, and with the lever G raised drawing D to its open position, a prepared tube, plugged and filled with sand as at D, fig. 1, and heated to a working heat, is placed vertically in the forming dies against the vertical face of the stationary die-block B. The sliding die block D is then forced over to the left against the tube end by the lever G, this operation clamping the tube securely in a vertical position. One of the operators then grasps the upper part of the clamped tube, pulling it over into the die form of block B. Lever K is then raised until block J rests on the

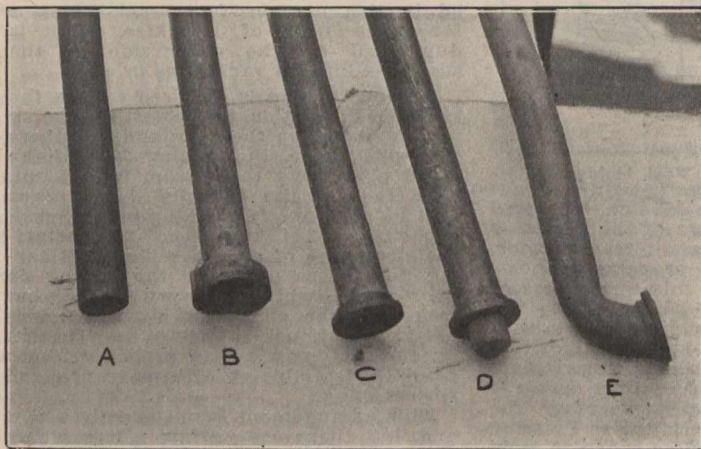


Fig. 1. Tube Ends in Different Stages of Completion.

of filling the interior of the tube in the vicinity of the section to be bent with a foreign substance that can more or less readily be removed after bending. A substance frequently used for bending brass tubing is resin, poured into the tube bore in the molten state, and melted out after bending, the solid resin during the bending being sufficiently solid and withal having the ability to

lower end with a short rod to settle the sand into a solid mass in the bottom of the tube. After the six tubes have been successively filled with sand and have had it well tapped down, a small piece of cotton waste is pushed down inside the tube, and rammed tightly with a long rod. The lower operator removes each one as it is prepared, replacing with one that has not been sanded, so that

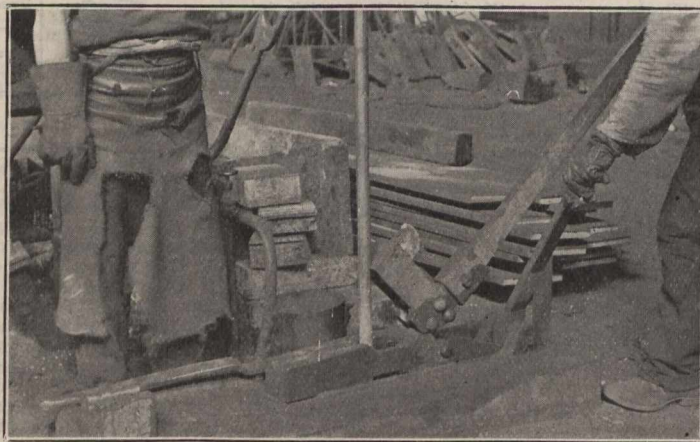


Fig. 3. Operation of Bending the Tube Ends.

partially bent tube end, when by a combined action of the lever K, and a hammering on the outer end of the block J, the tube end is forced down into the die forms until the faces of blocks B and J meet. Lever K is then lowered, and lever G raised, releasing the formed tube ends from the dies.

The bending action releases the plug from the tube end, so that when the tube

is removed, the plug remains, a considerable portion of the sand in the tube falling out with it. An air hose connection to the rear in fig. 3 is directed on the dies after the tube and plug have been removed, blowing out all the remaining scale and sand. The red-hot tube has by this time burnt the plugging waste sufficiently to cause it to fall out

Oil Burning Locomotives on Great Northern Railway Lines.

As stated in The Railway and Marine World of April, the Board of Railway Commissioners has exempted the Vancouver, Victoria and Eastern Ry. and Navigation Co. from compliance with

corporations which have no engineering departments with fixed old ideas have permitted me to use the stadia enough to satisfy me that 15 to 20 men parties in rough preliminary survey work are radically wrong. With one-fourth that force and the stadia I can do more and better work in the same time.

On the Pacific Coast, which is one of the most difficult sections for surveys, railway stockholders have lost much money, and many engineers have lost their reputations, in using old methods. In one headquarters there have been six different chief engineers in as many years. A dozen parties have been sent into one county in a desperate attempt to get a line. Promoters have bought all the timber land for sale, relying on promises of a railway; yet nothing has been done because a survey that can pass inspection has not been made.

Large parties of cheap men cannot be handled or cared for. There is constant dissatisfaction and change. To keep the cook is by no means the least problem. The cook must have a flunkey, a fine cooking range and what not. I have seen one chief-of-party flunkeying to keep the cook and finally doing the cooking himself. Anything for the salary and title he never had before.

Where a party cannot reach the country where they want to survey, I have seen them survey such country as they could reach. Lines have been run along trails over hill and dale when there was a water grade half a mile away in the wet brush. A report of miles run must be sent to headquarters each week. There is no end of difficulties working in the rough country under these conditions.

A small stadia party can move every day and carry all the equipment on the backs of the men. Trails are not necessary, and the party can penetrate anywhere. Such a party would consist of a tsansitman, rodman, two axemen and a cook. The chief-of-party himself would act as rodman, and select the salient points. For the final line where the compass needle could not be used for backsights, a back-flagman and a stake-man should be added.

The locating engineer may have several such parties out in the vicinity, keeping a camp of his own on the trail, where profiles and maps may be made and compared, and supplies for the parties kept. Final locating parties need not stake out the line until they can go out over the contractor's roads.

For accuracy the stadia is better than the tape on slopes with the kind of tape-men usually available. For that reason I have used it on townsite work. For contour work (in which preliminary railway location consists in a large measure) it is ideal.—Engineering News.

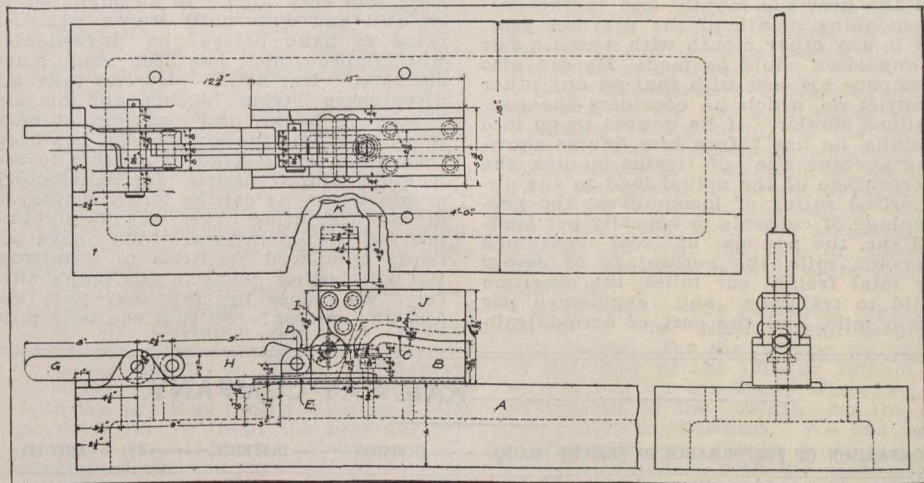


Fig. 4. Mechanism of the Tube Bending Machine.

with the sand remaining in the tube, when the latter is tapped lightly. When cooled, the only operation required to put the tube in a finished state as regards that end, is to grind off the contact face of the flange.

Oil Heater at the Intercolonial Railway Shops.

A very efficient oil-burning torch has recently been designed and made at the Intercolonial Ry.'s Moncton, N.B. shops for boiler shop use for such purposes as heating firebox patches, heating mudding corners preparatory to moulding into shape, and other places of a like nature.

The construction of the heater is shown in the accompanying illustration. Oil and air are led into a header, the oil through a 3/8-in. w.i. pipe, and the air through a 1/2-in. w.i. pipe, these pipes being in turn connected to the respective supply pipes on the shop wall by rubber hose. A 1-16-in. hole through the centre of the header leads into the air chamber, the oil passing out from its chamber through a 1-16-in. hole close alongside. A cap or regulating nozzle which screws down over the header, has a conical recess on its inner face, registering over a corresponding projection on the end of the header. This cap or nozzle has a 3-32-in. hole through its centre.

The oil supply passing out into the chamber between the header and regulating nozzle, may be regulated at will by screwing down the nozzle on the projecting tip of the header. The air supply being at all times steady, draws forward with it more or less oil, depending on the nearness together of the contact faces.

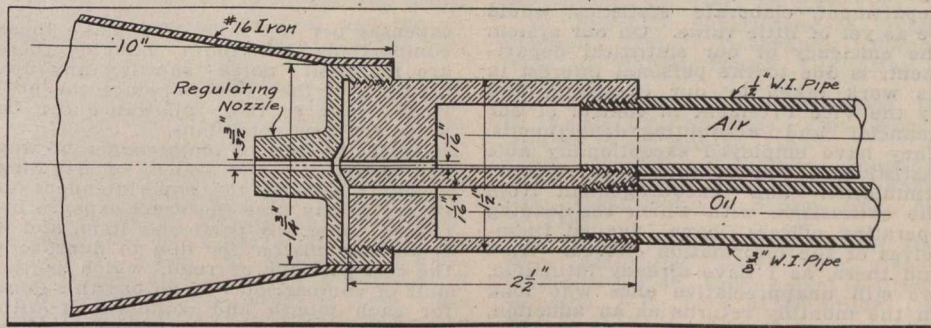
The intense flame is concentrated on the desired spot by a hood made of no. 16 iron, secured to the header by a wrought iron carrying brace. This hood 10 ins. long, is 4 1/2 ins. in diameter at its outer end. The air and oil pipes are secured together by a light clamp, so that the whole device forms a solid unit. These two united pipes serve as a handle for the operator in directing the flame on the desired spot, and for that reason are made about 2 ft. long, the hose connections leading off from the outer ends.

the order requiring railway companies to provide zinc covering over caps and intersections on wooden trestles in territory where oil burning locomotives are used.

In this connection D. Hawkins, Superintendent of Motive Power, Great Northern Ry., of which the Vancouver, Victoria and Eastern Ry. is a subsidiary advises us that all the V.V. and E.R. locomotives are burning oil. In fact oil is being used as locomotive fuel over the entire Cascade Division, from Portland Ore. to Vancouver, B.C., and from Seattle to Leavenworth, Wash.; also on all freight power from Leavenworth to Wilson Creek, Wash. All passenger locomotives running between Leavenworth and Spokane, Wash., are also being equipped for oil. All the burners are applied to the front end.

The Stadia for Preliminary Railway Surveys.

The advantages of the stadia for topographical surveys have been argued time and time again, and the adaptability of the method to preliminary railway surveys is a subject which has been thoroughly discussed. Yet, apparently, in spite of all that has been written and spoken, railway location engineers are reluctant to give the stadia a fair trial.



Oil Heater of Simple Construction.

A correspondent, in Denver, Colo., writes as follows:

It is strange that the stadia is not more used for preliminary railway surveys in difficult countries. None of the large roads use it—I speak from experience in every state between Lake Michigan and the Pacific Ocean. Small

Intercolonial Ry. Ticket Collectors—Some six or seven ticket collectors have been placed on I.R.C. trains to relieve the conductors of ticket collections, etc., as an experiment. We are officially advised that until the plan has been tested it is uncertain whether it will be continued or extended over the whole line.

VALUE OF STATISTICS.

By D. C. Coleman, General Superintendent, Manitoba Division, C.P.R.

A statistical return with its row upon row of figures is to some of us an object of terror, if not of despair. We make one desperate effort to grasp the significance of the information here set forth with appalling detail, and then, baffled, we consign it to the bottom of the basket, in the vain hope that the man higher up will forget to place an accusing finger on the item which does us the least credit. Therein we do err. That bald and wearisome succession of figures, if we stop to analyze it, is crammed with human interest, and with incident. It tells us perhaps of demonstrations of the power of nature over the works of man, of blizzards reducing mighty locomotives to impotence, of periods of drought, drying up or poisoning the supply of water on which the locomotives depend; of slides on the slopes of the Rockies and the Selkirks demolishing in the twinkling of an eye the dykes and ramparts on which we have expended much toil and money; of mild sluggish prairie rivers transformed in a night to torrents tossing about like chips the proud structures that we have erected. But the story may be more personal, it may recount the triumphs and tragedies of business; it may tell us of the man who after many years of painful effort has finally reached a position of distinction in the service only to find himself unequal to the strain of maintaining himself there; it may tell us how the man who, equipped by Providence with ability, energy and strength, snatches victory after victory from the lap of destiny. Or the story possibly comes even more closely home to us. It may be of the mistakes we made in trusting this man or that, or in sacrificing this man or that, or in failing to foresee the effect of this or that event on this or that departure in policy. It may be of the fortunate results which crowned a happy stroke we made, or a particularly worthy piece of work we did. All this may appear fanciful, but it is not a whit overdrawn. Statistics, if they are properly prepared, are not dry reviews of petty details, but are mirrors in which are reflected the failures and triumphs of those who make the history of a business.

It has fallen to me on one or two occasions to investigate the compilation of statistical reports on various American railways, and as a C.P.R. man, I am proud to be able to say, that on no railway does the system of reports approach that on the C.P.R. for completeness and practical value. On the other leading systems in the Canadian West, where a large proportion of the mileage is in the hands of the construction department, elaborate statistics would be as yet of little value. On our system the efficiency of our statistical department, is due to the personal interest in its work taken by our President, and by the Vice President in control of our financial and accounting departments. They have employed exceptionally able statisticians, who in turn have received stimulation and encouragement from the enthusiasm with which the leading operating officers have availed themselves of the information offered. Here and there, as I have already intimated, are still unappreciative ones who look on the monthly returns as an affliction, but they are in a rapidly dwindling minority.

Our statistical reports are so prepared that a superintendent, if he will, can view the operation and maintenance of his district from every possible angle, and discern exactly where he is weak and where he is strong. Does he desire to judge the transportation work as it is handled by his chief train dispatcher, he does not have to be governed by im-

pressions colored by the action and reaction of one personality on another. He can take up his forms and see exactly what the transportation expenses per gross ton mile have been on his district in the previous month, and in the corresponding month of the previous year, or in any other month with which a fair comparison could be made. He can also compare his cost with that on any other district on which he considers the conditions similar. If he desires to go into details, he has before him figures showing average size of trains in tons, the percentage of the actual load to the authorized rating of locomotives; the percentage of contents to capacity per loaded car, the pounds of coal consumed per ton mile, the percentage of empty or total freight car miles, the overtime paid to trainmen and enginemen per train mile, and the cost of actual train

of course, prepared as early as possible after the accounts of the previous month are closed. If a superintendent is making proper use of them the delay does not destroy their value. Let us presume that he receives January statistics on March 1. He notes, although he is probably aware of it, that his trains were light loaded and his overtime was very high. Is he supposed to sit still and wait until March statistics come to hand before he investigates what improvement has been made since January? Not at all. He can take his dispatchers' train sheets, and his accountant's books, and ascertain at once to what extent the lost ground has been recovered, and instead of waiting to see whether March figures are satisfactory or otherwise, he can be busily employed in manufacturing the results by improving his operations. We have already compared statistics to a mirror. We will further define it as a lady's mirror. Why does the fair lady pose before the mirror? So that she may note

RAILWAY COMPANY.

COMPARISON OF PERFORMANCE OF FREIGHT TRAINS — DIVISION — DISTRICT, — 191 — AND 191 —

ITEM	Direction.	191..		Per Cent. Increase	Per Cent. Decrease.		
		191..	191..				
Average weight of train in Equivalent Gross tons per mile	Eastbound Westbound Total						
Equivalent Gross tons hauled per Locomotive mile...	Eastbound Westbound Total					Average Locomotive Capacity in Freight Service.	
Equivalent Gross tons hauled per mile per 100% of Locomotive Capacity	Eastbound Westbound Total					Proportion of Eastbound / 191 to Westbound E. G. / Ton Mileage. } 191	
Lbs. Coal consumed per 1000 Equivalent Gross tons hauled one mile.....	Eastbound Westbound Total						
Per cent. of Light running to Train Mileage..	Eastbound Westbound Total						
Per cent. of Helping to Train Mileage.....	Eastbound Westbound Total						
Per cent. of Load to Authorized Rating.....	Eastbound Westbound Total						
Per cent. of Freight to Actual Gross weight of Train	Eastbound Westbound Total					Proportion of Eastbound / 191 to Westbound Freight / Ton Mileage. } 191	
Per cent. of Contents to Capacity per loaded car..	Eastbound Westbound Total						
Per cent. of Empty to Total Freight car miles.....	Eastbound Westbound Total						
Overtime, Crew Hours per 1000 Train miles.....						.....% of Overtime due to Mechanical Defects.
Engine Crews.....						.....% of Overtime due to Mechanical Defects.
Train Crews.....							
MONTREAL,		191		Auditor of Disbursements.			

expenses per ton mile. To make these comparisons still more valuable there are marginal notes showing any disturbance of the factors since the previous year, so that allowance can be made for new conditions.

As to the cost of maintenance of way and structures, our system of handling accounts enables the superintendent to secure at any time the exact expense incurred under any particular item, and it is an easy matter for him to figure out the cost per mile of road, which is the unit of comparison. If he has this done for each month and compares it with the corresponding month of the previous year he can realize whether he is tending. For the higher officers, who have not access to the original accounts, the statistical department analyzes, and subdivides, the expenses on each district in the manner above indicated.

It is frequently stated that transportation statistics are of little value because they are so late in reaching the hands of the district officers. They are,

her beauty? Cynical proverbs to the contrary, I think not. She looks not for lines of beauty, but for defects, for evidences of the ravages of time or ill-health, or hard work. She seeks these in order to repair them by the artifices which to man are ever a mystery. She seeks not information for itself, but hints for improvement. So should it be with statistics. They should be searched, not merely for information, but for hints as to where and how improvements can be made.

In my opinion the successful operating officer on a railway will be the one who realizes the value of statistics in any form, and uses them not as a text for self-complacency, or for mourning or lamentation, but who, making intelligent allowance for all special conditions and circumstances, extracts benefit from the details given, and applies the lessons he has learned to the management of his territory.

The foregoing paper was read before the Western Canada Railway Club at

Winnipeg, recently. In the discussion which followed S. J. HUNGERFORD, Superintendent of Rolling Stock, Canadian Northern Ry., said:—I entirely agree with Mr. Coleman in regard to the value of statistics. The subject is worth a great deal of thought. I am unable to see how anyone can carry on any business successfully without having accurate statements available showing the unit cost of operation in connection with each class of work. The unit cost of train operation may exactly indicate the efficiency of operation, but when we come to consider maintenance costs the matter is much more complex, as it is possible of course to reduce expenditure below that absolutely necessary to maintain and for a short time at least it will appear that the cost of operation is abnormally low and that a high state of efficiency exists, whereas the actual condition is quite the reverse.

E. T. SPIDY, Assistant to General Locomotive Foreman, C.P.R. shops: I think Mr. Coleman has put forward one of the most reasonable arguments I have ever heard in favor of efficiency systems. As he said, a record compared with the previous record gives us a base to work on. Without the previous record and knowledge of affecting conditions, half the comparative value of the record is gone. What is deduced from the monthly report can also be deduced from the weekly report, and equally well to the individual work of each employe. That is the basis of the system we are applying to each machine at our locomotive department. Our records are our statistics and their value to locate the detail defects which would otherwise be missed, cannot be over-estimated. As it is impossible to apply a remedy until the defect is located, likewise, we cannot consider ourselves efficient until we have corrected our own defects. To do this, accurate records or statistics are absolutely necessary. First find your defects, remedy, and obtain results.

G. B. WILLIAMS, Car Service Agent, C.P.R.: The question of the accuracy of the information from the subordinate offices, while not dealt with by Mr. Coleman, is worth considering. For instance, take the important item of fuel consumption. We are all aware of the fact that it is to a great extent approximated, and sometimes tickets covering coal handled are not made up as carefully as they should be. The same might be applied to oil issues. The close checking of each item is an important factor in the compilation of statistics. On short notice and having just heard the paper read, I am hardly prepared to go into this further except to comment on the difference between present day statistics and those of 10 or 12 years ago. While our present method is undoubtedly the better and continually improving, I am inclined to think it is not as plain to the individual, as it is to the officer. I can remember when engineers, firemen and others would anticipate the arrival of a locomotive performance sheet to ascertain their relative standing, and there was always more or less contention for a place, and very often they would ask for check of tickets if they considered that errors had occurred. Mr. Coleman's paper attracts attention to the value of information given from statistical offices and should stimulate interest in maintaining a knowledge of railway performance in the various departments.

D. C. COLEMAN,—I think there is a great deal in what Mr. Williams says. For instance, in the matter of fuel tickets, the system of all railways seems to be based in the matter of fuel supply on approximation. I don't know that that could be checked up without very great expense. It certainly does affect the statistics of a master mechanic who is trying to check up the record of an individual locomotive, in the matter of oil

and fuel consumption. I agree with what Mr. Hungerford says with reference to maintenance expenses. It is possible for a superintendent to allow his track to run down without the effects being immediately apparent, but if the statistics are checked up for a long term it will be found that the superintendent who lets his track run down is paying for it in the form of accidents, and that the motive power department, or the road which allows its motive power to run down is paying for it in the form of overtime.

S. J. HUNGERFORD:—I wish to express approval of the last point made by Mr. Coleman. I am firmly of the opinion that the way to maintain efficiently and economically is to maintain all the time, and I am unable to see any advantage in curtailing expenses abnormally for a time and later incur the necessary expense, and also the loss of efficiency usually connected with an extra effort to catch up.

S. C. BRAY:—The statistical report received by the general storekeeper is very handy. For the division we have it in the office by the 17th or 18th of the month, and for the whole Western Lines by the end of the month for the previous month's business. We can make comparisons one month with the previous month, and with the same month of the previous year to get the average percentage of business done at each point, also for the division by the month as well as for the Western Lines. We have the statistics for several years past filed in a convenient place for reference at any time. As the statements are received monthly, the percentage of business handled at each point is noted and if it does not show a satisfactory turn over of stock the matter is referred to those responsible, for an explanation.

S. J. HUNGERFORD:—Would it be in order to ask Mr. Coleman to give a general idea of how train operation statistics are arrived at. I am not asking for specific information, but would like a general idea.

D. C. COLEMAN:—What I presume Mr. Hungerford refers to is the cost of handling 1000 equivalent gross tons one mile. That form is compiled in the following way: The train mileage is arrived at from the conductors' train journals. The wages of engineers, firemen, conductors and brakemen are taken off by the timekeeper on each district separately, and work service, passenger service and mixed service are taken off separately from the freight service, and the total of the freight service is arrived at. Then they take the fuel figures as shown on the conductors' train journals and oil figures as furnished by the mechanical department. I think those are all the items used. I don't know if I have made myself clear or not, but these are the only items included—the wages of the train men, the fuel and the oil. The basis of all our reports is the conductors' train journal.

J. T. WARDE, chief clerk, General Car Foreman, C.P.R.:—In this matter of statistics, the benefit shows itself in the pay roll, as at the end of the month, we invariably come out within a few dollars of the estimate, and this shows the benefit of statistics in our department.

R. R. NEILD, General Foreman, Locomotive Shops, C.P.R.:—We should all know the value of statistics. I don't know how we could run a railway or any other business without them. We derive a great deal of benefit from the statistics that are drawn up in the mechanical department, although we run up against some errors occasionally. We find what our system is costing us each week, and it helps us to know just how we are to come out at the end of the month, and also what each individual engine is costing us, and if it is going too high we have a chance to look out for the leaks. Of course in the mechanical department, statistics are no use if

they come up two or three months after the engine is turned out of the shops. We get the figures weekly, which gives us an opportunity of checking up. I would have liked Mr. Coleman to have told us something about the general statistics drawn up as to the depreciation of rolling stock, machinery, etc. We should know almost at a glance just the value of our rolling stock and machinery of every description. I would like to hear from Mr. Coleman as to how they arrive at the depreciation values.

D. C. COLEMAN:—As far as rolling stock is concerned, there is an arbitrary charge. I cannot tell from personal knowledge what it is, but I believe the Canadian roads use an arbitrary arrived at by U.S. railways at the instance of the Interstate Commerce Commission. I don't know that there is anything written off for machinery. When a machine is replaced it is debited with the full price of the machine replaced, and balance of cost charged to special replacement accounts.

Birthdays of Transportation Men in May.

Many happy returns of the day to—

W. R. Baker, Secretary, and Assistant to President, C.P.R., Montreal, born at York, Eng., May 25, 1852.

G. S. Cantlie, General Superintendent Car Service, C.P.R., Montreal, born there May 2, 1867.

M. Donaldson, M. Can. Soc. C.E., Superintendent, Ottawa Division, G.T.R., Ottawa, Ont., born near Edinburgh, Scotland, May 1, 1851.

A. E. Duff, District Passenger Agent, G.T.R., Toronto, born at Sherbrooke, Que., May 1, 1872.

G. C. Dunn, District Engineer, G.T.P.R., Winnipeg, born at Quebec, May 13, 1862.

J. D. Evans, Chief Engineer, Central Ontario Ry., Trenton, Ont., born at Goderich, Ont., May 27, 1843.

E. T. Galt, President, Alberta Ry. and Irrigation Co., Montreal, born at Sherbrooke, Que., May 24, 1850.

G. H. Hedge, Master Mechanic, Central Division, Canadian Northern Ry., Winnipeg, born at Neath, Wales, May 26, 1865.

R. B. Hepburn, President and General Manager, Ontario and Quebec Navigation Co., Ltd., Picton, Ont., born there, May 27, 1876.

G. A. Hoag, Superintendent, Central Ontario Ry., Trenton, Ont., born at Walker's Falls, Ont., May 31, 1866.

W. T. Huggan, Accountant and Auditor, Prince Edward Island Ry., Charlottetown, P.E.I., born at Halifax, N.S., May 24, 1851.

J. Irwin, Superintendent, District 3, Canadian Northern Ry., Dauphin, Man., born at Clinton, Ont., May 28, 1866.

W. Marshall, Superintendent, Ontario Division, C.P.R. Telegraphs, Toronto, born at Garden Island, Ont., May 18, 1859.

H. B. Sherwood, Superintendent, Bay of Quinte Ry., Napanee, Ont., born at Auburn, N.Y., May 25, 1847.

W. Stapleton, District Passenger Agent, Canadian Northern Ry., Saskatoon, Sask., born at Bristol, Eng., May 20, 1884.

E. Tiffin, Member, Government Railways Managing Board and General Traffic Manager, Government Railways, Moncton, N.B., born at Hamilton, Ont., May 5, 1849.

J. H. Walsh, General Manager, Quebec Central Ry., Sherbrooke, Que., born at Quebec, May 12, 1860.

H. K. Wicksteed, B.A.Sc., M. Can. Soc. C. E., Chief Engineer of Surveys, Mackenzie, Mann & Co., Ltd., Toronto, born at Quebec, May 25, 1855.

James Yeo, ex-Roadmaster, Intercolonial Ry., Riviere du Loup, Que., born at Bideford, Devonshire, Eng., May 1, 1830.

Orders by Board of 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 dates assigned to them.

16152. March 21.—Authorizing C.P.R. to rebuild bridge 176.9 over Bow River, Calgary subdivision, Alta.

16153. March 18.—Rescinding order 12783, Jan. 18, 1911, in complaint of Dawson board of trade vs. White Pass and Yukon Route.

16154. March 22.—Authorizing C.P.R. to build its Lacombe Easterly branch across highways from mileage 140.31 to 143.61, Alta.

16155. March 22.—Relieving C.P.R. from further protection at public highway near Griswold, Man.

16156. March 21.—Authorizing C.P.R. to build spur for Vancouver Lumber Co., Merritt, B.C.

16157. March 22.—Authorizing C.N.O.R. to build spur for Alexander Bruce & Co.'s tie preserving plant near Fort Frances, Ont.

16158. March 20.—Approving T. H. & B.R. rules for operation of automatic block signals.

16159. March 22.—Approving Campbellford, Lake Ontario and Western Ry. location through Oshawa, and revised location as previously approved by order 11947, through East Whitby tp., Ont., mileage 29.1 to 34.2.

16160. March 22.—Authorizing Montreal and Southern Counties Ry. to build from G.T.R. property east of Front St., St. Lambert, Que., to Central Vermont Ry., crossing Victoria Ave. overhead.

16161. March 21.—Ordering G.T.R. to file special tariff or supplement to existing tariff C.R.C. 1686, to take effect not later than Apr. 8, establishing rate of \$3 a car for switching lumber from F. McGibbon & Sons' docks, Sarnia, Ont., to storage yard and mill, for storage, sorting or dressing and re-shipment by G.T.R.

16162. March 21.—Authorizing G.T.R. to build siding for W. Laking, Haliburton, Ont.

16163. March 22.—Ordering G.T.R. to remove at once, shrubs, etc., at crossing of first highway east of Waterdown station, Ont.; cars not to be left standing within 75 ft. of crossing.

16164. March 20.—Approving G.N.R. standard plan of portable stations.

16165. March 25.—Defining express delivery and collection limits for Hull, Que.

16166. March 22.—Authorizing G.T.R. to build spur for Steel and Radiation, Ltd., St. Catharines, Ont.

16167. March 23.—Authorizing highway board of Grand Falls parish, N.B., to build highway across C.P.R.

16168. March 23.—Approving location of C.P.R. Suffield to Kipp branch from main line near Suffield to mileage 21, Alta.

16169. March 13.—Authorizing Georgian Bay and Seaboard Ry., (C.P.R.) to build across Jackson St., Bethany, Ont.

16170. March 5.—Approving location of G.T.P.R. station at Henry House, Alta.

16171. March 25.—Approving Supplement 8 to Express Classification for Canada 2.

16172. March 25.—Correcting errors in revised plan of G.T.P. Branch Lines Co.'s Cutknife branch.

16173. March 25.—Amending order 16076, Mar 5, re C.P.R. Boissevain-Lauder branch.

16174. March 23.—Authorizing city of Saskatoon, Sask., to carry 20th St. across C.P.R. at rail level.

16175. March 25.—Amending order 16064, March 1, re Bridgeburg bridge, Ont., by adding clause that municipality shall maintain same.

16176. March 26.—Authorizing G.T.R. to build bridge over Clubbiness Creek and over Holland River, Northern Division, Ont.

16177. March 25.—Approving location of G.T.P.R. station at Houston, B.C.

16178. March 25.—Approving Kettle Valley Ry. location from mileage 43.92 to 55, northwest of Midway, B.C.

16179. March 26.—Approving location of three G.T.P.R. unnamed stations in Coast district, B.C.

16180. March 28.—Ordering C.N.R. to put its main line in Saskatoon yard in good shape and condition before June 1, and pending completion of work, trains not to exceed six miles an hour.

16181. March 28.—Authorizing Lachine, Jacques Cartier and Maisonneuve Ry. (G.T.R.) to cross certain streets in Montreal, by overhead crossings, subways and level crossings.

16182. March 25.—Rescinding order 16122, March 14, and amending order 16095, Mar. 7, re C.N.O.R. taking lands in Trenton.

16183. March 28.—Rescinding order 13060, Feb. 21, 1911, and approving M.C.R. bylaw authorizing C. F. Daly, V.P., L. W. Landman, G.P.A., W. C. Rowley, G.F.A. and J. L. O'Brien, Chief of Tariff Bureau, to issue tariffs of tolls.

16184. March 4.—Rescinding order 15938, Feb. 6, in so far as it authorizes building of Lachine, Jacques Cartier, and Maisonneuve Ry., (G.T.R.) across Rachel St., Montreal.

16185. March 26.—Ordering G.T.R. with- ing 90 days to install electric bell at crossing just east of Clarkson station, Ont., 20% to be paid from railway grade crossing fund.

16186. March 26.—Authorizing Saskatchewan government to build highway across C.N.R. in s. w. ¼ sec. 30, tp. 47, r. 26, w. 2 m.

16187. March 27.—Relieving C.P.R. from further protection at first highway south of St. Vincent Rd., mileage 91, near Owen Sound, Ont.

16188, 16189. March 28, 26.—Authorizing C.P.R. to build three spurs from main line in s. w. ¼ sec. 28, tp. 23, r. 29, w. 4 m., into and through blocks 24, 25, and 30, and block G. in subdivision of s. e. ¼ sec. 28, tp. 23, r. 29, w. 4 m., and spur for Calgary Brewing and Malting Co., at Coleman, Alta.

16190. March 28.—Rescinding order 15683, Dec. 23, 1911, and recommending to Govern- ment-in-council for approval G.T.R. operating department rules and regulations.

16191. March 27.—Authorizing G.T.P. Branch Lines Co. to cross with its Regina- Moose Jaw Branch, the C.P.R. Moose Jaw Northwest Branch by undergrade crossing at Moose Jaw, Sask.

16192. Mar. 29.—Authorizing C.N.O.R. to cross Sydenham Lake, Loughborough tp., and rescinding order 15026, Oct. 16, 1911, giving similar authorization.

16193. Mar. 26.—Approving revised loca- tion of Algoma Central and Hudson Bay Ry. between mileage 123.74 and 130.87 and connection with N.T.R. at Grant, Ont.

16194. Mar. 28.—Authorizing British Columbia Public Works Department to carry Park Ave., over C.P.R., in Slocan.

16195, 16196. Mar. 28.—Authorizing C.P.R. to build additional track across highways at Basswood and Birtle, Man.

16197. Oct. 9.—Authorizing C.P.R. to divert highway at mileage 119.7, Medicine Hat subdivision, Alta.

16198. Mar. 29.—Authorizing V. V. and E. Ry. and N. Co. to build crossings in Sumas, B.C.

16199. Mar. 8.—Authorizing G.T.R. to take S. McLean's lands, being part of lot 13, r. 1, south of Longwood's road, Ekfrid tp., Ont.

16200. Apr. 1.—Authorizing M.C.R. to use bridge over Bear Creek, mileage 57.3, St. Clair Division.

16201. Mar. 29.—Authorizing G.T.P.R. to build spur for Imperial Oil Co., Edmonton, Alta.

16202. Mar. 30.—Authorizing G.T.R. to re- build bridge at mileage 7.47, District 8, Northern Division, Ont.

16203. Mar. 30.—Authorizing C.P.R. to rebuild bridge across Muskrat River, Chalk River subdivision, Ont.

16204. Mar. 30.—Authorizing C.P.R. to build spur for A. F. Vincent, near Mile End station, Montreal.

16205. Mar. 21.—Authorizing C.N.O.R. to build transfer track to connect its Sudbury branch with Algoma Eastern Ry. through Sudbury.

16206, 16207. Mar. 30, Apr. 1.—Approving location of C.N.R. Calgary-Strathcona line through tp. 40, r. 26, mileage 0 to 4.55, and C.N.R. location through tps. 14 and 9, r. 26 and 25, w. 4 m., Alta., mileage 65.05 to 102.50.

16208. Mar. 30.—Dismissing complaint of C. W. Deaver, Viscount, Sask., re cattle pass on G.T.P.R.

16209. Apr. 1.—Approving location of C.P.R. station at Lydiatt, Man.

16210. Mar. 30.—Dismissing complaint of residents of Brownlee, Sask., re C.P.R. car supply.

16211. Apr. 1.—Authorizing Kootenay Central Ry. (C.P.R.) to open for freight traffic its line from Colvalli to Bull River, 9.2 miles.

16212 to 16214. Apr. 1.—Authorizing C.P.R. to build spurs for Dominion Match Co., New Westminster District, B.C.; Sudbury Construction and Machinery Co., Sudbury, Ont.; and Canadian Hanson and Van Winkle Co., near Morrow Ave., Toronto.

16215. Mar. 30.—Authorizing C.N.R. to cross Calgary and Edmonton trail, Bailey, Barnett, and Oliver Aves. and Matthias St., and to close certain lands, Lacombe, Alta.

16216. Mar. 30.—Authorizing G.T.R. to re- build bridge across Narrows at milepost 120.39, District 9, Northern Division, Ont.

16217. Apr. 2.—Authorizing C.P.R. to re- build bridge 81.0, Sudbury Division, Ont.

16218. Apr. 2.—Approving revised location of C.P.R. Wilkie to Anglia branch from Pheasant Hills branch, sec. 6, tp. 40, for 35.34 miles to sec. 22, tp. 34, r. 19, w. 3 m., Sask.

16219 to 16221. Apr. 2, 1.—Approving loca- tion of C.N.O.R. Sudbury-Port Arthur line through unsurveyed territory, Thunder Bay District, mileage 343.15 to 363, and revised location Algoma District, mileage 209.1 to 219.43, from Sudbury Jct.; and revised loca- tion of Montreal-Port Arthur line through unsurveyed territory Sudbury District, mile- age 270.9 to 272.83.

16222. Apr. 2.—Approving location of C.N.O.R. Calgary - Strathcona branch through tps. 47 and 52, r. 24 and 26, w. 4 m., and part of Strathcona, Alta.

16223. Apr. 3.—Approving Klondike Mines Ry. Standard Passenger tariff C.R.C. 3.

16224. Apr. 3.—Authorizing C.P.R. to build its Moosejaw southwesterly branch across four highways, mileage 23.22 to 36.65.

16225. Apr. 3.—Ordering that Vancouver, Fraser Valley and Southern Ry. local tolls on lumber, etc., shall be same as charged by C.P.R. and G.N.R. for similar distances within their corresponding territories and that joint through rates on lumber be on basis of 1c per 100 lbs. etc.

16226 to 16228. Apr. 3.—Disallowing G.T.P.R., C.N.R. and C.P.R. increased tolls from Westfort, Port Arthur, Fort William, Ont., from Apr. 1, and restoring lower tolls in effect immediately before that date.

16229. Apr. 4.—Extending to Oct. 1, time for completion of C.N.R. spur St. Boniface, Man., authorized by order 13322, Mar. 29, 1911.

16230. Apr. 4.—Extending for six months from Mar. 30, time for completion of Algoma Central and Hudson Bay Ry. extension to Bruce St., Sault Ste. Marie, Ont.

16231. Apr. 3.—Correcting errors in G.T.P. Branch Lines Co. Regina-Moose Jaw branch location plan.

16232. Mar. 25.—Approving location of C.P.R. station at Griffin, Sask.

16233. Apr. 8.—Approving order of Ex- chequer Court of Canada appointing F. W. Blair, D. E. Waters, and N. Erb receivers of Pere Marquette Rd. in Canada.

16234. Mar. 11.—Rescinding order 16004, Feb. 15, and authorizing C.N.O.R. to cross C.P.R. at Lambton, by undercrossing.

16235. Apr. 1.—Amending order 15558, Dec. 5, 1911, by adding clause directing city to reimburse C.P.R. for services of flagman, etc., at Talbot St. crossing, Winnipeg.

16236. Apr. 3.—Authorizing Lachine, Jacques Cartier and Maisonneuve Ry. (G.T.R.) to cross Montreal St. Ry. by over- head bridges at three streets.

16237. Apr. 1.—Ordering that C.N.R. and C.P.R. protect crossing on Main St., Glad- stone, Man., by watchman.

16238. Apr. 1.—Ordering G.T.P.R. to grade a new crossing parallel with Main St. and open Beaver Hills Road across its right of way, Ituna, Sask.

16239. Apr. 2.—Dismissing application of residents in Carrot Creek vicinity, Alta., re G.T.P.R. siding.

16240. Apr. 1.—Dismissing application of farmers in Pleasant Point vicinity near Car- berry, Man., to order C.P.R. to build a siding.

16241. Apr. 1.—Ordering C.N.R. to fence its right of way now unfenced along the Qu'Appelle, Long Lake and Saskatchewan Ry. between Saskatoon and Regina, under penalty of \$50 a day after Nov. 1.

16242. Apr. 2.—Ordering G.T.P.R. to cease discriminating in carriage of freight in favor of its contractors as against gen- eral public over its line from Hinton, Alta., west thereof, subject to fine of \$100.

16243. Apr. 6.—Authorizing C.N.O.R. to cross four highways in Nepean tp.

16244. Apr. 6.—Authorizing C.N.R. to cross with its Calgary-Edmonton branch six highways in Alberta.

16245. Apr. 1.—Authorizing C.N.R. to build spur to power house, Saskatoon, Sask.

16246. Apr. 3.—Authorizing C.N.R. to cross five highways in Strathcona, Alta.

16247, 16248. Apr. 4.—Approving location of Campbellford, Lake Ontario and Western Ry. (C.P.R.), Glen Tay to Belleville branch from mileage 15 across Oso, Bedford, and Hinchinbrooke tps., crossing Kingston and Pembroke Ry., near Parham station to westerly boundary of Hinchinbrooke tp., at mileage 38.5; and location of Glen Tay to Cobourg line from mileage 38.5 to 58.5 in Lennox and Addington counties, Ont.

16249, 16250. Apr. 4, 6.—Authorizing G.T.P.R. to build bridges across Fraser River at mileage 316 and 274 west of Wolf Creek, B.C.

16251. Apr. 2.—Dismissing G.T.P. Branch Lines Co. application re Tofield-Calgary branch right of way.

16252. Apr. 3.—Authorizing G.T.P. Branch Lines Co. to cross C.P.R. Brandon branch

overhead in n.w. ¼ sec. 26, tp. 10, r. 18, w. p.m., Man.

16253, 16254. Apr. 2.—Authorizing C.P.R. to take lands for construction of permanent snow fences in Pickering tp., Ont.

16255. Apr. 4.—Relieving C.P.R. from erecting fences on portion of its Calgary subdivision Alta.

16256, 16257. Apr. 6.—Authorizing G.T.P. Branch Lines Co. to cross with its Calgary Boundary branch the C.P.R. Aldersyde branch in n.e. ¼ sec. 4, tp. 12, r. 23, and n.w. ¼ sec. 26, tp. 19, r. 28, w. 4 m., interlocking plants to be installed.

16258. Apr. 6.—Authorizing G.T.P. Branch Lines Co. to build Y connecting its Alberta coal branch with Yellowhead Pass Coal and Coke Co.'s spur.

16259. Apr. 9.—Rescinding order 8462, Oct. 29, 1909, and ordering G.T.P.R. to build overhead crossing on Fort Saskatchewan trail, north Edmonton, Alta., plans to be filed within 30 days and work to be completed within 90 days from approval, under penalty of \$100 a day.

16261. Apr. 9.—Authorizing G.T.R. to build spur into Western Foundry Co.'s premises, Wingham, Ont.

16262 to 16264. Apr. 9.—Authorizing C.P.R. to rebuild bridges 22.5, Newport subdivision; 32.6, Ottawa subdivision; and 24.8, 30.7, 32.2 and 35.8, Farnham subdivision.

16265. Apr. 9.—Authorizing C.P.R. to build its Moose Jaw southwesterly branch across highway at mileage 36.63, Sask.

16266. Apr. 10.—Approving C.N.O.R. revised location in Litchfield tp., mileage 59.13 to 59.73 from Ottawa.

16267. Apr. 10.—Approving location of C.N.R. Montreal-Port Arthur line through MacLennan, Scadding, Street and Davis tps., Sudbury District, mileage 405.36 to 421.09 from Montreal.

16268. Apr. 10.—Authorizing C.N.O.R. to connect with C.P.R. at mileage 2, in Port Arthur, for construction purposes only.

16269. Apr. 9.—Authorizing C.N.R. to build its Calgary-Strathcona line across 25 highways in Alberta.

16270. Apr. 10.—Dismissing application of town of Battleford, Sask., re C.N.R. branch passenger service.

16271. Apr. 10.—Dismissing complaint of Namaka Farmers Association no. 122, Namaka, Alta., re C.P.R. mail service.

16272. Mar. 16.—Ordering C.N.O.R. to build concrete foot subway through Deaf and Dumb Institute property, near Belleville, Ont.

16273. Apr. 9.—Approving revised location of C.P.R. Lacombe Easterly branch, mileage 100.07 to 146.10, Alta.

16274. Apr. 10.—Authorizing C.P.R. to rebuild bridge 30.5, Temiskaming subdivision.

16275. Apr. 11.—Amending order 15995, Feb. 16, general order re fireguards.

16276. Apr. 11.—Postponing effective dates of M.C.R. tariff C.R.C. 1874; G.T.R. C.R.C. E. 2376, as amended by supplement 1, and Wabash Rd. C.R.C. 566 as amended by supplement 1, advancing rates on anthracite coal from Niagara frontier to Canadian points.

16277. Apr. 11.—Authorizing South Ontario Pacific Ry. (C.P.R.) to build its Guelph Jct. to Hamilton line under Hydro-Electric Power Commission's wires, at mileage 13.32 from Guelph Jct., Ont.

16278. Apr. 9.—Approving location of eight G.T.P.R. stations in Coast and Cassiar Districts, B.C.

16279. Apr. 11.—Authorizing G.T.P. Branch Lines Co. to operate over crossing of its Melville-Regina branch with C.P.R. in Saskatchewan, interlocker being completed.

16280, 16281. Apr. 11, 12.—Approving location of C.N. Alberta Ry., mileage 166.01 to 192.83 and authorizing it to occupy portion of G.T.P.R. about mileage 185.5; and approving location from mileage 192.83 to 222.79.

16282. Apr. 12.—Authorizing C.N.R. to build bridge across Pembina River, s.w. ¼ sec. 29, tp. 53, r. 7, w. 5 m.

16283. Apr. 12.—Approving C.N.O.R. revised location in Ferris tp., mileage 339.5 to 340.72.

16284. Apr. 12.—Authorizing C.N.R. to build bridge across Macleod River in west half of sec. 33, tp. 52, r. 17, w. 5 m.

16285. Apr. 10.—Authorizing Esquimalt and Nanaimo Ry. to take lands for railways purposes, lots 54 and 55 of Lime Bay, sec. 31, Victoria West.

16286 to 16289. Apr. 11, 10.—Authorizing C.P.R. to build spurs for Alsip Brick, Tile and Lumber Co., St. Boniface, Man., Wolverton Milling Co., Wolverton, Ont., H. Hilton and Sons, Winnipeg, and to ballast pit near Marquette, Man., and to cross four highways to same.

16290. Apr. 11.—Authorizing C.N.R. to cross public road between s.e. ¼ sec. 3, tp. 39, and n.w. ¼ sec. 33, tp. 38, r. 27.

16291, 16292. Apr. 11.—Authorizing C.N.O.R. to cross two public roads in Fitzroy tp.

16293 to 16296. Apr. 12.—Authorizing C.P.R. to rebuild five bridges on its Macleod, Sherbrooke, Ottawa, Mountain and Farnham subdivisions; bridges 54.4, Muskoka subdivision, 92.3, Boundary subdivision, and 54.0 over new cut Macleod subdivision.

16297. Apr. 12.—Authorizing Roxborough tp., Ont., to build highway across C.P.R. near Mountain.

16298. Apr. 12.—Authorizing C.P.R. to build spur into Canadian Carbon Co.'s premises, Winnipeg.

16299. Apr. 12.—Authorizing C.N.O.R. to cross public road between cons. 1 and 2, Ottawa Front, Nepean tp.

16300. Apr. 12.—Approving details of interlocking plant by G.T.P. Branch Lines Co. at crossing of C.P.R. Langdon Branch, Alta., authorized by order 15088, Oct. 13, 1911.

16301. Apr. 12.—Authorizing C.P.R. to build bridge 65.3 over irrigation siphon, Calgary subdivision, Alta.

16302. Apr. 13.—Approving Midland Ry. of Manitoba (G.N.R.) bylaw authorizing C. E. Dafoe, Superintendent and General Freight and Passenger Agent, to issue tariffs of tolls.

16303. Apr. 13.—Authorizing C.N.O.R. to cross public road between lots 10 and 11, con. 4, March tp.

16304. Apr. 11.—Ordering C.P.R. to build station and appoint agent at St. Francois de Salle, Que., and file plans within 30 days showing side track.

16305. Apr. 12.—Ordering C.P.R. by May 1 to make Winchester, Ont., a regular stop for trains 21 and 22.

16306. Apr. 12.—Naming express collection and delivery limits for Chapleau, Ont.

16307. Feb. 15.—Approving Canadian Northern Ontario Ry. branch to Bond St., and spur into William St., Oshawa.

16308. Apr. 15.—Certifying correction to G.T.P. Branch Lines Co. Regina-Boundary branch location plan.

16309, 16310. Apr. 13.—Authorizing C.P.K. to rebuild bridge 33.9 and 103.9 Edmonton and Muskoka subdivisions.

16311. Apr. 15.—Approving location of Central Ry. of Canada Montreal to Midland line, from Oka, mileage 31 to south side of highway at Carillon, mileage 45.61.

16312. Apr. 3.—Authorizing C.P.R. to build additional track across street railway at Pacific Ave., Fort William, Ont.

16313. Apr. 11.—Ordering Canadian Northern Ry. to build road crossing, etc., and grade roadway to loading platform, elevator and team track at Pelly, Sask., by May 1, under penalty of \$10 a day.

16314. Apr. 12.—Ordering that supplement 6 to G.T.R. tariff C.R.C. E. 1432 and supplement 5 to C.P.R. tariff C.R.C. E. 1286 may become effective June 1, re order 15844, Jan. 27, in connection with Consumer's Cordage Co., Montreal.

16315. Apr. 12.—Ordering C.P.R. to build farm crossing for F. W. Dodwell, Austin, Man.

16316. Apr. 13.—Authorizing C.P.R. to build spur for William Davies Co., near Front and Overend Sts., Toronto.

16317. Apr. 13.—Certifying correction to G.T.P. Branch Lines Co. Regina-Boundary branch location plan.

16318. Apr. 13.—Authorizing G.T.R. to build siding for Ridgeway Milling Co., Ridgeway, Ont.

16319. Apr. 12.—Authorizing G.T.R. to build additional track across Pape Ave., Toronto.

16320. Apr. 13.—Approving revised location of Canadian Northern Ry. Calgary-Strathcona branch, mileage 72.58 to 81.75, Alta.

16321. Apr. 15.—Approving agreement between C.P.R. and C.N.R. for joint facilities at Regina, Sask.

16322. Apr. 15.—Approving location of C.P.R. station at Cutknife, Sask.

16323. Apr. 12.—Ordering C.N.O.R. to install electric bell at Manvers road crossing east of Bowmanville station.

16324. Apr. 15.—Ordering Dominion Atlantic Ry. before July 1 to install electric bell east of Berwick station, N.S., 20% of cost to be paid from railway grade crossing fund.

16325. Apr. 11.—Approving location of Campbellford, Lake Ontario and Western Ry. Glen Tay to Cobourg line from mileage 88.21 to 106.17 from Glen Tay, Ont., and authorizing it to take possession of certain portions of G.T.R. right of way.

16326. Apr. 13.—Approving location of James Bay and Eastern Ry. (C.N.R.) station grounds at Demeules, Que.

16327. Apr. 15.—Authorizing C.P.R. to build additional tracks across highways at Tantallon, Esterhazy and Killaley, Sask.

16328. Apr. 12.—Ordering C.P.R. to widen crossing at King St., Walkerton, Ont.; bell question reserved for further consideration.

16329. Apr. 15.—Authorizing G.T. Pacific Ry. to build spur for Edmonton Portland Cement Co., near Edmonton, Alta.

16330. April 15.—Authorizing Canadian Northern Ontario Ry. to build bridge across the Muskegogama river at mileage 94 from Sudbury Jct.

16331. April 18.—Amending order 13357, Mar. 30, 1911, re collections and deliveries in municipalities by express companies. This order is given fully under heading of Among the Express Companies on another page.

16332. April 17.—Authorizing Michigan Central Rd. to rebuild bridge over Grand River, Ont.

16333. April 16.—Approving character of Hill drain across Pere Marquette Rd. being built by Aldborough tp., Ont.

16334. April 16.—Approving location of Canadian Northern Quebec Ry. station at Cap Sante.

16335. April 17.—Approving Georgian Bay and Seaboard Ry. (C.P.R.) plan B re crossing at Jackson St., Bethany, Ont., and rescinding order 16169, Mar. 13, in the same connection.

16336. April 17.—Approving location of C.P.R. station at Claresholm, Alta.

16337. April 17.—Authorizing C.P.R. to build nine spurs for Birds Hill Sand Co., near Winnipeg.

16338, 16339. April 13, 15.—Approving location of G.T. Pacific Branch Lines Co.'s stations at Bremen and Meacham, Prince Albert branch; and Stony Beach and Keystown Regina-Moose Jaw branch.

16340. April 17.—Authorizing G.T.R. to build spur for Barber-Ellis, Ltd., Brantford, Ont.

16341. April 17.—Ordering C.P.R., G.N.W. and C.N.R. Telegraph Cos. to deliver telegrams free of charge within corporate limits of St. Boniface, Man.

16342. April 18.—Authorizing G.T.R. to build spur for Connell Anthracite Mining Co., Carlaw Ave., Toronto.

16343. April 18.—Approving plans for Canadian Northern Ry. standard portable station for use on eastern lines.

16344. April 18.—Approving location of James Bay and Eastern Ry. (C.N.R.) station grounds at Chute a l'Ours, Que.

16345. April 18.—Dismissing application of Stockton and Mallinson Regina, Sask., re Dominion Ex. Co.'s rates.

16346. April 18.—Authorizing city of Fort William to build Pacific Ave. across C.P.R.

Grand Trunk Pacific Railway Telegraphs

We are officially advised that the construction programme for this year comprises 840 miles of poles, and 2,404 miles of wire, including the erection of a copper metallic circuit for telephone train dispatching, from Prince Rupert to mileage 250. The line is at present complete west of Winnipeg to mileage 1,073, which is 30 miles beyond the summit of the Rocky Mountains. The total mileage complete and in operation is 1,964½ miles of pole line, and 5,971½ miles of wire. Following is a list of the location and mileage of this year's construction:—

	Mileage	
	Pole.	Wire.
Prince Rupert eastward	149	798
Milepost 1073, from Winnipeg, west ..	50	200
Regina-Boundary branch	143	286
Regina-Moose Jaw branch	56	112
Moose Jaw and West	57	114
Young-Prince Albert, to complete	51	286
Biggar-Calgary branch	60	60
Oban to Battleford	57	114
Cutknife branch	50	50
Tofield-Calgary branch, to complete....	94	288
Alberta Coal branch	50	100
Mountain Park Coal branch	23	46
Total	240	2,404

The American Society of Civil Engineers will hold its annual meeting at Seattle, Wash., June 25 to 28, instead of at Saratoga, N.Y., as first arranged.

Sir Donald Mann is reported to have purchased a large area of coal lands in the Groundhog Valley, B.C., which, it is said, he will proceed to develop at once.

During Feb., 14 employees were killed and eight were injured, in the course of their work in connection with railway construction in the Dominion. Of the fatalities, 13 were due to a premature explosion of dynamite on the C.N.R., near Fort Frances, Ont., the other was due to the man being run over by a train.

Canadian Pacific Railway Construction, Betterments, Etc.

Entrance to Boston, Mass.—A resolution was unanimously passed by the Massachusetts State Legislature, April 8, asking the C.P.R. to extend its lines through the State to Boston.

Halifax, N.S.—It is said that a conference between business men and others interested in the development of Halifax, and Sir Thos. G. Shaughnessy, took place, April 10, with the object of securing the entrance of the company's lines into the city. At present C.P.R. trains are hauled in over the Intercolonial Ry. by the latter's locomotives. Press reports state that the Government has under consideration a proposition for granting the C.P.R., and possibly other lines, running rights over the line into Halifax, and is taking up the question of building a second track from Moncton to Halifax, in connection with the proposal.

St. John, N.B.—D. McNicoll, Vice President, returned to Montreal April 9, from a trip of inspection to St. John, and is reported to have referred to the necessity of the Dominion Government pushing forward with the development of the harbor works on the west side. The company's line between St. John and Montreal was capable of handling double the present traffic, if there were sufficient handling facilities at St. John. As soon as the Dominion Government had built the new sea wall the company would start building a 1,000,000 bush elevator. It was hoped to have this ready for the opening of the winter traffic in 1913. The extension of the freight yards would also be gone on with when the Government works had been sufficiently advanced.

Improvements between Granby and Farnham, Que.—Press reports state that G. H. Gardner, one of the company's engineers, has opened an office at Granby, Que., and is arranging for making surveys between that place and Farnham.

Orford Mountain Ry.—The Quebec Legislature has granted 2,000 acres of land a mile for 22 miles of railway, viz., from Bolton to Mansonville, from Mansonville to the international boundary, from Windsor Mills to Bronson Falls, and for 3.5 miles from Melbourne, Que.

Quebec Station Building, Etc.—The mayor of Quebec has received plans showing the lay out of the proposed new station and terminal facilities in Quebec. The company proposes to straighten its line and rearrange its yard, for which purpose it desires to expropriate a large section of Victoria Park, and to divert the St. Charles River, making certain exchanges of property with the city. Freight sheds would be built near St. Paul street, and the new passenger station would be built at the Palais. The plans are being considered by the city council.

Cap de la Madeleine Ry.—The Dominion Parliament has declared the C. de la M. Ry. to be a work for the general advantage of Canada, and has authorized its amalgamation with the C.P.R. under agreement, the head offices being moved to Montreal.

Northern Colonization Ry.—The Quebec Legislature has granted 3,000 acres of land a mile for the building of 100 miles of line from Mont Laurier, the present terminus of the Northern Colonization Ry., towards Lac des Quinze.

Ottawa Northern and Western Ry.—The Dominion Parliament has extended the time for the building of various branch lines authorized to be built.

Ottawa Tunnel Proposals.—It is said that the Government has promised an early consideration of the company's plans for a tunnel in Ottawa, and that the Minister of Railways has personally approved of the general proposal,

though he has not given any definite approval of the plans.

Campbellford, Lake Ontario and Western Ry.—The Board of Railway Commissioners has approved of location plans of the line from mileage 15 to 58.5. The revised location plans for the entry of the line into Belleville show that it will go in parallel to, but north of the Canadian Northern Ontario Ry. In West Belleville and Sidney tp. it is proposed to expropriate part of the C.N.O. Ry. and to rebuild that line a little further south. G. A. Mountain, Chief Engineer, Board of Railway Commissioners, is going over the route with a view to reporting upon a number of proposed revisions, and a local report states that an arrangement may be made between the two companies by which a common right of way will be used through Belleville.

It was reported April 17, that about 800 men had started work on the line. W. H. McGann, of the company's engineering staff, has taken up his headquarters at Belleville.

Kingston and Pembroke Ry.—Press reports state that 3,000 tons of new steel rails will be laid on this line during the current year, that several bridges will be rebuilt, and a lot of ballasting and considerable other betterment work done. The estimated expenditure is \$205,000.

Georgian Bay and Seaboard Ry.—A meeting of shareholders has been called to be held at Toronto, May 9, to authorize the issue of additional bonds or other securities for the completion of the line from Victoria Harbor to Bethany Jct., Ont.

Leaside Jct., Ont., Developments.—The company is reported to have acquired over 1,000 acres of land at Leaside Jct., Ont., just east of Toronto, upon which it is said will be laid out freight yards and terminals similar to those at West Toronto. It is further said that this work will be done as part of the plans for the improvement of the company's facilities in and near Toronto, and in preparation for the completion of the Campbellford, Lake Ontario and Western Ry.

Union Station for North Toronto.—It is said that plans are being prepared for the building in conjunction with the Canadian Northern Ontario Ry., of a union station on the east side of Yonge street, in the north part of the city. It is proposed to have six tracks entering the station, which will be reached by stairs, from the street level.

Lambton to Brampton, Ont.—Press reports state that the company has engineers in the field locating a line from Lambton to Brampton, Ont. In this connection it may be noted that some of the company's engineers have been making a survey for a line from the South Ontario Pacific Ry. through Acton to Georgetown.

South Ontario Pacific Ry.—Work has been started on the ballasting and other finishing work on the Guelph Jct.-Hamilton line.

Surveys are reported to have been made for an extension through Acton to Georgetown, Ont.

Galt, Ont.—It is reported that the company has purchased four acres in Galt, Ont., and will expend \$100,000 in laying out a down town freight terminal. The plans, it is said, provide for the laying of seven tracks, and the building of a 290 ft. freight shed, abutting on the east end of Main street.

Tillsonburg, Lake Erie and Pacific Ry.—The Dominion Parliament has voted subsidies in aid of the building of a line from Ingersoll to Stratford, or to near Berlin, Ont., 35 miles; in lieu of the subsidy voted in 1907.

Spur Track at St. Marys.—Press reports state that a spur line of about three-quarters of a mile is to be built to the cement works at St. Marys.

London Improvements.—Negotiations are reported to be in progress with the London city council, for the carrying of the company's line across the G.T.R. east of the city, down into the manufacturing district in the east end, and making a connection with the London and Port Stanley Ry.

Chatham, Ont.—Press reports state that a considerable expenditure is to be made upon the station, and the yards, during the current year. The other works proposed to be undertaken, it is stated, are the building of a spur line to connect with the Pere Marquette Rd., and the reconstruction of a bridge over the Thames, east of the city.

West Ontario Pacific Ry.—The Dominion Parliament has extended the time within which the company may build its projected line from near Sarnia to Lake Erie, with branches to Ingersoll and Woodstock, Ont. The company was originally incorporated in 1885.

New Buildings at Windsor, Ont.—Local press reports state that some extension is to be made to the company's yards at Windsor, and that a new freight shed, 500 x 30 ft. wide, will be built.

Fort William Elevators.—The mayor stated, April 3, that he had received notice from the C.P.R. that it was proposed to build a 1,000,000 bush cleaning elevator at Fort William, Ont., and that work would be started at once in order to have it ready in time to handle this year's crop.

Proposed Yards at Springfield, Man.—Winnipeg press reports state that the plans for the proposed new yards at Springfield, on the east side of Winnipeg, provide for the final covering of all area of 2.5 miles by half a mile, and that altogether 100 miles of track will be laid. The buildings will include freight shed, round house, machine shop, and a large terminal grain elevator. Negotiations with the Springfield municipal council for the closing of roads, etc., have been started, and it is expected to have everything ready so that work may be commenced on the laying out of the yards in the fall.

Red River Bridge, Winnipeg.—We are officially advised that a contract has been let to the Foundation Co., Montreal, for putting in the substructure of a bridge across the Red River at Winnipeg. The bridge is situated about half a mile east of the station. The substructure will consist of concrete foundations, with five piers and two abutments of masonry. The Dominion Bridge Co. will build the superstructure, which will consist of four 130 ft. through double track truss spans, and one 260 ft. through double track swing span. The dimensions from centre line to centre line of the trusses will be 32 feet. The swing span will be operated either by a gasoline engine or electric power. The total length of the bridge from face to face of ballast walls will be 770 ft.

Gimli Branch Extension.—We are officially advised that it is probable the extension of the Gimli branch from the present track end to Riverton, on the Icelandic River, Man., will be proceeded with, but nothing definite has yet been decided.

The Dominion Parliament has voted a subsidy in aid of the building of this branch line from near Teulon to the Icelandic River, 35 miles, in lieu of that voted in 1906.

Manitoba and North Western Ry.—The Dominion Parliament has voted a subsidy in aid of the building of a line from Hamiota to Birtle, Man., about 30 miles.

Regina Terminals.—The President of the Regina Board of Trade stated at a meeting, April 12, that he had been advised by the company's officials in Winnipeg, that it was intended to double its facilities in Regina during this year.

Moose Jaw Southwesterly.—The Board of Railway Commissioners has approved revised location plans for the branch from Moose Jaw, Sask., southwesterly, 35.59 miles, and location plans from mileage 35.59 to 37.85. The branch has been opened for traffic for 27.4 miles, and the remainder of the mileage is under construction.

Wilkie-Anglia Branch.—The Board of Railway Commissioners has approved of revised location plans of the Wilkie-Anglia branch, from the Pheasant Hills branch, in sec. 6, tp. 40, range 19, for 33.34 miles, to sec. 22, tp. 34, range 19, west of the third meridian, Sask.

Bridge at Outlook, Sask.—A subsidy of 15 per cent. of the cost of the bridge across the Saskatchewan River at Outlook, Sask., has been voted by the Dominion Parliament, but the total amount payable is not to exceed \$115,000.

Weyburn-Lethbridge Branch.—General Superintendent Scully was at Weyburn, Sask., April 11, and informed the Board of Trade that arrangements were being made for improving the company's facilities there. It is proposed to put in a spur line at Forward, Sask., to connect with the Canadian Northern Ry. The construction of the line westerly from the present track end at Viceroy, Sask., is being proceeded with.

At the western end of the line, the Board of Railway Commissioners has approved of the route for 36 miles due east from Sterling, Alta., the point of junction with the Alberta Ry. and Irrigation Co.'s line. The contract, let to J. Timothy, Edmonton, calls for the grading of 25 miles, but General Superintendent Price is reported as having stated that the 36 miles, for which the route plans have been approved, will be graded this year.

Department of Natural Resources.—Tenders are being received to May 1, for concrete construction, etc., on about half the area comprised in the eastern section of the company's irrigation block, Alta. The approximate quantities are 15,000 cubic yards of concrete and 1,200,000 lbs. of reinforcing steel. The quantities in individual structures vary from five cubic yards to 700 cubic yards of concrete, with a proportionate weight of steel.

Ogden Shops, Calgary.—Work on the new shops at Calgary, Alta., which are to be named after I. G. Ogden, Vice-President, is being progressed with. Large quantities of material have been delivered, and several gangs of men are at work clearing the site, getting the foundations prepared for the buildings, and grading for the tracks.

Lacombe Branch.—The Board of Railway Commissioners has approved revised location plans for the extension of this branch, easterly from mileage 100.07 to 146.10.

Overhead Bridge, Strathcona.—Tenders are under consideration for the placing of concrete for an overhead bridge at Anthony St., Strathcona, Alta.

Office Building at Edmonton.—A permit has been issued for the erection of an office building on Jasper Ave., to cost \$350,000. The contractors are C. H. Sharp and Son, Winnipeg, Man. The clearing of the site was started April 2, and it is expected to have the new building completed by Feb., 1913.

Frank, Alta.—The condition of the mountain at Frank is again causing some anxiety, and it is reported that surveys are being made for the diversion of the C.P.R. from near Cowley to Blairmore, so as to have the line beyond the danger zone.

Alberta Central Ry.—We are officially advised that it is intended to complete the line from Red Deer to Rocky Mountain House, Alta., this year. D. F. McArthur, Winnipeg, is the contractor. J. G. McGregor is chief engineer of the A.C. Ry., reporting to W. A. James, C.P.R. Division Engineer of Construction at Winnipeg.

Second Track Work in B.C.—F. F. Busted, who has been placed in charge of the second track construction west of Calgary, Alta., has opened an office in Kamloops, B.C., and is arranging for the surveys preparatory to starting work.

Laggan to Lake Louise.—In consequence of the great increase in travel to the summer hotel at Lake Louise, B.C., a line 3 1/2 ft. gauge is being built from Laggan, on the main transcontinental line, to Lake Louise, 3.5 miles. It will have a maximum gradient of 4 per cent. The contractors are Grant Smith and MacDonnell. Four gasoline motor cars, two with capacity for 35 passengers each, and two with capacity for five tons of baggage each, are being built at the Angus shops. Hitherto the transfer between Laggan Station and Lake Louise Hotel has been performed by busses and wagons.

Proctor, B.C.—Ties and rails have been delivered at Proctor, B.C., for the construction of a spur line from the wharf to the hotel. The grading is being gone on with.

Rossland Branch Electrification.—This is dealt with in a separate article in the electric railway department further on in this issue.

Kootenay Central Ry.—In place of the subsidies voted in 1910, the Dominion Parliament has granted aid towards the building of this line as follows:—From Golden, via Windermere and Fort Steele to near Jackson, on the British Columbia Southern Ry., not exceeding 175 miles; and from near Caithness on the B.C.S. Ry., towards the international boundary, not to exceed 25 miles.

The Board of Railway Commissioners has authorized the opening for freight traffic of the line from Coivalli to Bull River, 9.2 miles.

Tunnel in Vancouver.—We are officially advised that while General Superintendent Osborne has not had any conference with the Vancouver city council about the construction of a tunnel to connect the company's main line with its False Creek yards, a proposition to this end has been brought up at the council meetings. The object in view by those suggesting the tunnel is to avoid some grade crossings at Hastings and Powell streets. The company has not prepared any plans.

Buildings in Vancouver and Victoria.—A permit has been taken out for the building of a six-story reinforced concrete power house and laundry building at the rear of the company's hotel in Vancouver, to cost about \$120,000. It is said that plans are being prepared for the erection of an office building for the C.P.R. coast steamship service in Victoria. (April, page 176.)

Frog and Switch Repair Cars.—Both the Southern Pacific and Frisco Lines appear to be meeting with considerable success in the use of frog and switch repair cars, which travel over the system, stopping at previously advised points, where in conjunction with the section foreman, the track is carefully gone over and repaired. The track tools are at the same time put in condition. A big saving results, not only in eliminating the cost of shipment to the nearest shop, but the track foremen co-operate to a greater degree in keeping the track material under their charge more carefully inspected in anticipation of the visit of the repair car.

Canadian Northern Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases, compared with those for 1910-11, from July 1, 1911:—

	Earnings.	Expenses.	Net Earnings.	Net Increase
July	\$1,475,900	\$1,114,300	\$361,600	\$13,400
Aug.	1,420,600	1,105,900	314,700	51,700
Sept.	1,576,400	1,157,000	419,400	38,200
Oct.	2,028,900	1,348,500	680,400	99,900
Nov.	2,001,500	1,336,300	665,200	106,300
Dec.	1,831,400	1,327,600	503,800	144,600
Jan.	1,223,100	1,004,400	223,700	122,000
Feb.	1,203,400	965,800	237,600	101,800
	\$12,766,200	\$9,359,800	\$3,406,400	\$877,900
Inc.	\$ 3,093,900	\$2,416,000	\$ 677,900	.....

Approximate earnings for March, \$1,572,700, against \$1,270,600 for March, 1911.

Canadian Pacific Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net profits, increases or decreases, compared with those for 1910-11, from July 1, 1911:—

	Earnings.	Expenses.	Net Profits.	Increases.
July	\$ 9,661,818.14	\$5,958,789.81	\$3,703,028.33	\$218,408.74
Aug.	10,421,904.42	6,346,333.41	4,075,571.01	383,998.68
Sept.	10,049,084.97	6,131,638.17	3,917,446.80	5,847.16
Oct.	11,207,991.99	6,526,887.24	4,631,104.75	175,944.23
Nov.	10,570,694.80	6,588,328.31	3,987,366.46	250,244.23
Dec.	10,654,871.67	6,549,141.41	4,105,730.26	819,196.37
Jan.	7,328,781.81	6,245,924.11	1,082,857.70	426,739.83
Feb.	8,931,907.20	6,548,040.53	2,338,866.67	239,159.16
	\$78,827,055.00	\$50,890,082.99	\$27,936,972.01	\$3,519,438.40
Inc.	\$11,923,919.45	\$7,404,181.05	\$ 3,519,438.40	.....

Approximate earnings for March \$10,389,000 against \$8,648,000 for March, 1911.

Grand Trunk Railway Earnings, Expenses.

Following are the earnings of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. and M. Ry., for Feb., as compared with those for Feb., 1911:—

GRAND TRUNK RAILWAY.			
	1912.	1911.	
Earnings	\$2,506,400	\$2,326,800	
Expenses	2,147,100	1,995,700	
Net earnings	\$ 359,300	\$ 331,100	
CANADA ATLANTIC RAILWAY.			
	1912.	1911.	
Earnings	\$ 128,800	\$ 121,000	
Expenses	155,900	133,900	
Deficit	\$ 25,200	\$ 12,300	
GRAND TRUNK WESTERN RY.			
	1912.	1911.	
Earnings	\$ 476,000	\$ 497,600	
Expenses	460,400	415,400	
Net earnings	\$ 15,600	\$ 82,200	
DETROIT, GRAND HAVEN AND MILWAUKEE RY.			
	1912.	1911.	
Earnings	\$ 147,700	\$ 157,100	
Expenses	186,000	160,000	
Deficit	\$ 38,300	\$ 2,900	
Approximate earnings for March, \$4,080,230, against for \$3,909,773 for March, 1911.			

TRAFFIC RECEIPTS OF THE SYSTEM.				
	1912.	1911.	Inc.	Dec.
G.T.R.	\$8,298,539	\$7,861,390	\$437,149	.....
C.A.R.	459,450	447,256	12,194	.....
G.T.W.R.	1,536,894	1,602,980	.....	\$66,086
D.G.H.&M.R.	474,947	489,669	.....	14,722
Totals	\$10,769,830	\$10,401,295	\$368,535	

Railway Taxation in Manitoba.—An act has been passed by the Manitoba Legislature, adding the following words after "place" in line 8, sec. 19, chap. 166, of 1902: "Or of levying on all real property, the property of a railway company, its share or proportion of taxation levied and imposed under or pursuant to the provisions of the Land Drainage Act." The second section of the act makes it apply to all drainage districts already formed, or which may be formed during the continuance of the Land Drainage Act.

The Death of Charles M. Hays.

Charles Melville Hays, President, G.T.R. and G.T. Pacific Ry., who was lost in the Titanic disaster, April 15, was born at Rock Island, Ill., May 16, 1856. He entered railway service in 1873, since when he has been, to 1877, clerk Atlantic and Pacific Rd. (now part of the Frisco Lines), St. Louis, Mo.; 1877 to 1884, secretary to Vice President and General Manager, Wabash, St. Louis and Pacific Rd.; 1886 to 1887, Assistant General Manager same road; 1887, appointed General Manager, Wabash Western lines, comprising all the lines west of the Mississippi River and that portion of the lines east, between Chicago and Detroit, and on the consolidation of the Wabash lines, he was appointed General Manager of the entire system. In 1894 he was elected also Vice President, and resigned Dec. 31, 1895, on his appointment as General Manager, G.T.R., which position he resigned in 1901 to become President, Southern Pacific Rd., but on that railway changing hands after a few months he returned to the G.T.R. as General Manager, and was also elected Second Vice President in 1902. On Jan. 1, 1910, he was elected President. He was also President, G.T. Pacific Ry., from Aug. 10, 1904.

Mr. and Mrs. Hays left Montreal Feb. 12, and sailed from New York for England Feb. 16. They were preceded by Thornton and Mrs. Davidson, their son-in-law and daughter, who travelled in Europe before joining Mr. and Mrs. Hays for the return journey. Of the family party Messrs. Hays and Davidson were drowned, Mrs. Hays and Mrs. Davidson being rescued. Vivian Payne, Mr. Hays' private secretary, was also lost.

The arrival of the s.s. Carpathia in New York, April 18, with the survivors from the Titanic was awaited by H. G. Kelley, Vice President, G.T.R.; E. H. Fitzhugh, President, Central Vermont Ry.; Dr. J. A. Hutchison, Chief Medical Officer, G.T.R., who is also the Hays' family physician; and Hope and Mrs. Scott, Mrs. Hays' son-in-law and daughter, and by W. H. Gregg, of St. Louis, Mrs. Hays' father, and some other relatives. The party was taken as quickly as possible after the boat docked to the Grand Central Station, where they boarded a special train to Montreal, arriving there the following morning.

Shortly after Mrs. Hays' return to Montreal, H. G. Kelley, Vice President, G.T.R., gave a statement to the press, in which he said that Mrs. Hays and her daughter, Mrs. Davidson, had retired to their cabins, but had not undressed when the crash came. Mr. Hays and Mr. Davidson were on deck, with H. Markland Molson. Shortly after the Titanic ran into the iceberg, the ladies were brought on deck, and Mr. Hays and his son-in-law went back to the cabins to get fur coats for them, as the night was very cold. All imagined that there was no immediate danger, and in spite of the fact that some of the lifeboats were being lowered and the passengers being loaded into them, it was thought to be the best course to pursue to remain with the ship. As the second last lifeboat was swung over the steamer's side, Mr. Hays informed his wife and daughter that he thought it advisable that they get into this, saying that he and Mr. Davidson would wait until help came in the morning. The men then wrapped the two ladies in their warm coats, and with Mrs. Hays' maid helped them into the boat. The last seen of Messrs. Hays, Davidson and Molson, they were standing on the deck, waving to the ladies in the boat, and as a further assurance, Mr. Hays called out that the Titanic was good for ten hours more, and by that time help would have surely arrived. The

lights of the liner went out shortly after the smaller lifeboat pulled some distance away, but neither of the ladies saw her sink below the surface. Naturally, both were greatly agitated, and although anxious for their husbands, did not consider them in any imminent danger. The women were huddled together in the bottom of the boat, and did not suffer any hardships from the exposure. It was not until the next day that Mrs. Hays and her daughter were definitely aware of the loss of their husbands.

Col. Gracie, of the U.S. Army, who had a most remarkable escape, having stayed on the ship till the last, is reported to have said:—"Before I retired I had a long chat with Mr. Hays. One of the last things he said was this: 'The Hamburg-American lines are devoting their attention and ingenuity to vying with one another to attain the supremacy in luxurious ships and in making speed records. The time will come soon when this will be checked by some appalling disaster.' Poor fellow, a few hours later he was dead."

Major Peuchen, of Toronto, who was saved, in testifying before the U.S. Senate committee at Washington, D.C., April 23,



The Late Charles M. Hays.

described feeling the shock of the collision and going on deck, where a friend told him an iceberg had been struck. He continued:—"After a few minutes I went to other friends and said it was not serious. Fifteen minutes later I met C. M. Hays. I asked him: 'Have you seen the ice?' He said 'No.' Then I took him up and showed him. Then I noticed the boat was listing. I said to Mr. Hays: 'She's listing; she shouldn't do that.' He said: 'Oh, I don't know. This boat can't sink.' He had a good deal of confidence, and said: 'No matter what we have struck she's good for eight or ten hours.'"

A memorial service for Mr. Hays was held on April 25 in the American Presbyterian Church, Montreal, of which he was a member. At 11.30 a.m., Montreal time, all trains, yard engines, vessels, telegraph and telephone services over the entire system were stopped for five minutes, and all labor was similarly suspended. The principal stations and offices were draped in black and purple, and all the companies' flags were lowered to half mast.

Joliette and Lake Manuan Colonization Ry.

A company with this title was incorporated by the Dominion Parliament in 1903 to build a railway from Joliette northerly to St. Emelie de l'Energie, thence northerly and northwesterly to St. Michel des Saints, and thence to Lake Manuan, Que. Subsequently cash and land subsidies were voted by the Dominion Parliament and the Quebec Legislature, respectively, and acts extending the time for construction were passed in 1905 and 1909. Up to 1910 nothing had been done, but in that year a change was made in the control of the company, and arrangement effected for British capital to build the line. J. N. Patton was appointed Chief Engineer, a contract was let to the Enterprise Construction Co., and some grading was done. In 1911 a further extension of time for construction was granted, and power was given for the extension of the line southerly through Montcalm, L'Assomption and Hochelaga counties to Montreal. The Dominion subsidy for the line from Joliette to Lake Manuan, about 60 miles, is still available, and the Quebec Legislature has re-granted the old land grant subsidy for the same mileage at the rate of 4,000 acres a mile. This subsidy covers about half the distance to the National Transcontinental Railway, and the Government has pledged itself to provide a land subsidy for the balance of the line to the N.T. Ry., as well as for the extension southerly into Montreal, a total mileage of 120, or 180 miles from Montreal to the N.T.R.

The principal nominal officers of the company are:—Hon. A. N. Belcourt, Ottawa, President; and J. R. Ritchie, K.C., Vice President. A. M. Laredo, of London, Eng., who has been in Canada for two years in connection with the company, has acquired a three-fourths interest in the charter, and is also interested in the British Canadian Construction Co., which has been formed to carry out the general construction and equipment contract. H. S. Ross, K.C., Montreal, is President of this company. The contract for the construction of the 60 miles from Joliette to St. Emelie de l'Energie has been let to the Enterprise Construction Co., with which are associated W. J. Sims, 48 Spark St., Ottawa, and I. A. Hodge, of Syracuse, N.Y. It is expected to have this graded and ready for the steel this year, and the track will be laid with 80 lb. steel this year if it can be obtained. The company's Chief Engineer is J. M. Paton, and H. S. Dickson is Resident Engineer, both with headquarters at St. Felix de Valois, Que. The company is arranging to make an issue of bonds in London, Eng., and Paris, France.

Mr. Laredo is also one of the principal promoters of the Ottawa, Abitibi and Hudson Bay Ry., which was incorporated at the recent session of the Quebec Legislature, to build a line from Hull, through Wright and Pontiac counties, and the Coulonge River Valley via Great Lake Victoria, to the National Transcontinental Railway, and on past Lake Metagamie to James Bay. (Feb., pg. 68.)

C.P.R. Oil Burning Locomotives—

The C.P.R. is changing a large number of locomotives to burn oil than was at first intended. On the British Columbia division 76 will be changed, and 14 on the Esquimalt and Nanaimo Ry. even Seven stationary plants on the B.C. division, for pumping stations at oil storage plants, will also be equipped for oil burning. A storage tank of 43,000 barrels capacity is being built at Esquimalt, B.C., to provide an auxiliary supply for the company's B.C. coast steamship service, and this will be used to supply the E. and N. Ry. locomotives, for a time at least.

Canadian Northern Railway Construction, Betterments, Etc.

Quebec and Lake St. John Ry.—The Quebec Legislature has granted 3,000 acres of land per mile for the following lines:—From Valcartier to St. Catherine, a 4½ mile branch from Valcartier towards Gosford, and to extend a branch line 12 miles to Valcartier.

St. Charles and Huron River Ry.—The Dominion Parliament has voted a subsidy for the building of a line from Indian Lorette on the Quebec and Lake St. John Ry., along the valley of the St. Charles River to Stoneham, 7.5 miles. The Quebec Legislature has granted 2,000 acres of land a mile for the same line.

James Bay and Eastern Ry.—The Quebec Legislature has voted 4,000 acres of land a mile for the 30 miles of this line from Roberval, westerly towards James Bay, now under construction.

Canadian Northern Quebec Ry.—W. A. Kingsland, Auditor C.N.Q. Ry., is reported as having stated in Quebec, April 11, that the work of laying out tracks and building the shops at Limoilou, Quebec city, will be re-started May 1, and pushed to completion, and that when the Canadian Northern transcontinental line was completed the terminals at Cap Rouge, where the company has a mile of river frontage for development, will be arranged. A complete description of the Limoilou shops appears on another page.

A subsidy has been voted by the Dominion Parliament in aid of the building of a line from near Arendal to Preston and Hartwell tps., not exceeding 30 miles.

Subsidies have been voted by the Quebec Legislature as follows:—To the Great Northern Ry., one of the C.N.Q.R. constituent companies, 2,000 acres of land a mile for a line from St. Sauveur to St. Jerome, 15 miles; and to the C.N.Q. Ry. 3,000 acres a mile for 16 miles of line in Montcalm county; 2,000 acres a mile for 65 miles from near Montreal to a junction with the C.N.Q. Ry. near Grenville; 2,000 acres a mile for 82 miles from Quebec to Garneau Jct., with a five mile branch to the Quebec bridge, and a 7½ mile line from Limoilou to the Montmorency river.

Canadian Northern Montreal Tunnel and Terminal Co.—In a recent interview Sir Wm. Mackenzie is reported to have stated that the company's act of incorporation having been passed, a start would be made on the tunnel and connecting lines immediately. The contract with the C.N.R. calls for the completion of the tunnel before the end of 1913.

S. P. Brown, Chief Engineer of the tunnel construction, who is located in Montreal, and is working on the final plans, is reported as having stated that the tunnel will be a double track one, with a diaphragm wall between the two tracks. It will be about three miles long, but it is not expected that it will present any serious engineering difficulties. The geological formation promises good conditions, and although the rock will vary considerably, water is the only difficulty which may be expected. The tunnel will be lined with concrete, the thickness of which will vary as conditions require. Work is expected to be started May 1 at both ends of the tunnel, and it is hoped to complete the tunnel in less than the 500 days estimated.

Ottawa Car Shops.—Sir Wm. Mackenzie, President, is reported as having stated at Ottawa, April 3, that car shops will be built on the site acquired near Ottawa, but he would not say that they would be the company's central car shops.

Ontario and Ottawa Ry.—The Dominion Parliament has extended the time for the building of a line from near

Lake Couchiching to Snowden tp., and from Herschell tp. easterly to Renfrew, thence across the Ottawa River to Hull, and recrossing the Ottawa River to Ottawa.

Toronto to Hamilton, Niagara, etc.—A large area of land is reported to have been acquired by the company at Leaside Jct., near Toronto, close to that purchased by the C.P.R. for terminal yards, etc.

Plans are said to be in preparation for the building of a union station in North Toronto, for joint use with the C.P.R.

At Hamilton considerable time has been spent in discussing the company's plans for its line in the city. The city council has engaged F. L. Sommerville, formerly District Engineer, G.T.R., Toronto, to advise as to the plans.

Col. Davidson, of the company's land department, and other officers of the company have been in London and other places in Western Ontario during the past month, making enquiries in connection with traffic, etc.

Orillia to Sturgeon Point, Ont.—Press reports state that engineers are locating a line from the C.N.R. just outside Orillia, to Sturgeon Point, Georgian Bay.

Montreal-Ottawa-Port Arthur Line.—The Board of Railway Commissioners has approved of location and revised location plans as follows:—For 0.60 of a mile in Litchfield tp. at mileage 59 from Ottawa; for 1.12 miles at mileage 339.5 in Ferris tp.; through Macleannan, Scadding, Street and Davis tps., mileage 405.36 to 421.09 from Montreal; from mileage 270.9 to 272.83 and from mileage 343.15 to 363, from Sudbury Jct.

The Board has also authorized the building of a transfer track to connect the Sudbury branch with the Algoma Eastern Ry. in Sudbury; and the making of a connection with the C.P.R. at mileage two from Port Arthur, for construction purposes only.

The plan and book of reference of location of the line through the city of Port Arthur and McGregor tp., mileage 2 to 6.49, have been deposited in the Port Arthur Registry Office.

Canadian Northern Ry.—The Dominion Parliament has extended the time for the building of a number of branch lines authorized to be constructed in 1908 and 1910, and has approved of the building of various lines authorized by the Saskatchewan Legislature to be built by the Saskatchewan Midland Ry., the Saskatchewan North Western Ry., and by the Alberta Legislature under the charter of the Alberta Midland Ry.

M. H. MacLeod, General Manager, stated recently at Port Arthur that the company was planning to secure a second track between that city and Winnipeg, and that engineers were engaged in making the necessary surveys.

The Manitoba Government has guaranteed the principal and interest of the company's bonds for \$13,000 a mile for a line from the present terminal of the line authorized to be built by par 2 in the schedule attached to chap. 57 of the statutes of 1909 for 150 miles northerly to tp. 44. This line is to start at Winnipeg and is intended to connect with the line being built by the Dominion Government from Le Pas to Hudson Bay.

The President of the Regina Board of Trade stated at a meeting, April 12, that M. H. MacLeod, General Manager, has informed him that the company has under consideration the building of a line from Regina, to join the Gorse Lake line at either Rosetown or Kindersley, in place of the previously projected line from Chamberlin to Kindersley, and that it is possible that some grading will be done on this line during the current year.

The question of the building of a transfer railway in Saskatoon is being considered, and the local men who hold the Saskatoon Transfer Ry. charter are negotiating with the C.N.R. with a view to that company building the line.

Sir Wm. Mackenzie is reported as having informed some Prince Albert, Sask., people, Mar. 25, at Ottawa, that 50 miles of the line from Prince Albert towards a junction with the Government line to Hudson Bay at Le Pas will be built this year. M. H. MacLeod, General Manager, stated subsequently that the surveys will be made at an early date, and grading gangs will follow the survey parties. A later press report stated that W. Ozeman, Kinistino, Sask., had been given a contract for the work, but we were advised by him, April 16, that this was incorrect.

We are officially advised that a contract on the Prince Albert Battleford Branch, for 34 miles west of Blaine Lake, has been let to W. J. Cowan, Winnipeg.

An office has been opened in Moose Jaw, Sask., with Engineer Thomas in charge. Grading has been completed to 15 miles south of the town and work on a big trestle four miles out has been started. The clearing of the area secured for terminals in Moose Jaw is expected to be completed by May 15.

The Board of Railway Commissioners has approved of revised location plans for the Swift Current branch from mileage 78.29 to 124.96 in Saskatchewan.

Arrangements have been made with the G.T. Pacific Ry. for the erection of a union station in Edmonton. The present C.N.R. station will be used as the basis of the new station.

Press reports state that location surveys have been completed for a line southeasterly from Camrose, Alta., and that construction is expected to be started at an early date.

A contract has been let to the Northern Construction Co. for the building of the remaining four miles of the short line from the Brazeau line to Red Deer.

The Board of Railway Commissioners has approved of location plans for the Strathcona-Calgary line through Strathcona and the adjoining tp.; from mileage 0 to 4.55 and from mileage 65.05 to 102.50.

The James O'Connor Construction Co. has had 250 teams, with the necessary gangs of men, shipped to Macleod for the grading of the line from that place to Pincher Creek. The work is reported let to seven subcontractors, who expect to have the grading completed within three months.

The Dominion Parliament has passed two acts relative to aiding the construction of the Canadian Northern Alberta Ry. The first recites that by the act of 1910, certain aid was to be given by guaranteeing bonds towards the building of 150 miles of line, and provides that such aid may be applied to the 150 miles of line from St. Albert towards the Yellowhead Pass, and the second provides for the guaranteeing of bonds for \$25,000 a mile, for the extension of the line from mileage 150 from St. Albert, to the boundary of British Columbia at the Yellowhead Pass, not exceeding 115 miles.

The Board of Railway Commissioners has approved location plans for the main line from mileage 166.01 to 192.83, and has authorized the occupying of a portion of the G.T. Pacific right of way, from mileage 192.83 to 222.79.

Canadian Northern Pacific Ry.—The Dominion Parliament has granted \$12,080 a mile towards the building of a line from Yellowhead Pass to the mouth of Fraser River, about 525 miles.

In a recent interview M. H. MacLeod, General Manager, stated that the contracts for the whole of the line from the Yellowhead Pass to the mouth of the Fraser River had been let. An announcement was recently made that the

contractors for the section from Kamloops to the Yellowhead Pass, expected to put the last 120 miles of the section in the hands of subcontractors at an early date.

We are officially advised that the company's engineers have secured a route through the Yellowhead Pass which will give a lower gradient than that of the G.T. Pacific Ry. On the Alberta side the maximum gradient will be 0.5 deg. and on the Pacific side 0.7 deg.

Vancouver Island—It is reported that tenders will be asked at an early date for grading, etc., on a further mileage on the line on Vancouver island. It is expected that the section will carry the line to Comox at the north of the island. Press reports state that the company has acquired 1,480 acres of land in the vicinity of Duncan Bay, about three miles south of Seymour Narrows. (April, pg. 178.)

Railway Rolling Stock Notes.

The G.T.R. is reported to be in the market for six tourist cars and 15 colonist cars.

The Quebec Central Ry. has received two mogul locomotives from the Canadian Locomotive Co.

The Temiskaming and Northern Ontario Ry. is in the market for four steel underframe cabooses.

The Algoma Central and Hudson Bay Ry. has received four 10-wheel locomotives from the Canadian Locomotive Co.

The Reid Newfoundland Co. has ordered the construction of a rotary snow plough and two locomotives at its shops at St. John's.

The Intercolonial Ry. has received four switching and five consolidation locomotives from the Canadian Locomotive Co.

The Temiskaming and Northern Ontario Ry. has ordered four steel underframe vans from the Canadian Car and Foundry Co.

The Joliette and Lake Manuan Ry., in which A. M. Laredo, Windsor Hotel, Montreal, is principally interested, will probably be in the market for rolling stock about August.

The C.P.R. is building at its Angus shops four gasoline motor cars, two with capacity for 35 passengers each, and two with capacity for five tons of baggage each, to run on the line which is being built between the main line at Lagan, Alta., and Lake Louise, 3.5 miles, which will be 3 1/2 ft. gauge.

O'Brien, McDougall and O'Gorman, railway contractors, have ordered one Rodger double plough distributing car from the Hart-Otis Car Co. Following are the chief dimensions:—

Capacity	30 tons
Length over end sills	32 ft.
Width over side sills	8 ft. 9 ins.
Height from rail to floor	4 ft. 1 1/4 ins.
Truck centres	23 ft. 8 ins.
Wheel base of truck	5 ft. 2 ins.

Following are the chief details of the two sleeping cars and one dining car, which the Intercolonial Ry. is having built by the Canadian Car and Foundry Co.:—

Length over end sills	72 ft. 3 ins.
Width over side sills	9 ft. 10 ins.
Width between deck sills	5 ft. 6 ins.
Height from rail to top of roof boards	14 ft. 2 ins.
Height from rail to centre of coupler	2 ft. 11 ins.
Underframe	Steel
Lighting	Pintsch gas and electric

Roberts Bros. and Co., railway contractors, Chicago, Ill. who have a contract on the Canadian Northern Ry., have ordered one Rodger double plough distributing car from the Hart-Otis Car Co. Following are the chief dimensions:—

Capacity	30 tons
Length over end sills	32 ft.
Width over side sills	8 ft. 9 ins.

Height from rail to floor	4 ft. 1 1/4 ins.
Truck centres	23 ft. 8 ins.
Wheel base of truck	5 ft. 2 ins.

The C.P.R., between Mar. 14 and Apr. 16, received the following additions to rolling stock:—154 wooden box cars, two tourist cars, 13 first class cars, 13 baggage and express cars, and 11 G2 locomotives, from its Angus shops, Montreal; 423 steel frame box cars from the Canadian Car and Foundry Co.; two ballast spreaders from F. H. Hopkins and Co.; 343 steel frame box cars from the American Car and Foundry Co.; 309 steel frame box cars from the Western Steel Car and Foundry Co.; two Bucyrus steam shovels and two wrecking cranes.

Following are chief details of the 50 Otis steel dump cars which the Intercolonial Ry. has ordered from the Hart-Otis Car Co., and which will be built by the Canadian Car and Foundry Co.:—

Length over end sills	38 ft. 9 ins.
Length inside	36 ft. 9 1/2 ins.
Width over all	9 ft. 11 1/4 ins.
Width inside	9 ft. 6 ins.
Height inside	5 ft.
Height from rail to top	9 ft. 4 13-16 ins.
Height from rail to floor	4 ft. 4 13-16 ins.
Truck centres	26 ft.
Wheel base of truck	5 ft. 6 ins.
Wheel base of car	31 ft. 6 ins.
Number of doors on each side	Six
Width of door opening	2 ft. 2 ins.

Following are the chief dimensions of the 20 Otis semi-composite ore caars, which the C.P.R. has ordered from the Hart-Otis Car Co.:—

Capacity	50 tons
Length over end sills	25 ft. 9 ins.
Length inside	23 ft. 5 ins.
Width inside	9 ft. 7 ins.
Width over all at top	9 ft. 11 ins.
Height from rail to floor	4 ft. 4 13-16 ins.
Height from rail to top of car	9 ft. 4 13-16 ins.
Height inside	5 ft.
Wheel base of car	18 ft. 6 ins.
Wheel base of truck	5 ft. 6 ins.
Truck centres	13 ft.
Number of doors on each side	4
Total number of doors	8
Door opening	2 ft. 2 ins.

Following are the chief details of the two sleeping cars and one dining car, which the Intercolonial Ry. is having built by the Pullman Co.:—

Length over end sills, dining car	72 ft.,
sleeping car	73 ft. 6 ins.
Width over side sills	9 ft. 8 ins.
Width between deck sills	5 ft. 6 ins.
Height from rail to top of roof boards	14 ft. 2 ins.
Height from rail to centre of coupler	2 ft. 11 ins.
Underframe	Steel
Draft gear	Westinghouse
Buffing device and vestibule	Pullman standard
Gas lighting	Pintsch Safety Car Heating and Lighting Co.
Electric lighting and fans	United States Light and Heating Co.
Trucks	6-wheel, wood, plated
Wheels	36 ins. steel tired
Journal boxes	McCord & Co.
Axles	5 by 9 ins.

The Canadian Northern Ry., between Mar. 14 and Apr. 15, received the following additions to rolling stock:—31 ten-wheel locomotives (heavy) and 10 ten-wheel locomotives (light), from the Montreal Locomotive Works; three consolidation locomotives, from the Canada Foundry Co.; 440 box cars, 80 steel underframe flat cars, five sleeping cars and six first-class cars, from the Canadian Car and Foundry Co.; 80 steel underframe flat cars, from the Crossen Car Co.; 115 Hart-Otis cars from the Hart-Otis Car Co., five second-class and baggage cars, from the Preston Car and Coach Co.; 195 box cars from the Nova Scotia Car Works; 35 cabooses from its Winnipeg shops, and 88 flat cars.

The Toronto, Hamilton and Buffalo Ry. has ordered two six-wheel switching locomotives from the Montreal Locomotive Works. Following are the chief details:

Cylinders, diar. and stroke	21 by 28 ins.
Driving wheels, diar.	51 ins.
Boiler, diar.	67 1/4 and 68 3/4 ins.
Boiler, pressure	180 lbs.
Firebox, length and width	76 by 65 1/2 ins.
Tubes, no. and diar.	308-2 ins.
Tubes, length	16 ft.
Heating surface, tubes	2,567 sq. ft.
Heating surface, firebox	129 sq. ft.
Heating surface, total	2,696 sq. ft.

Grate area	32.7 sq. ft.
Weight on drivers	166,000 lbs.
Weight, tender	110,000 lbs.
Wheel base	11 ft. 6 ins.
Wheel base, engine and tender	46 ft. 8 ins.
Maximum tractive power	37,000 lbs.
Factor of adhesion	4.48
Tender, water capacity	5,500 gals.
Tender, coal capacity	8 tons

The C.P.R., between Mar. 14 and Apr. 16, ordered the following rolling stock:—2,000 wooden box cars, 10 vans, six flat cars, eight stock cars, four refrigerator cars, one horse car, one baggage and smoking car, one compartment sleeping car and two U3 switching locomotives, from its Angus shops, Montreal; 3,177 steel frame box cars, 100 automobile cars from the Canadian Car and Foundry Co.; 20 Otis dump cars from the Hart-Otis Car Co.; 25 N3 locomotives from the Montreal Locomotive Works. 20 tank cars from the American Car and Foundry Co.; 2,000 steel frame box cars from the Western Steel Car and Foundry Co.; 2,000 steel frame box cars from the Standard Steel Car Co., and one Bucyrus steam shovel and one wrecking crane.

The Toronto, Hamilton and Buffalo Ry. has ordered two consolidation locomotives, equipped with superheaters, from the Montreal Locomotive Works. Following are the chief details:—

Cylinders, diar and stroke	23 by 28 ins.
Driving wheels, diar.	68 1/4 and 76 ins.
Boiler pressure	180 lbs.
Firebox, length and width	96 by 75 1/2 ins.
Tubes, no. and diar.	202 2 ins. and 28 5 1/2 ins.
Tubes, length	15 ft.
Heating surface, tubes	2,162 sq. ft.
Heating surface, firebox	168 sq. ft.
Heating surface, total	2,330 sq. ft.
Grate area	50.2 sq. ft.
Wheel base, driving	17 ft.
Wheel base, engine	25 ft. 9 ins.
Wheel base, engine and tender	57 ft. 3 ins.
Weight on drivers	178,000 lbs.
Weight on leading truck	25,700 lbs.
Weight, total	204,500 lbs.
Weight, tender	136,000 lbs.
Maximum tractive power	41,200 lbs.
Factor of adhesion	4.33
Tender, water capacity	7,000 gals.
Tender, coal capacity	10 tons

O'Brien, Fower and McDougall Bros., railway contractors, have ordered 20 Hart convertible ballast and construction cars, 1912 design, 40 tons capacity, in addition to the 40 mentioned in our last issue, from the Hart-Otis Car Co. The dimensions given for these in our last issue, referred to the 13 Rodger double plough distributing cars ordered by the C.P.R., having been transposed with those of the latter. Following are the chief dimensions:—

Length over end sills	36 ft. 8 ins.
Width over side sills	8 ft. 10 ins.
Length inside as hoppers	20 ft. 10 ins.
Length inside as gondolas	34 ft. 8 ins.
Width inside	8 ft. 8 ins.
Width over all	10 ft. 2 1/4 ins.
Width at top	9 ft. 10 ins.
Height from rail to floor	4 ft. 4 1/4 ins.
Height from rail to top of car	8 ft. 1 1/2 ins.
Height inside	3 ft. 9 1/4 ins.
Truck centres	26 ft. 8 ins.
Wheel base of truck	5 ft. 4 ins.
Length of hopper door opening	16 ft. 8 1/2 ins.
Width of hopper door opening	2 ft.

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

Calgary and Edmonton Ry.	357.18 Acres.
Canadian Pacific Ry.	183.50
Kootenay Central Ry.	85.804
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	3,533.47
Total	4,159.954

The International Railway General Foremen's Association, which holds its annual convention at Chicago, Ill., July 23 to 26, will discuss the following papers—How can shop foremen best promote efficiency. Shop supervision and local conditions. Shop specialization work and tools. Roundhouse efficiency. Reclaiming of scrap, and The relation of tests to shop efficiency.

National Transcontinental Railway Construction

F. P. Gutelius, M. Can. Soc. C.E., and G. L. Staunton, K.C., the commissioners appointed to investigate the construction of the N.T.R., will leave Ottawa shortly to begin their investigations on the line. They have been looking over the plans and specifications and examining the contracts and reports upon which payments for work were made, in order to familiarize themselves with the position of the work. The principal object of the investigation is to determine the causes of the discrepancies between the original estimates and the actual cost of the work. It is expected that the investigation along the line from Moncton to Winnipeg will last about three months.

The section of the line from Moncton, N.B., to the southern end of the Quebec bridge is reported to be ready to be taken over from the contractors, as also is the section of the line from just outside Quebec westerly for about 350 miles. The sections of the line, the construction on which is being proceeded with east and west from Cochrane, Ont., are well advanced. Steel is reported to have been laid easterly from Cochrane to Peter Brown Creek, 150 miles. Track was laid to mileage 1197.45 from Moncton, on Division C, that is to about 37 miles east of the west end of Division C, which lies west of Cochrane. Work on the various sections of the line on which grading has not been completed was carried on where possible during the winter, and the construction camps are now filling up with men preparatory to starting up the regular season's operations.

The first locomotive to be taken into the shops at Transcona, Man., was run in Mar. 25, although the shops are not yet fully equipped for work. Good progress is being made by Harvey, Quinlan and Robinson with the erection of the car shops, and the J. D. McArthur Co. has a large force of men on laying out the yard tracks. The coal chute erected by the J. McDiarmid Co., has been completed. Tenders are under consideration for a diversion of the sewer on Verandrye and Archibald streets, necessitated by the layout of the yards, etc.

The following have been given as the levels of the line in western Quebec by K. Weatherbone, assistant engineer of District C:—Lake Abitibi, high water level, 870 ft.; Whitefish River, water level, 870 ft.; Lois River, 915 ft.; Kakmoonan River, water level, 994 ft.; Robertson Lake, water level, 1,004 ft.; branch of Nawapitechin River, water level, 978 ft.; Molesworth Lake, water level, 1,003 ft.; Spirit Lake, water level, 1,036 ft.; Harricanaw River, water level, 971 ft.; Peter Brown creek, water level, 1,003 ft.; Nataganan River, water level, 1,000 ft.; Coffee River, water level, 1,007 ft.; Bell River, water level, 994 ft.; Migiskan River, west crossing, water level, 1,071 ft.; Sunday Brook, water level, 1,092 ft.; Crooked Creek, water level, 1,123 ft.; Migiskan River, east crossing, water level, 1,158 ft.; Canon Creek, water level, 1,139 ft.; Atik River at outlet from Atik Lake, water level, 1,277 ft.; Durant Lake, water level, 1,327 ft.; Steele Lake, water level, 1,353 ft.; Kekek River, water level, 1,364 ft.; Hamilton Lake, water level, 1,427 ft.; Susie River, 1,394 ft. (April, pg. 180.)

Grand Trunk Pacific Railway Construction.

Main Line.—The plans for the proposed yards between Namayo St. and Kinistus Ave., Edmonton, involve the crossing of the latter. The company desires to cross at the level, but the city council, April 10, passed a resolution

calling upon the company to put in a subway.

It has been decided that the new union station at Edmonton with the Canadian Northern Ry. will be located between First and Second Streets.

C. Schrieber, Consulting Engineer Dominion Government, returned to Ottawa, April 17, after having made a trip of inspection over the line as far as Tete Jaune Cache, B.C. He reports having found track laid to 30 miles beyond the Yellowhead Pass, and grading well advanced to Tete Jaune Cache. The contractors were putting forth every effort in order to get the line through to the Fraser River, in order that a steamship service might be opened up as far as Fort George. On the section easterly from Prince Rupert, track had been laid for 138 miles, and grading was being carried on as far as the 245th mile.

It was reported, Mar. 30, that the following subcontractors were at work east and west of Tete Jaune Cache:—H. E. Carlton and Co., A. E. Griffin and Co., Burns, Jordan and Co., Sims, Carey and Co. P. Welch, representing the contractors, Foley, Welch and Stewart, is in charge of the whole of the work in British Columbia, and is making his headquarters alternately at Fitzhugh, Alta., and at Bulkeley Summit, B.C.

Harte-Brandon Branch.—The contractors for the branch under construc-

tion the municipal authorities at an early date.

Regina-Boundary Branch.—Track laying was started April 11 on the branch line from Regina to the international boundary, 155 miles. The grading is being done by J. D. McArthur, Winnipeg. It is expected to have the branch completed this year.

Regina-Moose Jaw Branch.—It is expected that the 60 mile branch connecting Regina and Moose Jaw, Sask., will be completed this year. The contractors are Rigby, Hyland and Plummer, Winnipeg.

Moose Jaw Northwesterly.—The construction of the branch line from Moose Jaw for 40 miles northwesterly was expected to have been started April 30. The contractors are Rigby, Hyland and Plummer, Winnipeg.

Battleford Branch.—Construction on the branch from Oban to Battleford, Sask., 48 miles, has been started up for the season by the contractor, J. Daudelin, Battleford. It is expected to have it completed this season.

The Prince Albert Branch, which starts at Yonge, Sask., has been completed for 67 miles. The extension of the line to Prince Albert, 54.5 miles, is being built by J. D. McArthur, Winnipeg.

Cutknife Branch.—The Board of Rail-



The Grand Trunk Pacific Railway Wolfe Creek Bridge.

tion from Harte to Brandon, Man., are Rigby, Hyland and Plummer, Winnipeg. It will be 24 miles long, and is to be completed during the current year.

The Dominion Parliament has voted a subsidy of 25 per cent. of the cost of a bridge across the Assiniboine River at Brandon.

The company is being invited to build a line from near Miniota, Man., to Brandon, to effect a junction with the Harte-Brandon branch.

Melville-Canora Branch.—The branch line northerly from Melville, Sask., which now terminates at Canora, will, it is said, be extended to Le Pas, Man. Recent press reports state that the surveys have been completed over a route from Canora to Le Pas.

Regina Station and Hotel.—Plans for the station at Regina have been completed, and have been communicated to the municipal authorities. The building, which will be erected at the corner of Sixteenth Ave. and Albert St., will be two stories, with a frontage of 250 ft. and a depth of about 600 ft., including the train sheds. The ground floor will contain all the public offices, while upstairs will be located the divisional staff. The estimated cost is \$200,000.

Plans for the proposed hotel in Regina will, it is expected, be submitted to

way Commissioners has approved the correction of errors in the revised location plans of the branch. The contract for the building of 50 miles, from Battleford, Sask., is being carried out by Lamoreaux and Peterson, Omaha, Neb.

Biggar to Calgary Branch.—Work is reported to have been started on this branch by Foley, Welch and Stewart. The branch starts from Biggar, and will enter Calgary over the company's Tofield-Calgary branch tracks. Its total length will be 104 miles.

Tofield-Calgary Branch.—Track laying was resumed April 8, and it is expected that the work will be completed into Calgary, Alta., early in July. The contractor is J. D. McArthur, Winnipeg. Considerable difficulty was met with in fixing the route of this line, as, in common with the Canadian Northern Ry. branch into Calgary, it passed through the C.P.R. irrigated lands.

Calgary Terminals.—It is reported that the company has purchased the N.W.M.P. barracks site in Calgary, for terminal purposes, for \$1,000,000. E. J. Chamberlin, V.P. and G.M., stated Mar. 30, that a site had been acquired, and that an announcement would be made as to plans at an early date. The station would be built as soon as possible.

Calgary-Lethbridge Branch.—No contract has yet been let for the grading

of the proposed branch from Calgary to Lethbridge, 107 miles. The line will enter Lethbridge by a junction with the C.P.R. line west in the southeast quarter of sec. 2-9-22, just west of the high level bridge. Surveys have been made for an extension of the line from Lethbridge to Coutts, about 63 miles.

Alberta Coal Branch.—The grading on this branch, which runs south from Bickerdike, Alta., is being completed by the contractors, Foley, Welch and Stewart. The distance to be completed is 25 miles. (April, fig. 180.)

The Wolf Creek Bridge at mileage 913.5 west of Winnipeg, of which an illustration is given on this page, rests on two steel towers and masonry. Its length between parapets is 652 ft. 2 in. It has two 60 ft. end deck spars, two 40 ft. tower spans, and three 150 ft. deck truss spans. The height from the river bed to bed of rail is 130 ft.

Prince Rupert Marine Terminals.—Press reports state that the British North American Construction Co., Vancouver, B.C., has been given a contract for the preliminary work on the construction of the wharves, dry dock, etc., comprising a large amount of creosoted piling and mill work construction, at a cost of about \$260,000. It is said that following the completion of this work contracts will be let for the dry dock and wharf buildings, involving a further expenditure of about \$1,250,000.

Great Northern Railway Lines in Canada

Fort William.—Press reports from St. Paul, Minn., April 12, state that G.N.R. interests have acquired a site along the water front at Fort William, Ont., about two miles in length, for iron and steel works, and for terminal purposes. The report adds that a line is to be built by the G.N.R. from some point in the U.S. to Fort William. Reports from Winnipeg state that the mayor of Fort William was in that city, April 11, in consultation with G.N.R. officials, and a New York engineer, in connection with the project.

Midland Great Northern Ry.—Midland Ry. of Manitoba.—The finishing up of construction on the company's line into its freight terminals in Winnipeg has been in progress since the completion of track laying at the end of 1911, and it was announced that the line would be opened for traffic May 1. The company's passenger trains will continue to be operated into the Canadian Northern Ry. station.

The G.N.R. runs its trains over its own tracks to Emerson at the International boundary, then over the Canadian Northern Ry. to about eight miles south of Winnipeg, where its own line into the city branches off. The Northern Pacific Ry. will also use this line as an entrance into Winnipeg, using its own tracks to Pembina, N.D., and then running over the C.N.R. tracks to the point of junction with the new line.

Application is being made by the company for the building of a spur line from McPhillip St. to Tecumseh St., on the north side, and on Elgin Ave. south side, along William Ave.

Calgary.—The Assistant General Manager of the G.N.R., with other officers, was in Calgary, Alta., April 8, and it is reported that they were arranging for the purchase of a right of way for a line into Calgary from the west.

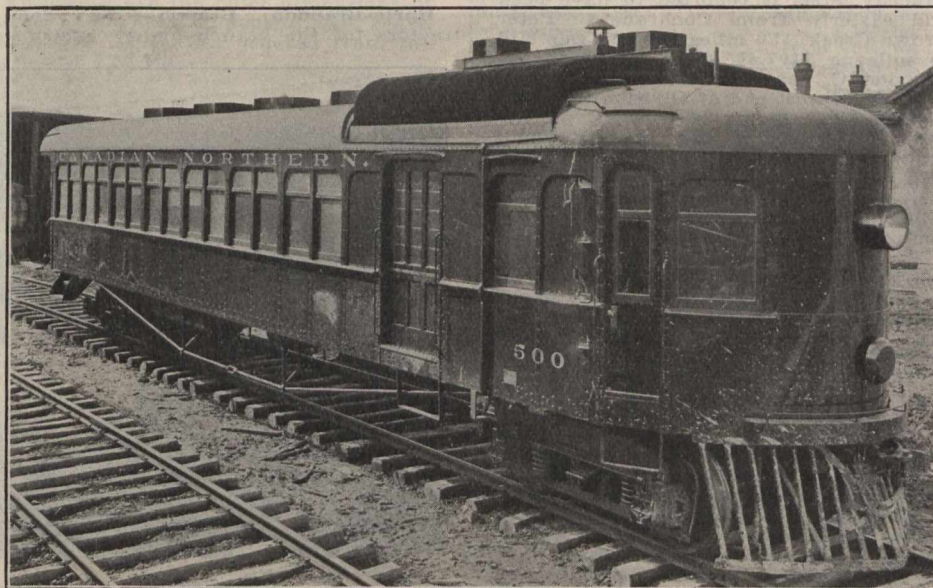
Vancouver Terminals.—The contract for the erection of the first part of the new wharves between Hastings Mill and the sugar refinery, Vancouver, is reported to be practically completed. Four temporary piers reaching 700 ft. from the C.P.R. tracks have been built, and Chase and Co., the contractors, expected to finish their work by April 30. A contract for the concrete work is re-

ported to have been let to Cummings and Deihl, at an estimated cost of \$125,000. The work is expected to be started May 1. (April, pg. 183.)

Quebec and Lake St. John Railway Gas Electric Car.

The last issue of The Railway and Marine World contained a complete description of the gas electric car which the Canadian Northern Ry. Co. has procured for use on one of its subsidiary lines, the Quebec and Lake St. John Ry., to run between Quebec and Lake St. Joseph, 23 miles, the company having a summer hotel at the latter point. The description was accompanied by a diagram showing the front, side and rear elevations and the floor plan. An illustration of the car's exterior appears on this page.

The car reached Toronto on April 10, and on the following day made a trip on the C.N.O.R. Toronto-Sudbury line from Toronto to Richmond Hill, 21 miles, with the chief executive officers and a number of officials of the C.N.R. and others. On April 13 it was run over the C.N.O.R. line from Toronto to Tren-



Quebec and Lake St. John Ry. Gas Electric Car.

ton, 105 miles, a number of officials and press representatives being on board.

It was then put on the run between Trenton and Picton, 30 miles, for a short time before being sent to Quebec, where it is to go into service May 1.

Should the car's operation prove satisfactory to the C.N.R. management it is probable that orders for others will be placed, but it is not probable that this will be done for some months.

The car referred to, which was manufactured by the General Electric Co., Schenectady, N.Y., was sold through the Canadian General Electric Co.

The Steam Railways of Connecticut, according to the latest report of the Railroad Commissioners, are all controlled by the New York, New Haven and Hartford Rd., with the sole exception of the Grand Trunk's New London Northern Line and a road 2½ miles long, owned by Cheney Bros.

Quebec Bridge.—It is said that the reports received by the Department of Railways show that satisfactory progress is being made with the building of the substructure of the bridge across the St. Lawrence, near Quebec, and that everything will be in readiness early in the fall for starting work on the erection of the superstructure.

The C.P.R. High Level Bridge at Edmonton, Alta.

The bridge being built by the C.P.R. to connect Strathcona and Edmonton, Alta., is progressing rapidly, all the masonry having been completed, and the steel work is in course of erection.

It is a steel span bridge 2,500 ft. long from face to face of ballast walls of the end abutments. This distance is made up of three 288 ft. centre spans across the river, 10 tower spans each from 30 to 50 ft. long, and 14 open spans each from 30 to 100 ft. long. The main spans over the river are supported on concrete piers which measure approximately 115 ft. from the base of rail to the footing, the latter in one instance extending to a depth of approximately 40 ft. below the river surface. The approach trestles on each bank are carried on concrete pedestals built up on concrete piling.

The bridge is to carry steam and electric railway and vehicular traffic. The railway deck on the top of the structure carries three tracks, one for C.P.R. trains and the other two for electric railway service. The roadway deck is located 20 ft. below the railway tracks, and

consists of a reinforced concrete roadway 23 ft. wide, paved with wood, in addition to which there are two side paths 8 ft. wide supported on cantilever brackets.

The highways and electric line approach the bridge from Saskatchewan Ave., on the Edmonton side, and from Anthony St. on the Strathcona side. The C.P.R. tracks on the Edmonton side are carried across Victoria and MacKay Aves. on reinforced concrete structures, and across Saskatchewan and Jasper Aves. on steel structures. On the Strathcona side Anthony St. is carried over the railway tracks on a reinforced concrete bridge.

The Dominion Parliament has voted the C.P.R. as lessees of the Calgary and Edmonton Ry., a subsidy of 15% of the cost of the bridge in lieu of the subsidy of \$126,000 voted in 1908.

The Atlantic Construction Co. has been incorporated under the Dominion Companies Act with authorized capital of \$750,000 and office at Quebec, to carry on railway and general contracting, and in connection therewith to own and operate steam and other vessels, dredges, etc. The provisional directors are:—J. B. Craven, Larchmont, N.Y.; H. Dussault, Quebec; C. Donohue, R. Wall, and L. P. Goyette, Montreal.

Traffic Orders by the Board of Railway Commissioners.

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

Apple Rates from Maritime Province

16101 Mar. 14.—Re application of United Fruit Companies of Berwick, N.S., complaining of the proposed increase, by the C.P.R., of 4 c. per 100 lbs. in the rate on apples in carloads shipped from points in the Maritime Provinces to Winnipeg, it is ordered that the application be dismissed.

White Pass and Yukon Route Rates

16153. Mar. 18.—Re order 12783, Jan. 18, 1911, disallowing Joint Freight Tariff C.R.C. 9, and Joint Passenger Tariff C.R.C. 3, of the Pacific and Arctic Ry. and Navigation Co., the British Columbia Yukon Ry., and the British Yukon Ry. and directing the companies to substitute joint tariffs of freight and passenger tolls based on a reduction of at least one-third in each case from the freight and passenger tolls shown in the said tariffs, and re application of British Yukon Ry. Co., British Columbia Yukon Ry. and Pacific and Arctic Ry. and Navigation Co., for a rehearing, pursuant to the order of the Governor in Council of June 16, 1911 Upon the said hearing in Ottawa on March 1, 1912, counsel for the applicant companies and the Dawson board of trade appearing at the hearing, and what was alleged; and upon reading the evidence taken under commission upon the application of the Dawson board of trade, it is ordered that the order 12783 be rescinded.

Switching Charge on Lumber at Sarnia.

16161. Mar. 21. Re application of F. McGibbon and Sons, Sarnia, Ont., complaining against the rate of 1c per 100 lbs., minimum \$5 a car, charged by the G.T.R. for switching lumber from the applicants' docks to their storage yard and mill at Sarnia, and applying for the same rate as charged by the Pere Marquette Rd. for switching lumber from its docks to other storage yards at Sarnia, namely 50c a car. It is ordered that the G.T.R. file a special tariff, or supplement to the existing tariff C.R.C. 1686, to take effect not later than April 8, establishing a rate of \$3 a car for switching lumber from the applicants' docks to their storage yard and mill at Sarnia, for storage, sorting, or dressing, and re-shipment via the G.T.R.

Rates on B.C. Forest Products.

16225. April 3. The application of Oliver-Scrim Lumber Co., Ltd., of Vancouver, complaining of the rate of 5½c per 100 lbs. charged by the Vancouver, Fraser Valley and Southern Ry. on lumber, from Stormont Road to Vancouver, alleging that the rate should have been 3c per 100 lbs., and applying for an order directing restitution for the difference between the 5½c rate and 3c rate; and also against the rate of 3c per 100 lbs. charged by the railway from Stormont Road to New Westminster on lumber destined to points on the C.P.R. and Canadian Northern Ry., and applying for a through rate on the basis of 1c per 100 lbs. over the rate beyond New Westminster, and for restitution on past shipments. It is ordered that the local tolls of the V., F.V. and S.R. on lumber and other forest products, in carloads, between all its stations, shall be the same as charged by the C.P.R., and the Great Northern Ry., for similar distances within their corresponding territories. The joint through rates on lumber and other forest products, in carloads, from the V., F.V. and S.R. stations between Vancouver and New Westminster to points on the C.P.R. and Canadian Northern Ry. via Vancouver or New Westminster,

shall be on the basis of 1c per 100 lbs. over and above the rates from Vancouver and New Westminster to the same points, as published in the C.P.R. Special Joint Tariff C.R.C. no. W. 1574, effective Mar. 16, 1911, and supplements thereto, or subsequent issues thereof; the said basis having been prescribed by the board from stations on the Vancouver, Westminster, and Yukon Ry. to the same points; the Vancouver, Fraser Valley, and Southern Railway Company's proportion of the said joint through rates to be 2½c per 100 lbs., as allotted to the Vancouver, Westminster, and Yukon Ry.

Disallowance of G.T.P.R. Special Freight Tariff

16226. April 3. Re Grand Trunk Pacific Ry.'s special freight tariff from Westfort, Ont., C.R.C. no. A. 245, issued Mar. 24, to take effect April 1. Whereas the said tariff contains certain tolls which increase those in effect upon the same commodities and between the same points before April 1, without giving the 30 days' notice required by sec. 328 of the Railway Act, as amended. It is ordered that the increased tolls be disallowed as from April 1, and that the lower tolls in effect immediately before that date be restored.

Disallowance of G.N.R. Special Freight Tariff.

16227. April 3. Re Canadian Northern Ry.'s special freight tariff from Port Arthur, Fort William, and Westfort, Ont., C.R.C. no. W. 609, issued Mar. 23, to take effect April 1. Whereas the said tariff contains certain tolls which increase those in effect upon the same commodities and between the same points before April 1, without giving the 30 days' notice required by sec. 328 of the Railway Act, as amended. It is ordered that the increased tolls be disallowed as from April 1, and that the lower tolls in effect immediately before that date be restored.

Disallowance of C.P.R. Special Freight Tariff.

16228. April 3. Re C.P.R.'s special freight tariffs from Port Arthur, Fort William and Westfort, C.R.C. nos. 1692 and 1693, issued March 25, to take effect on April 1. Whereas the said tariffs contain certain tolls which increase those in effect upon the same commodities and between the same points before April 1, without giving the 30 days' notice required by sec. 328 of the Railway Act, as amended. It is ordered that the said increased tolls be disallowed as from April 1, inclusive, and that the lower tolls in effect immediately before that date be restored.

Canadian Northern Ry. Machine Tool Requirements.

The Canadian Northern Ry. has issued from Winnipeg a list covering its 1912 requirements of machine tools, for which tenders will be considered in the near future. The list is as follows:—One 80-in. drive wheel lathe, complete with 220-volt direct current motor and controller; one 42-in. double head upright boring mill for boring tires; one hollow spindle turret lathe, capable of taking bars up to 6 ins. diameter; one 24-in. upright shaper; one 14-in. upright slotting machine; one hollow spindle turret lathe, capable of taking bars up to 2½ ins. diameter; one 18-in. brass turret lathe; one 20-in. brass turret lathe; one 20-in. sensitive drill press; one 36-in. back geared drill press; one 8-in. pipe threading and cutting machine; one 2-in. double head bolt cutter; one 1½ in. triple head bolt cutter; one 48-in. blast fan for supplying air to oil furnace; one motor driven air compressor, capacity 1,000 cu. ft. free air per minute, compressed to 115 lbs.; one Lassiter automatic stay bolt drilling machine; one roller type tube welding machine; one 1-in. 6 spindle, semi-automatic nut tapping machine; one 24-in. planer; one 8-roll patent triple cylinder sandpapering

machine; one scroll sawing machine; one 4-spindle Universal boring machine; one Universal dado and saw machine; one rod, dowel and pin machine; one band-saw with 36-in. wheels; one concentric slide wood turning lathe; one 2½-in. double bitted surface planer; one 6-spindle vertical stay bolt threader; one No. 8 Beaudry Champion power hammer; one no. 3 washer cutting machine; one 36-in. Bullard vertical turret lathe; one 24-in. by 36-in. by 14-ft. gas engine lathe; two 24-in. column shapers; two 36-in. back geared upright drill presses. The approximate cost of the whole will be about \$35,000.

G.T.R. Running Rights Over Temiskaming and Northern Ontario Ry.

The Dominion Parliament has confirmed two agreements made between the Temiskaming and Northern Ontario Ry. Commission and the Grand Trunk Ry. Co., under which the G.T.R. acquires running rights over the Ontario Government railway.

The first agreement, dated May 1, 1911, provides for the building by the T. and N.O. Ry. of a line southerly from North Bay to a junction with the G.T.R. at Nipissing Jct., and to lease the same to the G.T.R. at a rental of 4½% upon the cost, for 50 years, determinable after 20 years on five years notice. Other companies may be given the right to operate over the line, in which case a joint arrangement shall be made as to terms. The G.T.R. will pay in addition to the rental, all taxes, and keep the extension in repair, and the Commission has right of re-entry in case of default. All differences are to be arbitrated.

The second agreement, dated Dec. 1 1911, provides for the use by the G.T.R. of the T. and N.O. Ry. line from the terminal yards at North Bay to the junction with the National Transcontinental Ry. at Cochrane, Ont., about 252 miles, with all sidings, side tracks, buildings, etc., but exclusive of the repair shops and store buildings at North Bay and Englehart. The G.T.R. is given the right of joint use of the line as described with the T. and N.O.R. for \$300,000 a year and interest at the rate of 4½% on all sums expended upon the betterment of the line since July 1, 1911. The Commission agrees to maintain the line and all the appurtenances up to a standard equal to the portion of the G.T.R. line between Nipissing Jct. and Toronto. The schedule of trains shall be arranged between the officials of the two railways, the Commission's superintendents to be in charge. The Commission's employes to render service to both parties equally; the G.T.R. trains to be manned by G.T.R. employes, and in cases of doubt T. and N.O.R. trains are to be given the right of way. Switching connections shall be provided and operated by the Commission, but one half of the cost of operating the same is to be paid by the G.T.R. The division of the cost of maintenance between the two lines is also provided for. The books of each railway recording the operations over the line may be mutually inspected. The agreement also provides for the terms upon which traffic is to be interchanged with the C.P.R., etc., the carriage of express matter, and the use of telegraph lines, etc. The agreement is to run for 21 years, but within three years the G.T.R. may secure legislation extending it to 25 years, with the option of a renewal for a further period of 25 years. Matters unprovided for are to be arranged by agreement, and all differences arising between the parties are to be settled by arbitration.

The Safety Car Heating and Lighting Co. has removed its Montreal office to 718 Transportation Building.

Railway Finance, Meetings, Etc.

Canada Southern Ry.—The shareholders of the Michigan Central Rd., which leases the Canada Southern Ry., will vote, May 2, on the question of authorizing the guarantee of the principal and interest of \$40,000,000 fifty-year consolidated mortgage bonds of the C.S.R., with interest at not more than 5 per cent. The present issue is to be \$22,500,000, to refund \$14,000,000 first mortgage 6 per cent. bonds due Jan. 1, 1913, \$6,000,000 second mortgage 5 per cent. bonds due Mar. 1, 1913, and to cover the cost of improvements made, and to be made, to the property. A vote will also be taken to authorize the M.C.R. to join in the C.S.R. mortgage to secure the consolidated bonds, so as to cover its leasehold.

Canadian Pacific Ry.—There has been deposited with the Secretary of State at Ottawa two mortgages made between the Royal Trust Co., the Calgary and Edmonton Ry. and the C.P.R., covering, in one case, the extension of the La-combe branch for 125 miles, and in the second, the branch line from Strathcona to Edmonton, including the high level bridge over the Saskatchewan River.

Dominion Atlantic Ry.—Passenger earnings for Mar., \$33,658.27; freight earnings, \$49,120.71; total earnings, \$82,778.98, against \$67,600 total earnings for Mar. 1911.

Grand Trunk Ry.—An issue of £1,500,000 perpetual 4 per cent. consolidated debenture stock was placed on the London, Eng., market during April, at 98½.

A London, Eng., cablegram of April 18 says the issue was only moderately successful, about 75% being taken by the public.

Halifax and South Western Ry.—The Premier informed the Nova Scotia Legislature, Mar. 29, that all the interest due the Government upon this railway had been paid, and there were no outstanding notes or drafts. The payments made to the Government amounted to over \$450,000, there having been three years' interest due, which had been temporarily met by notes discounted by the Government.

London and Port Stanley Ry.—It was reported in London, Ont., April 10, that the officials of the Pere Marquette Rd. had decided not to ask for a renewal of the lease of the L. and P. S. Ry. from the city of London.

The Pacific Coal Mines Co. has been organized in Montreal to take over the coal properties on Vancouver Island immediately adjoining the Dunsmuir properties. The capitalization of the company is \$1,500,000 of 6 per cent. preferred non-accumulative participating shares, \$2,000,000 of ordinary shares, and \$3,500,000 of 5 per cent. bonds. The company owns a large area of coal lands, several operating mines, connecting railways, and shipping facilities. The railways at present built are seven miles in length, and connect the mines with the shipping docks. Following are the directors:—C. P. Hill, E. Bristol, K.C., M.P.; C. C. Michener, A. H. B. MacDon-

Pere Marquette Rd.—The Michigan courts have dismissed the application of the company for permission to issue bonds to the extent of \$4,000,000, and upon application of the American Brake Shoe and Foundry Co., Mahwah, N.J., the U.S. courts have appointed F. W. Blair, Detroit, Mich.; D. E. Waters, Grand Rapids, Mich., and N. Erb, New York, as receivers for the company. The company operates 2,320 miles of line, of which it owns in Canada, the Lake Erie and Detroit River Ry., 198.31 miles, and leases the London and Port Stanley Ry., 23.66 miles, and has, in addition, track-

age rights over 136.57 miles of other Canadian railways. The bonds and other liabilities amount to about \$69,689,000, and the \$4,000,000 bond issue was intended to meet maturities due Apr. 1.

The Board of Railway Commissioners for Canada has approved of the appointment of the receivers above mentioned.

A protective committee for the holders of the \$5,000,000 6 per cent. five year debentures, has been formed, and it is expected that other similar committees will be formed for the holders of other outstanding securities.

Quebec and Lake St. John Ry.—A special general meeting of shareholders was called to be held at Quebec, Apr. 30, to consider an agreement with the Railway Share Trust and Agency Co. and the Canadian Northern Ry. Co., with regard, among other things, to the issue by the company, of certain new securities heretofore issued by the company, for certain new securities to be issued by the company and guaranteed by the C.N.R., and to consider the issuing of certain 4 per cent. perpetual consolidated debenture stock to be guaranteed as to principal and interest by the C.N.R. The Quebec Legislature has passed an act in which authority is given to carry out the plans arranged for the readjustment of the company's finances.

Quebec Central Ry.—Two acts have been passed by the Quebec Legislature, the first confirming an agreement between the company and the C.P.R. Co., by which the latter secures a lease of the line, and the second amending the Q.C. Ry's charter, by changing the location of the head office from London, Eng., to Montreal, and making other alterations to suit the change in control.

Quebec Central Ry.—Gross earnings for February, \$74,112.90; expenses, \$63,711.78; net earnings, \$10,401.12, against \$71,445.68, gross earnings; \$58,190.87, expenses; \$13,254.81, net earnings for February, 1911. Aggregate gross earnings for eight months ended Feb. 29, \$867,749.16; expenses, \$605,705.26; net earnings, \$262,043.90, against \$759,541.76, aggregate gross earnings; \$529,561.11, expenses; \$229,980.65, net earnings, for same period, 1910-11.

Quebec Oriental Ry.—The holders of the first and second mortgage bonds of the Matapedia section met in London, Eng., April 16, to pass resolutions authorizing the directors to issue price lien bonds or other securities for \$250,000 for the purpose of carrying out repairs and renewals upon the Matapedia section. The notice calling the meeting was signed by E. B. Read, President.

Temiscouata Ry.—The profit on the operation of this railway, for Jan., was \$75, against a deficit for Jan., 1911, of \$841.

Temiskaming and Northern Ontario Ry.—Provincial Treasurer Matheson, speaking in the Ontario Legislature recently, said the T. and N. O. Ry. had cost \$17,000,000 to build, and the interest on debentures was \$700,000 a year. As the earning were only about \$500,000, there was a loss of \$200,000 a year.

White Pass and Yukon Route.—Gross earnings for two months ended Feb. 29, \$22,840, against \$27,680 for same period, 1911.

Protection of Manganese Frogs against breakage at the point of connection with the Bessemer rail by maintaining a smooth joint through frequent renewal of the rail has been found to be effective in obtaining full service from the frog by T. Hickey, Roadmaster, Michigan Central Rd., St. Thomas, Ont. Such frogs have been kept in service six or seven years, he states, by taking out the Bessemer rail before its condition became bad enough to endanger the frog.

G.T.R. Semi-Annual Meeting.

The half-yearly meeting of shareholders was held in London, Eng., Apr. 18, when the Chairman, A. W. Smithers, in presenting the report for the half year ended Dec. 31, 1911, said that notwithstanding the large increase in operating expenses, which were beyond control, the management was able to report an improvement of 1% on the third preference, making 1½% for 1911, and out of \$300,000 of an increase in gross earnings, nearly eleven-twelfth gross earnings, nearly eleven-twelfths was spent in Canada, leaving the remaining twelfth to come to England for distribution among shareholders. Although passenger freight rates were less, the earnings per train mile increased about 2¼d. Concerning the Grand Trunk Pacific grading, this is progressing, while practically all the branch lines were completed, and were being laid with Canadian steel. Large contracts for the delivery of rails have been made within the last few days, whereby American mills will deliver rails for G.T.P. purposes. Satisfactory completion of arrangements has been effected for running rights over the Ontario Government railway from North Bay to Cochrane, which will give the G.T.R. valuable connection and save raising of additional capital.

Referring to labor difficulties, he quoted what he had said in Oct. 1910, regarding the persistent demand for higher wages, which was felt not only in Canada, but throughout the world. There was no use expecting the wages to go back, and in considering the position today he quoted the rates paid workers as compared with 1897, which showed an average increase from 49 to 69%. Prospects were never more promising, and he was certain that Canadian labor will put no obstacle against capital obtaining a fair return on investments.

He feelingly referred to the Titanic disaster, and the serious loss which would be sustained by the G.T.R. in the event of C. M. Hays, who was a passenger on the steamer, not being among the survivors.

He said, "We meet today under the shadow of a great calamity. We do not know for certain, at the present moment, whether or not Mr. Hays is among those lost. But in any case the calamity is so appalling that I am sure you will all wish me to transmit to the relatives of those who perished our deepest sympathy. I am bound to say that our fears are very great regarding Messrs. Hays, Davidson and Payne, but we have still faint hope remaining that they may yet be rescued."

The meeting passed a resolution of sympathy in silence.

Touching finally on the possible death of Mr. Hays, Mr. Smithers said that the G.T.R. is surrounded with talented and able officials, who would qualify to take up the work so successfully carried on by Mr. Hays and his helpers.

Engineers' Club of Montreal.—The club house on Beaver Hall Square is to be materially enlarged. There will be on the ground floor a lounge, hall porter's office, writing rooms, billiard room, coat room, lavatory, service department and minor offices. On the second floor there will be a reading room, secretary's room, private dining rooms, a 79 x 29 ft. club dining room 22 ft. high, smoking rooms, a ladies' dining room and a reception room. In the top floor, in addition to a few small dining and card rooms, there will be several bed rooms. The kitchen and mechanical equipment will be in the basement. When the work is finished the club house will be about three times its present size.

**THE
Railway and Marine World**
Established 1898.

DEVOTED TO STEAM AND ELECTRIC RAILWAY,
MARINE, EXPRESS, TELEGRAPH, AND RAILWAY AND
CANAL CONTRACTORS' INTERESTS.
OFFICIAL ORGAN OF THE VARIOUS CANADIAN
TRANSPORTATION ASSOCIATIONS.

ACTON BURROWS LIMITED - Proprietors
70 Bond Street, Toronto, Canada.
Local and Long Distance Telephone, Main 3201.

ACTON BURROWS - Managing Director and
Editor-in-Chief.

AUBREY ACTON BURROWS - Secretary and
Business Manager.

Associate Editor - JOHN KEIR
Associate Editor - DONALD F. KEIR
Mechanical Editor - FREDERICK H. MOODY, B.A.Sc.

United States Representative - A. FENTON WALKER
140 Liberty Street, New York City.

Canadian Advertising Representative, W. H. HEWITT

**SUBSCRIPTION PRICES, INCLUDING
POSTAGE:**

TORONTO AND WEST TORONTO POSTAL DELIVERY,
\$.25 a year.

To other places in CANADA, and to NEWFOUND-
LAND AND GREAT BRITAIN, \$1 a year.

To the UNITED STATES and other countries in
the Postal Union, except those mentioned above,
\$.150 a year, or six shillings sterling.

SINGLE COPIES, 15 cents each, including postage.

The best and safest way to remit is by express
money order. Where one cannot be obtained, a post
office money order or bank draft, payable at par in
Toronto, may be sent. Cheques or drafts not pay-
able at par in Toronto cannot be accepted. Remit-
tances should be made payable to THE RAILWAY
AND MARINE WORLD.

NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.
ADVERTISING COPY must reach the publishers by
the 10th of the month preceding the date of pub-
lication, if proof is required, or by the 15th if
proof is not required.

TORONTO, CANADA, MAY, 1912.

CONTENTS.

American Railway Engineering Association.....	213
Appointments	244
Birthdays of Transportation Men	225
Board of Railway Commissioners.—	
Orders by. Summaries of	226
Traffic Orders	235
Canadian Northern Ontario Ry.—	
Locomotive House and Shops at Quebec...	220
Canadian Northern Ry.—	
Construction, Betterments, Etc.	231
Canadian Pacific Ry.—	
Construction, Betterments, Etc.	228
Electrification of Rossland Subdivision....	249
High Level Bridge at Edmonton.....	234
Simple Matter Locomotive	219
Electric Railway Department	247 to 253
Boring Large Bearings	253
Finance, Meetings, Etc.	250
Notes	250
Projects, Construction, Betterments, Etc....	251
T and Girder Rails, Use of	247
Express Companies, Among the	253
G.T. Pacific Ry. Construction	233
Grand Trunk Ry.—	
Betterments, Etc.	246
Grade Separation Work at Toronto.....	211
Semi-Annual Meeting	236
Great Northern Ry. Lines in Canada.....	234
Hays, C. M., Death of	230
Hudson Bay, The Railway to	240
Joliette and Lake Manuan Colonization Ry..	230
Mainly About Transportation People	241
Marine Department	254 to 264
Cantilever Steamships for St. Lawrence	
Coal Trade	263
Coast, Lake and River Officers for 1912....	258
Harbor Improvements at St. John, N.B....	254
Niagara Navigation Co., Proposed Sale to	
R. and O.N. Co.	258
Notices to Mariners	262
Repairing Cracked Valve Chest Steam Pipe	
Vessels Registered	255
Mechanical Matter	221 to 262
Oil Heater	223
Pneumatic Tool Holder	221
Saw Guards	221
Stand for Coupler Knuckles	221
Superheater Tubes, Making of	222
National Transcontinental Ry.—	
Construction	233
Quebec and Lake St. John Ry. Gas Electric Car	
Railway Development	238
Railway Earnings	229
Railway Finance, Meetings, Etc.	236
Railway Rolling Stock Notes	232
Statistics, Value of	224
Telegraph and Cable Matters	262

**Enormous Rolling Stock Orders Placed
by the C.P.R.**

During the past month the C.P.R. has given out the largest orders for cars which have ever been placed in Canada. The orders for freight equipment alone comprises between 9,000 and 10,000 cars, and will involve an expenditure of over \$10,000,000.

In addition to this 27 locomotives were ordered and other locomotive orders are pending.

Car building Plant for West Canada.

N. Curry, President, and W. W. Butler, Vice President, Canadian Car and Foundry Co., left Montreal about the middle of April for Port Arthur and Fort William, Ont., to select a site for a car building plant, Mr. Butler intending to go on to British Columbia to select a site there also, probably at Vancouver, or in its vicinity. We are officially advised that the plants will be complete and self-contained as far as possible, with facilities for manufacturing all steel, all wood and composite passenger and freight cars. They will comprise also axle forging shops, grey iron and steel foundries, bolster and brake beam shops, and all the accessories necessary to enable the company to produce everything possible that enters into the construction of cars, thereby enabling it to manufacture at a minimum of cost.

F. B. McCurdy, J. R. McLeod and F. M. Brown, of Halifax, N.S., with their associates, have entered into an agreement with the city of Port Arthur for the erection of a steel and wooden car plant, the company, the Ontario and Western Car Co., Ltd., to be capitalized at \$5,000,000. The company agrees to expend not less than \$1,250,000 on buildings and machinery, the plant to have a capacity of 40 cars a day, and to be capable of employing 1,000 men, of which 500 are to be at work by Dec. 15, 1913. The company is to be given a deed of 102 acres of land, and 52 acres of water, along its waterfront. The company will issue bonds for \$2,000,000, of which the city will guarantee 33 1-3 per cent.

Railway Route Maps Approved.

The following route plans have been approved by the Minister of Railways since those published in The Railway and Marine World for March, pg. 126:—

ALBERTA RY AND IRRIGATION Co.—Mar. 30. From Stirling easterly, about 36 miles.

BURBARD, WESTMINSTER AND BOUNDARY RY. AND NAVIGATION Co.—From Mission to Port Moody, B.C., about 40 miles.

CANADIAN NORTHERN RY.—Revision on Sudbury-Port Arthur, Ont., line, 10.4 miles.

CANADIAN PACIFIC RY.—Swift Current towards Camrose, Alta. Partly approved. 195.48 miles. The part where it parallels the Canadian Northern Ry. Saskatoon-Calgary branch, left over for revision.

Revision between Suffield and Kipp, Alta., about 18 miles.

Revision between Bull's Head and Purple Springs on Crowsnest branch, about 36 miles

Mar. 30. From 20 miles northeast of Kerrobert to the G.T.P.R. near Reford, about 15 miles.

CARIBOO, BARKERVILLE AND WILLOW RIVER RY.—From Eagle Lake on G. T. Pacific Ry., east of Fort George, B.C., southwards along the Willow River to Barkerville, about 140 miles.

CENTRAL RAILWAY OF CANADA.—Revision between St. Eustache and Carillon, about 27 miles.

ESQUIMALT AND NANAIMO RY.—Mar. 30. From Ayster River to Hardy Bay, about 140 miles.

KETTLE VALLEY RAILWAY.—Revision between Carmi and Pentiction, B.C., 85 miles.

NORTHERN NEW BRUNSWICK AND SEABOARD RY.—April 9. From Drummond Mines to Allston Point, 25.9 miles.

QUEBEC AND SAGUENAY RY.—Mar. 30. Cap Tourmente to Chicoutimi, 126.5 miles.

**Canadian Freight Association's
Officers, Etc.**

At the recent annual meeting it was decided to abolish the offices of president and vice president and to appoint a chairman instead. T. Marshall, heretofore Secretary-Treasurer, was appointed Chairman. The standing committees for the current year are as follows:—

ADVISORY COMMITTEE—C. A. Hayes, W. M. Kirkpatrick, G. C. Ransom, G. H. Shaw.

EXECUTIVE COMMITTEE—W. M. Kirkpatrick, F. F. Backus, H. C. Martin, Wm. Phillips.

CLASSIFICATION COMMITTEE—W. M. Kirkpatrick, W. Phillips, E. N. Todd, H. E. Macdonell, M. H. Brown, H. C. Martin, F. J. Watson, L. Macdonald, G. T. Pettigrew, R. E. Perry.

INSPECTION COMMITTEE—R. W. Long, F. Conway, G. C. Ransom, J. P. Daly, W. B. Bamford, G. Tombs, R. W. Youngs, A. D. Huff, H. A. Young, W. S. Elliot.

**United States Regulations Regarding the
Sealing of Cars.**

The United States Treasury Department has issued new regulations covering the sealing of cars in which import and export traffic is carried. It orders that in future the Tyden car seal, which is self-locking, numbered consecutively and applied without a press, is to be used to the exclusion of all other devices to seal railway cars and compartments of vessels containing merchandise shipped in bond or under entry for immediate transportation from port to port within the U.S., goods forwarded under transportation and exportation entry, merchandise shipped from place to place in the U.S. through Canada and Mexico, merchandise shipped from place to place in Canada or Mexico through the U.S., and cars sealed by U.S. consuls or customs officers stationed at places in contiguous foreign territory for that purpose; that the present seals may be used by carriers until the supply on hand is consumed, but all carriers are required to begin the use of the Tyden seal not later than July 1, and the use of other seals will be discontinued after June 30.

Steps are being taken to organize a Canadian Society of Civil Engineers branch in Saskatchewan. A. J. McPherson, B.A.Sc., of Regina, Superintendent of Provincial Highways, is chairman of the organization committee.

The Canadian Northern Prairie Lands Co., a subsidiary of the C. N. R. Co., sold 480 acres during Feb., realizing \$7,056, an average of \$14.70 an acre. Up to Feb. 29, it had sold 428,200 acres realizing \$3,339,953, and has 71,600 acres remaining unsold.

The Customs officers at Medicine Hat, Alta., recently seized 30 horses, eight waggons, and various other effects which had been brought in from the United States as settlers' effects, but which, it is claimed, in reality formed part of a contractor's plant for use on C.P.R. work.

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta Pacific Ry.—The Dominion Parliament has voted a subsidy in aid of the building of 100 miles from Cardston, northwesterly via Pincher Creek, to Lundbreck, on the C.P.R. Crow's Nest Pass branch, and then northerly, but west of the Porcupine Hills, towards Calgary, Alta. (Mar., pg. 120.)

Alberta, Peace River and Eastern Ry.—A meeting of shareholders was held in Ottawa, April 20, to elect directors, and organize the company.

The Dominion Parliament extended the time within which the projected railway may be built. (Feb., pg. 67.)

Algoma Central and Hudson Bay Ry.—A subsidy has been voted by the Dominion Parliament in aid of the building of this railway from Sault Ste. Marie to the C.P.R. transcontinental line between White River and Dalton stations, Ont., not to exceed 200 miles, for a line from Michipicoten Harbor towards the C.P.R. transcontinental line, not to exceed 50 miles, and for 50 miles from the C.P.R. transcontinental line towards the National Transcontinental Ry. These subsidies are in lieu of those granted in 1910. A new subsidy was also voted for the extension of the line from the C.P.R. northerly to a junction with the National Transcontinental Ry., a further 65 miles.

The Board of Railway Commissioners has approved of revised location plans between mileage 123.74 and 130.87, and of the connection with the National Transcontinental Ry. at Grant. (Mar., pg. 120.)

Algoma Eastern Ry.—The Dominion Parliament has voted subsidies in aid of the building of a line from the line between Sudbury and Little Current, for 76 miles westerly towards the Algoma Central Ry., and for a line 30 miles northerly from Sudbury. These are in lieu of subsidies voted in 1910.

The Dominion Parliament has extended the time for the building of the company's authorized lines, except the section lying between Sudbury and Little Current, which is now almost completed, and the section between Meaford and Owen Sound, which it is said will not be built. (Jan., pg. 21.)

British Columbia and Dawson Ry.—The Dominion Parliament has extended the time within which the projected line may be built, and authorized the building of a branch from Fort George, B.C., via the Parsnip, Peace and Fowler rivers, to a junction with the main line at Telegraph Creek on the Stikene River; from some point on the above line to Peace River Landing, Alta., and from Vancouver to Lillooet. (Feb., pg. 67.)

Bruce Mines and Algoma Ry.—A subsidy has been voted by the Dominion Parliament for the building of a line from Rock Lake northerly and easterly to a junction with the C.P.R. transcontinental line, near Winneboga River, Ont., about 50 miles. (Feb., pg. 67.)

Burrard Inlet Tunnel and Bridge Co.—We are officially advised that all the preliminary work, on surveys, location, etc., has been completed, and that the tests made for the foundations of the proposed bridge across the Second Narrows of the Burrard Inlet, have been satisfactory. The plans for the bridge are being prepared by Sir J. Wolfe Barry and partners, London, Eng., with whom are associated Messrs. Cleveland and Cameron, Vancouver. It is expected to have the contracts let at an early date, and to have the work on the substructure under way during this year.

Beyond a certain amount of location work nothing has been done in connec-

tion with the company's tunnel project.

The Dominion Parliament has voted subsidies in aid of the following lines:—From Eburne to mouth of Seymour Creek, not exceeding 10 miles; from Seymour Creek to Deep Cove, not exceeding 5 miles, from Seymour Creek to Horse Shoe Bay, not exceeding 14 miles; from Pender St., Vancouver, to North Vancouver, B.C., not exceeding 3 miles. (April, pg. 181.)

Calgary and Fernie Ry.—A subsidy has been voted in aid of the building of a railway from Calgary, Alta., southwesterly via Kananaskis Pass, and the headquarters of the Elk River to Fernie, B.C., not to exceed 100 miles.

The Dominion Parliament has extended the time within which the line authorized by chap. 71, statutes, 1906, as amended by subsequent acts, may be constructed. (Mar., pg. 120.)

Campbell River towards Fort George. The Dominion Parliament has voted a subsidy in aid of the building of a line from near Campbell River, on the Esquimalt and Nanaimo Ry., 100 miles in the direction of Fort George, on the mainland of B.C. A subsidy for this railway was voted in 1908 to the Vancouver Island and Eastern Ry., but in revoting the subsidy Parliament decided to leave the subsidy to be availed of by any company.

Canada and Gulf Terminal Ry.—The Dominion Parliament has voted a subsidy for the building of a line from Matane easterly to Gaspé Basin, about 200 miles. The Quebec Legislature has granted 2,000 acres a mile in aid of the building of the line from Matane to Gaspé Basin, but giving the mileage as 190. (Feb., pg. 67.)

Caribou, Barkerville and Willow River Ry.—A subsidy has been voted by the Dominion Parliament in aid of the building of a line from near Eagle Lake, on the Grand Trunk Pacific Ry., to Barkerville, B.C., about 107 miles. A subsidy not to exceed \$95,000 was also voted in aid of the building of 20 railway bridges on the line, the basis of payment being 20% of the cost of each bridge. (Sept., 1911, pg. 853.)

Central Ry. of Canada.—We are officially advised that the Minister of Railways is being asked to approve a route map of the line from Carlton, Que., to South Indian, Ont., and that as soon as this has been obtained, progress will be made towards construction. (April, pg. 181.)

Chaudiere Jct. to Sherbrooke, Etc.—The Quebec Legislature has granted 2,000 acres of land a mile for a line of 120 miles from Chaudiere Jct., to Sherbrooke; a 10 mile branch from St. Agathe to Lyster; and a 30 mile branch from St. Agathe to Black Lake, Que.

Delaware and Hudson Co.—The Quebec Legislature has granted land subsidies in aid of the building of additional lines by the following companies controlled by the D. and H. Co. in Canada:—Napierville Jct. Ry., 1,000 acres a mile for a line from St. Constant to the international boundary, about 27 miles. Quebec, Montreal and Southern Ry., 740 acres a mile, for a line from Becancourt to the St. Lawrence River, and 99,000 acres for a line of 52 miles from St. Philomene towards Levis. (Mar., pg. 120.)

Dominion Atlantic Ry.—An extension of time for the building of a branch from the Cornwallis Valley branch to the main line near Middleton, N.S., has been granted by the Dominion Parliament. (April, pg. 181.)

Edmonton, Dunvegan and British Columbia Ry.—J. D. McArthur, President, is reported as stating that it is intended to proceed with construction immediately and push it as fast as possible. It is hoped to have the line in operation to the crossing of the Athabasca River, 100 miles, this year, and on to Dunvegan within three years. (April, pg. 181.)

The Erie, London and Tillsonburg Ry. was granted an extension of time to build its projected line from Port Burwell to London, Ont., at the recent session of the Dominion Parliament. (Nov., 1911, pg. 1035.)

Esquimalt and Nanaimo Ry.—A subsidy has been granted by the Dominion Parliament in place of those voted in 1907 and 1908, for the building of a line from Wellington to Alberni, 60 miles; from McBride Jct. towards Sandwich, 45 miles, and from Sandwich to Campbell River, 38 miles.

The Dominion Parliament has authorized the building of a line from near Oyster Bay to Homely Inlet, Vancouver Island; extending the time for building certain lines, and provided that no portion of the branch lines authorized to be built by chap. 14, British Columbia Statutes, 1884, shall be built unless authorized by the Governor in Council. (April, pg. 181.)

Fredericton and Grand Lake Coal and Ry. Co.—A subsidy has been voted by the Dominion Parliament for the building of a line from Gibson, on the Intercolonial Ry., to Minto, with a branch to Marysville, N.B., a total length of 35 miles. (April, pg. 181.)

Ha Ha Bay Ry.—The Dominion Parliament has voted a subsidy in respect of the following lines:—From St. Mathias to Ha Ha Bay, not exceeding 20 miles; from Labrosse Jct. to the Saguenay River, not exceeding 5 miles; from La Terriere Jct. northerly to Lake Kenogami, not exceeding 12 miles; from near Bagotville to St. Alexis, not exceeding 3 miles. In lieu of a 40 mile subsidy granted in 1910.

The Quebec Legislature has voted 4,000 acres of land a mile to complete the building of the line to Ha Ha Bay, 9.5 miles, and at the rate of 2,000 acres a mile for a four mile branch to Chicoutimi, and for a 12 mile branch through La Terriere Village to Lake Kenogami. (Feb., pg. 67.)

Hudson Bay and Pacific Ry.—A London, Eng., cablegram, says application was made there, April 17, before Mr. Justice Eady, for the compulsory winding up of this company. Counsel for the company opposed, and asked the judge to allow the motion to stand over for a month, when petitioners who desired it could be paid off, he stated. The company was raising funds for the construction of the railway. The judge granted the company's application. This is the company which proposed to build a line from Prince Albert, Sask., to Fort Churchill. (April, pg. 181.)

Indian River Ry.—A subsidy at the rate of 3,000 acres of land a mile for a line of 19 miles from the northern extremity of Lake Megantic and along the border of the lake to the international boundary, has been granted by the Quebec Legislature. (May, 1911, pg. 409.)

Intercolonial Ry.—The contract for building of the line from Dartmouth to Deans, N.S., 73 miles, for which M. P. and J. T. Davis were given the contract by the Dominion Government, will be carried out by Cavicchi and Pegano, who have taken the entire work from the first mentioned firm.

The work, for which a contract has been arranged, with the late Government, for the building of a line from Guysboro to Country Harbor, N.S., to connect up with the Dartmouth-Deans settlement line, will not be gone on

with. A similar decision has been reached by the Government with regard to the projected line to Baddeck on Cape Breton Island, N.S., for the building of which tenders were asked by the late government.

The question of the building of a second track for the entire distance between Halifax, N.S., and Moncton, N.B., is being considered. Some portion of the line out of Halifax, and at the Moncton end, is already double tracked, and if the rest of the work be undertaken, there will be considerable grade reduction and curve elimination done. However, it is not proposed to make the whole section a double track line, as it is suggested that a new single track line be built around the Cobequid Mountain, from near Parrsboro, by Minas Basin to Truro. The negotiations reported to be in progress with the C.P.R. for running rights into Halifax, are said to be involved in the consideration of this second track work. (April, pg. 181.)

Interprovincial and James Bay Ry.—A subsidy in aid of the building of this line from the Lake Temiscamingue Colonization Ry., a C.P.R. branch terminating at Timiskaming, with a branch to Kippawa, Que., to the Des Quinze River, 50 miles, has been voted by the Dominion Parliament, in lieu of that given in 1906.

The company was originally incorporated by the Dominion Parliament in 1901, and the time for construction has been extended on several occasions, the most recent being at the recent session.

The Quebec Legislature has granted 4,000 acres of land a mile for 50 miles of the line from the present terminus of the C.P.R. line at Gordon Creek, to Ville Marie. (Dec., 1911, pg. 1139.)

Kettle Valley Lines.—It is reported that an arrangement is being made between the company and the British Columbia Government for changing the route of the line now under construction, in order that the main line may be carried through Princeton, B.C., instead of building a branch into the town. Survey parties are in the field locating the line right through to Hope, and it is expected to have the greater portion of the work necessary to complete the line under contract early in July. The only section which will then be open will be that from the summit to Hope, with reference to which negotiations are in progress between the company, the Vancouver, Victoria and Eastern Ry. and the B.C. Government. It has been arranged that the termini of the line shall be at Midway and at Hope.

The Dominion Parliament has revoked the subsidy granted in 1910 for a line from Grand Forks for fifty miles up the north fork of Kettle River, B.C. Parliament also voted the company \$250,000 towards the building of a bridge across the Fraser River near Hope.

The Dominion Parliament has extended the time for the building of the lines authorized to be constructed by chap. 68, statutes of 1901, as amended in 1904, 1906 and 1910, and has authorized the building of a line from Vernon south-easterly to Penticton, B.C. April, pg. 181.)

Kootenay and Alberta Ry.—The Dominion Parliament has granted an extension of time for the building of the projected railway from near Cowley, Alta., to the Flathead River country, and from Cowley along the Milk River Valley to the international boundary near Courts, Alta. (Dec., 1911, pg. 1139.)

London and Port Stanley Ry.—The London, Ont., city council, is considering the advisability of buying land in the city in order to increase the siding accommodation. (Feb., pg. 68.)

Manitoba and Nelson Ry.—The Mani-

toba Legislature has incorporated a company with this title to build a railway, to be operated by steam, electricity or other power, from lot 3, Kildonan, near Winnipeg, northerly, but west of the C.P.R. Gimli branch, to Sturgeon Bay, thence to Grand Rapids, and thence northerly and easterly to Hudson Bay. Power is also given to build branch lines. The provisional directors are:—C. W. N. Kennedy, C. Vokes, Winnipeg; A. C. Clare, Parkdale, Man.; B. S. Benson, Selkirk, Man.

Montreal Central Terminal Co.—The Dominion Parliament has extended the time within which the bridges and tunnels at Montreal, authorized by chap. 109, statutes of 1909, may be constructed. It is provided that the company may only exercise its powers upon the authority of the Governor in Council, and that it can only have power of expropriation upon obtaining special legislation. (April, pg. 182.)

Montreal to National Transcontinental Ry. and Hudson Bay.—A subsidy has been voted by the Dominion Parliament in aid of the building of a line from near Montreal, to the National Transcontinental Ry., about 837 miles west of Moncton, a distance of not to exceed 200 miles. This is in lieu of a subsidy granted in 1910. A subsidy has also been voted for a line from near mileage 837 west of Moncton on the National Transcontinental Ry., to the mouth of the Nottaway River on James Bay, not to exceed 300 miles.

The Quebec Legislature has granted 4,000 acres of land a mile for the first section of the line mentioned above, and 5,000 acres a mile for the second section. (See Joliette and Lake Manuan Ry., on another page.)

North Shore Power, Ry. and Navigation Co.—The Quebec Legislature has granted 3,000 acres of land a mile in aid of a line from Seven Islands Bay, towards Clark City and St. Margaret River, Que.

North Shore Ry.—Subsidies have been voted by the Dominion Parliament in aid of the following lines:—From Adamsville to a junction with the National Transcontinental Ry., near Snow Shoe Lake, not exceeding 20 miles, and from Beersville, via Rexton, to Richibucto Head, not exceeding 20 miles. (April, pg. 182.)

Northern New Brunswick and Seaboard Ry.—The Dominion Parliament has voted a subsidy for a line from the Drummond mines at Austin Brook, a branch of the Nipisiguit River above Great Falls, to the Intercolonial Ry, thence either to Alston Point, on the north side, or Caron Point on the south side of Bathurst Harbor, N.B., the total length not to exceed 26 miles. (Mar., 1911, pg. 209.)

Northern Territorial Ry.—The Dominion Parliament has incorporated a company with this title to build a line, as previously described, from Fort Churchill, on Hudson Bay, to the Pacific coast, with branches to Fort McMurray and Smooton. (Mar., pg. 121.)

Ottawa, Abitibi and Hudson Bay Ry. The Quebec Legislature has incorporated a company with this title to build a railway from Hull to Grand Lake Victoria, and thence to James Bay. (Feb., pg. 68.)

The Ottawa, Brockville and St. Lawrence Ry. was originally incorporated in 1900, by the Dominion Parliament, and has obtained extensions of time for building the line from Ottawa to Brockville, on five occasions since. A sixth extension of time was granted at the recent session. (Jan., pg. 23.)

Ottawa, Montreal and Eastern Ry.—The Dominion Parliament has extended the time within which the company may build the railway and tunnel under the St. Lawrence River, which were au-

thorized by chap. 141, statutes of 1910. The company's powers may only be exercised by authorization of the Governor-in-Council, and expropriation powers can only be obtained by a future act. (Feb., pg. 68.)

Pacific and Atlantic Ry.—The Dominion Parliament has extended the time within which the company may build its projected line from Ottawa to Georgian Bay, and Lake Ontario, with branch lines to Manitoulin Island and other places. The company was originally incorporated by the Ontario Legislature in 1886, J. Conmee being one of the provisional directors; and in 1906, it was declared to be a work for the general advantage of Canada. (Jan., pg. 23.)

Pacific Great Eastern Ry.—The company has opened offices in Victoria, B.C., to conform to the charter requirements, and also in Vancouver, from which the construction operations will be directed. The formal organization has been completed, the officers and directors being:—President, J. W. Stewart; Vice President and General Manager, P. Welch. Vice President and General Counsel, D'Arcy Tate; other director, T. Foley.

In an interview April 17, Vice President D'A. Tate said engineers were at work locating the line out of North Vancouver, and out of Fort George south-easterly. It is hoped that construction will be started at an early date, and when it will be pushed through with dispatch.

J. Callaghan, heretofore Division Engineer, G.T. Pacific Ry., Fitzhugh, Alta., has been appointed chief engineer.

It is said that the company has entered into negotiations for the use of the bridge to be built across the second narrows of Burrard Inlet by the Burrard Inlet Tunnel and Bridge Co., and the Vancouver, Westminster and Yukon Ry., and press reports state that the line already built from near Vancouver in the direction of Pemberton Meadows, by the Howe Sound and Northern Ry., is to be acquired by the P.G.E. Ry. (April, pg. 179.)

Pacific, Trans-Canada and Hudson Bay Ry.—The Dominion Parliament has incorporated a company with this title to build a railway from Edmonton via Athabasca Landing, easterly to Fort Churchill or Port Nelson on Hudson Bay, and westerly to Prince Rupert or the Portland Canal, B.C. (Mar., pg. 121.)

Quebec and Saguenay Ry.—We are officially advised that construction work has been proceeded with in a satisfactory manner during the past winter, the smallest monthly estimate being \$130,000. The work is very heavy and about 500 tons of explosives have been used during the nine months ended Mar. It is confidently expected that track will be laid on the 65 miles of the line at present under contract by Sept. O'Brien and Doheny, contractors, intend to start tracklaying from the Murray Bay end of the line as well as from the starting point at St. Joachim. The boring of the tunnels at Cap Rouge and Cap Martin is being proceeded with satisfactorily.

Under the direction of A. H. N. Bruce, Chief Engineer, an exploratory survey was made by a party under E. S. M. Lovelace for an extension of the line from Murray Bay to Ha Ha Bay, 73 miles. The engineers report that a satisfactory route can be obtained, and that the construction of the line will not be expensive. It is the intention to build this extension in the near future, and eventually to continue the line to Seven Islands, and along the shore of the Gulf of St. Lawrence to Cape Charles at the entrance to the Strait of Belle Isle. With a line of steamships from the port reached at this point, to a port on the west coast of Ireland, the ocean trip could be made in less than three days,

thus effecting a very considerable saving in time for the mainland passenger service.

The Dominion Parliament has voted a subsidy in aid of the building of a line from St. Joachim, northeasterly for not exceeding 62.8 miles, and from the latter point for 107.2 miles in the direction of Seven Islands, Que., in lieu of that granted in 1910.

The Quebec Legislature has granted 3,000 acres of land a mile for a line from St. Joachim to Nairn's Falls, 63 miles; and 2,000 acres a mile for 72 miles from Nairn's Falls to Ha Ha Bay. (Mar., pg. 121.)

Reid Newfoundland Co.—We are officially advised that it is expected to complete the construction of the Trepassey branch this season. Of the total length of 102 miles, 60 have been completed. It is also intended to build the branch to Hearts Content, 34 miles. This will make 76 miles to be built. (April, pg. 132.)

Roberval-Saguenay Ry.—We are officially advised that surveys have been made for about 52 miles of line from Mathias Jct. to about two miles beyond the Peribonka River, Que. The locating part was expected to reach the Mistassini River, May 1, which would cover the first 30 miles projected. A branch will be built from near Mathias Jct. early this season to the Jouquieres pulp mills. Mathias Jct. is a junction on the Quebec and Lake St. John Ry., at which the Ha Ha Bay Ry. has one of its termini. The constructed and projected lines of the Ha Ha Bay Ry., extend from Bagotville, on Ha Ha Bay, to Mathias Jct., with branches through La Terriere village to the shores of Lake Kenogami, and to Chicoutimi on the shore of the Saguenay River. The Roberval-Saguenay Ry. will really be an extension of the main line to the Mistassini River, and will enable pulpwood, etc., to be brought out from the country north of Lake St. John to deep water navigation on Ha Ha Bay. The Dominion Government is making a hydrographic survey of the Bay, and as soon as this is completed it is proposed to build deep water docks.

The officers of the R.S. Ry. are:—President, J. E. A. Dubuc; Vice President, J. E. Cloutier; Secretary, R. Belleau; Treasurer, J. E. Robitaille; Chief Engineer, J. F. Grenon. They all reside in Chicoutimi, and are all more or less interested in the Ha Ha Bay Ry.

The Quebec Legislature has granted a subsidy for a line of 80 miles from the junction of the Q. and L. St. J. Ry. and the H.H.B. Ry. in the direction of the Mistassini Ry.

Temiskaming and Northern Ontario Ry.—In connection with the plans to revise the location of the first 30 or 35 miles out of North Bay in order to provide a lower gradient and less curvature, we are officially advised that the Commissioners will not undertake the work during this year. The Elk Lake branch will leave the main line at Earlton, and run 28.7 miles to Elk Lake. The maximum gradient will be 1.00% compensated, and the maximum curvature 6°. The quantity of rock work is very light, amounting to about 1,000 cubic yards; the estimated quantity of earth excavation is 340,000 cubic yards. There will be one timber trestle over the Jean Baptiste River at mileage 12. This will be a permanent structure 600 ft. long and 70 ft. high from water line to base of rail at the centre. There will be a steel bridge about 300 ft. long over the Montreal River at mileage 22.75, consisting of one large centre span and two approach spans. S. B. Clements is Chief Engineer. The contractors are McCaffery and McQuigge, Toronto. Work was started April 7.

The House of Commons passed a measure granting a subsidy upon the usual terms and conditions to the T. and N.O.R. for the line from North Bay to

Cochrane, 252.8 miles; the branch from Englehart to Charlton, 7.8 miles; the branch from Cobalt to Kerr Lake, 3.9 miles; the branch from Iroquois Falls to Timmins, 33.16 miles, and the extension from North Bay to Nipissing Jct., 2.18 miles. The Senate, however, refused to pass it. (April, pg. 183.)

Vancouver, Westminster and Yukon Ry.—A subsidy has been voted by the Dominion Parliament for a line, not exceeding 100 miles, from Vancouver, way of Burrard Inlet northerly, in lieu of that voted in 1908.

A subsidy of \$350,000 was also voted towards the construction of a bridge across Burrard Inlet, in lieu of one voted in 1908. (Oct., 1911, pg. 937.)

THE CANADA SOUTHERN RAILWAY COMPANY.

NOTICE IS HEREBY GIVEN that the annual general meeting of the shareholders of The Canada Southern Railway Company will be held at the Head Office of the company in the City of St. Thomas, Ontario, on Wednesday, the 5th day of June, 1912, at 11 o'clock in the forenoon, for the purpose of electing directors and approving, ratifying and confirming the action taken by the Board of Directors of the company at meeting held March 7th, 1912, authorizing the execution of a mortgage upon its railroad and other property providing for the issue of corporate bonds to an aggregate amount not exceeding \$40,000,000, bearing interest at a rate not exceeding 5% per annum, under the provisions of an indenture of lease, dated August 15th, 1903, of which amount \$22,500,000 are proposed to be presently issued, and guaranteed by The Michigan Central Railroad Company, for the purpose of refunding the First and Second Mortgage Bonds of this company maturing January 1st, 1913, and March 1st, 1913, respectively, and to cover the cost of improvements made and to be made to this company's property; and also for the transaction of such other business as may be brought before the meeting.

NICOL KINGSMILL,

Secretary.

Dated St. Thomas, Ont., May 3rd, 1912.

NIAGARA GRAND ISLAND BRIDGE COMPANY.

The annual general meeting of the Niagara Grand Island Bridge Company, for the election of directors and other general purposes, will be held on Wednesday, the 5th of June, 1912, at the hour of eleven o'clock in the forenoon, at the company's head office in the City of St. Thomas.

NICOL KINGSMILL,

Secretary N.G.I.B. Co.

23rd April, 1912.

NIAGARA RIVER BRIDGE COMPANY

The annual general meeting of the Niagara River Bridge Company, for the election of directors and other general purposes, will be held on Wednesday, the 5th of June, 1912, at the hour of eleven o'clock in the forenoon, at the offices of the Canada Southern Railway Company, in the City of St. Thomas.

NICOL KINGSMILL,

Secretary N.R.B. Co.

23rd April, 1912.

POSITION WANTED.

Technical Graduate, experienced in all classes of freight and passenger equipment in plant office and engineering, will make permanent change to company offering good opening. Apply box 117 S., The Railway and Marine World, Toronto.

Dominion Government Railway to Hudson Bay.

The Dominion Parliament has voted \$1,500,000 on account of construction from Le Pas, Man., to Hudson Bay, in addition to the \$2,000,000 previously voted. The last-named sum the Minister of Railways explained would not do more than cover the work on the contract which had already been let for 185 miles. It was expected to let a further contract in May or June, by which time the location of the port on Hudson Bay would be settled. When that was done, contracts for the balance of the line, and the terminal facilities, elevators and harbor improvements, would be let. The 185 miles now under contract was expected to be completed by Jan. 1, 1913.

It is reported that the piers for the erection of the bridge across the Saskatchewan River at Le Pas have been completed, by Mackenzie, Mann and Co., Ltd., and that preparatory work for the erection of the superstructure is being gone on with. Work is being gone on with on the section of the line from Le Pas to Thicket Portage at Split Lake, 185 miles, by McMillan Bros., who have been given the contract by the original contractors, the J. D. McArthur Co. The heaviest piece of work at present struck is a 1,000 ft. rock cutting about five miles from Le Pas. It is said that the second section of the line to be placed under contract will be 100 miles.

A proclamation has been issued by the Governor-General that the provisions of part III of the Criminal Code, chap. 146 of the revised statutes of 1906, shall be enforced within a distance of 10 miles on either side of the line under construction. The only sections of part III not being in force are declared to be 144 to 149 inclusive. (April, page 193.)

Screw Reverse Gear.—In the April issue of The Railway and Marine World, in the article describing the screw reverse gear as applied to some recent C.P.R. locomotives, it was stated that the first locomotive so equipped on this continent was one built during 1911 by the American Locomotive Co. for the Chesapeake and Ohio Ry. W. A. Gray writes us from Chicago that three locomotives so equipped were built by the Grand Trunk Ry. in the Hamilton, Ont., shops before removal of the shops to their present location at Stratford about 1883. These three locomotives were numbered and named as follows: 728, Empress; 729, Princess, and 730, Duchess. For some reason this screw reverse gear did not prove satisfactory, and, in consequence, the locomotives were changed over to the old reverse lever.

The Coast Construction Co., Ltd., has been incorporated under the New Brunswick Companies' Act, to build railways, and harbor works, and do a general contracting business. The head office is at Fredericton Jct., N.B., the capital is \$49,000, and the provisional directors are: E. R. Teed, Woodstock, N.B.; J. S. Eagles, St. John, N.B.; G. D. Jones, Apohaqui, N.B.; T. B. Hart, Fredericton Jct., N.B.; S. A. McLean, Sussex, N.B.

The Intercolonial Ry. has ordered 100 platform cars, 80,000 lbs. capacity, 10 refrigerator cars, 20 stock cars, and one first class car, from the Canadian Car and Foundry Co., Montreal; 50 Hart-Otis steel dump cars, 100,000 lbs. capacity, from the Hart-Otis Co., Montreal; one first class car from the Preston Car and Coach Co., Preston, Ont.; four switching and five consolidation locomotives, from the Canadian Locomotive Co., Kingston, Ont., and 373 box cars, 60,000 lbs. capacity, from the Nova Scotia Car Works Halifax.

Mainly About Transportation People.

C. R. HOSMER, director, C.P.R., was on a motoring trip in France during April.

H. LOGAN has retired from the directorate of the Maritime Coal Ry. and Power Co.

Lady SHAUGHNESSY and the Misses Shaughnessy returned to Canada from Europe Apr. 11.

J. W. LOUD, ex-Traffic Manager, G.T.R., Mrs. and the Misses Loud are making a Mediterranean trip.

Sir THOS. SHAUGHNESSY was entertained at dinner by the board of trade at Halifax, N.S., Apr. 11.

C. H. RUST, M. Can. Soc. C.E., City Engineer of Toronto, has resigned to accept a similar position at Victoria, B.C.

H. E. GRANT, formerly sales agent, British Columbia Electric Ry., has gone into private business in San Francisco, Cal.

D. E. GALLOWAY, Assistant to the President, G.T.R. and G.T.P.R., was married at Montreal, Apr. 24, to Miss L. B. Eaton.

H. MARKLAND MOLSON, of Montreal, who was lost in the Titanic disaster, was a director of the Richelieu and Ontario Navigation Co.

E. F. FAUQUIER, railway contractor, who, with Mrs. Fauquier has been spending several months in the South, has returned to Ottawa.

R. TINNING, Travelling Freight Agent, G.T.R., Toronto, will retire May 1, under the provisions of the pension rules, after 50 years service.

F. L. WANKLYN, General Executive Assistant, C.P.R., Montreal, has been elected a director of the Guardian Accident and Guarantee Co.

K. W. BLACKWELL, Vice President, Canadian Steel Foundries, Ltd., Montreal, has been elected Vice President, Merchants Bank of Canada.

Sir DONALD and Lady MANN spent a week end with the Governor General and the Duchess of Connaught at Rideau Hall, Ottawa, early in April.

Sir RODOLPHE FORGET, Lady and Miss M. Forget, arrived in London, Eng., from Montreal, April 15. Sir Rodolphe went on to Paris the following day.

E. H. Keating, M. Can. Soc. C.E., formerly General Manager, Toronto Ry., was reported, May 25, to be slowly improving, after a serious illness.

Mrs. RENNELS, who died at Maitland, N.S., Mar. 27., was widow of W. Rennels, formerly Superintendent, Intercolonial Ry., Campbellton, N.B.

Miss Marian Creelman, daughter of A. R. CREELMAN, K.C., director and General Counsel, C.P.R., was married in Montreal, April 20, to E. B. Savage.

W. P. HINTON, General Passenger Agent, G.T. Pacific Ry., gave an address on the passenger department before the Railway Club at Winnipeg, April 8.

C. N. ARMSTRONG, who has been associated with various railway enterprises in Quebec, and Mrs. Armstrong, arrived in England from Montreal, Mar. 29.

The Governor-General will occupy Benvenuto, SIR WILLIAM MACKENZIE'S house, in Toronto, during the Ontario Jockey Club's spring meeting in May.

Capt. C. H. NICHOLSON, Manager, G.T. Pacific Coast Steamship Co., was presented with a fitted travelling bag by the Vancouver city council recently.

SIR WILLIAM WHYTE, director, C.P.R., Lady and Miss Whyte, returned to Winnipeg early in April from the Southern States, where they spent several weeks.

W. J. CROSSEN, President, Crossen Car Co., Ltd., and Mrs. Crossen, returned to Cobourg, Ont., early in April, after a few weeks' trip to the Southern States.

Mrs. Leonard, wife of J. W. LEONARD, Assistant to the Vice President, C.P.R., died in Montreal, Apr. 28, and was buried in Toronto.

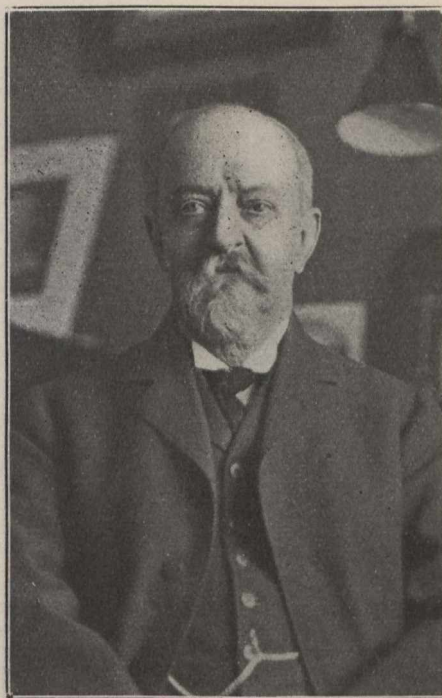
SIR WM. and LADY MACKENZIE spent a week end at Rideau Hall, Ottawa, towards the end of April, as guests of the Duke and Duchess of Connaught.

R. B. ANGUS, director, C.P.R., has been granted a permit by the Montreal city council for a residence on Redpath Ave., to cost approximately \$42,000.

Hon. G. P. GRAHAM, M.P., ex-Minister of Railways and Canals, spoke on the general subject of transportation at a meeting of the Canadian Club, Montreal, April 1.

J. F. DOLAN, City Passenger Agent, Richelieu and Ontario Navigation Co., Montreal, is recovering from the effects of a broken leg, followed by an attack of pneumonia.

T. WALMSLEY, insurance agent, etc., who died in Toronto recently, was associated with Sir Henry Pellatt in the pur-



I. G. Ogden.

Vice President, Canadian Pacific Railway, after whom the company's shops, to be built, at Calgary, Alta., will be named.

chase of the Kent Northern Ry. in New Brunswick.

C. E. POOLEY, K.C., ex-M.P.P., who died in Victoria, B.C., recently was for many years solicitor for the Dunsmuir interests, including the Esquimalt and Nanaimo Ry.

G. HANNAH, Passenger Traffic Manager, Allan Line, gave an address on the romance of steam navigation before the Christ Church Cathedral Men's Club, Montreal, recently.

J. W. STEWART, of Foley, Welch and Stewart, who is recovering from his recent serious illness, at Pasadena, Cal., expected to leave there, April 30, for a year's European trip.

The Rev. H. J. Hamilton, of Nagoya, Japan, who has been elected Bishop of the Anglican diocese of Japan, is a brother of L. A. Hamilton, formerly Land Commissioner, C.P.R.

Sir Melbourne Tait, Chief Justice of Quebec, and father of SIR THOMAS TAIT, President, Fredericton and Grand Lake Ry. and Coal Co., has announced that he will retire during May.

W. HAMIL, coach shop foreman, Canadian Northern Ry. shops, Fort Rouge, Winnipeg, was presented with a purse of gold by the employes, Mar. 29, on his leaving the service.

H. L. JOHNSON, a division engineer of construction on the Canadian Northern Pacific Ry., had a narrow escape from drowning while skating on Kamloops Lake, B.C., recently.

E. N. BENDER, General Purchasing Agent, C.P.R., and Mrs. Bender, left Montreal early in April to spend about two months in Europe, in consequence of Mrs. Bender's ill health.

G. R. G. CONWAY, Chief Engineer, British Columbia Electric Ry., gave an address on famous tunnels under rivers before the National Electric Light Association at Vancouver recently.

J. S. SUTHERLAND, who was station agent at Aulac, N.S., on the Intercolonial Ry., from the time the line was opened until his retirement in 1900, died at Parrsboro, N.S., Mar. 30, aged 78.

P. R. TODD, Vice President, Bangor and Aroostook Rd., Bangor, Me., visited Ottawa, April 11. He was at one time assistant to E. J. Chamberlain, then General Manager, Canada Atlantic Ry.

Mrs. L. G. COLEMAN, wife of the Assistant Superintendent, G.T.R., at Belleville, Ont., is a sister of Thornton Davidson, son-in-law of C. M. Hays, both of whom were lost in the Titanic disaster.

Lady Tait, wife of Sir THOMAS TAIT, and her daughter, who spent the winter in Toronto, left there early in April for Watkins Glen, N.Y., where Lady Tait hopes to recuperate after a long illness.

Mrs. G. MCL. BROWN, wife of the European Manager, C.P.R., London, Eng., visiting her mother, Mrs. Crearar, in Hamilton, Ont., during April, returning to England towards the end of the month.

H. O'SULLIVAN, M. Can. Soc. C.E., formerly Inspector of Surveys and Provincial Topographer, died at Indian Lorette, Que., recently, aged 66. He did considerable exploratory work for railways in that province.

JULES HONE, Jr., formerly C.P.R. ticket agent at Quebec, and latterly carrying on a general ticket and steamship agency, there and in Montreal, will, it is reported, shortly be appointed chief immigration agent at Quebec.

J. S. PYEATT, at one time Superintendent, Pere Marquette Rd., St. Thomas, Ont., was married to Miss M. Lay at St. Louis, Mo., recently. He is now Vice President and General Superintendent, Fort Worth, Texas.

C. R. MORGAN, G.T.R., city ticket agent, Hamilton, Ont., has joined the Canadian Ticket Agents' Association, of which his late father was a member for many years, occupying office on several occasions, including the presidency.

R. W. REFOR, Montreal, has subscribed \$25,000 towards the \$250,000 proposed to be raised for Anglican Church purposes in Montreal diocese, and promises to contribute a further \$25,000 if the fund is made up to \$500,000.

A. HAWKIN, who died in New York, April 10, aged 52, was the engineer who laid out and had charge of construction of the White Pass and Yukon Ry. He subsequently had charge of other railway construction work in Alaska.

F. L. SOMERVILLE, formerly District Engineer, G.T.R., Toronto, has been appointed to co-operate with the Hamilton, Ont., city engineer, to prepare a report on the proposed Canadian Northern Ontario Ry. entrance into the city.

C. A. FORSYTHE was presented with a cabinet of silver by the headquarters staff of the British Columbia Electric Ry. at Vancouver, April 13, on his retiring from the position of Chief Accountant to enter private office.

R. J. MACKENZIE, of Mackenzie, Mann and Co.; H. SUTHERLAND, Executive Agent, Canadian Northern Ry.; J. WHALEN, President, Great Lakes Dredging Co., and F. S. WILEY, vessel owner, Port Arthur, are among the directors of the recently organized Stanley Mineral Springs and Brewing Co., Winnipeg.

W. S. KINNEAR, who has resigned as President, Kansas City Terminal Co., to become President, United States Realty and Construction Co., New York, was formerly Assistant Chief Engineer, Michigan Central Rd., and had charge of the construction of the Detroit River tunnel.

W. E. BELCHER, who was for many years connected with the C.P.R. Passenger Department in Toronto and Winnipeg, and until June, 1909, was General Agent, Freight Department, and subsequently, to 1910, Travelling Freight Representative, Northern Pacific Ry., Detroit, Mich., has returned to Winnipeg to take up his residence.

JAS. MCCREE, who died at Lansing, Mich., recently, after some years spent in Canada, entered railway service in the United States, and was successively Trainmaster, Chicago and Port Huron Ry., and Superintendent, Port Huron and Western Ry. He had retired from active service for some years.

P. K. SEATH, of the Montreal Harbor Commissioners' staff, and son of D. Seath, Secretary to the Commission, was presented with a purse of gold by his associates, Apr. 9, on the occasion of his marriage, which took place on the following day.

A. WILLIAMS, Chief Dispatcher, C.P.R., was presented with a gold watch and chain and a travelling bag by the company's employes and other friends at Woodstock, N.B., on the occasion of his transfer to North Bay, Ont., as Assistant Superintendent.

C. H. GODFREY, Vice President and Secretary, Canadian Steel Foundries, Ltd., has been elected a member of the Montreal city board of control, to succeed F. L. Wanklyn, who resigned on his appointment as General Executive Assistant, C.P.R.

J. G. SKILLINGER, Division Engineer of Maintenance of Way, Cleveland, Cincinnati, Chicago and St. Louis Ry., at Gallon, Ohio, has been appointed Chief Engineer of the Rutland Rd., at Rutland, Vt., succeeding J. C. Irwin, M. Am. Soc. C.E., resigned.

J. H. TAYLOR, General Superintendent, Great Northern Ry., Great Falls, Mont., has been transferred to Superior, Wis., succeeding D. M. Philbin, and C. O. Jenks, Division Superintendent at Great Falls, has been appointed General Superintendent, succeeding Mr. Taylor, at Great Falls.

J. MCLELLAN was presented with a purse of gold by the employes of the C.P.R. terminals at Winnipeg recently, on the occasion of the thirtieth anniversary of his entering C.P.R. service. He was in the employ of the Canadian Government during the construction of the St. Boniface-Emerson line.

A. SHIELDS was presented with a diamond ring by the Brotherhood of Locomotive Engineers between Port Arthur and Edmonton, and the Locomotive Firemen of Winnipeg, April 2, on his resigning the position of General Master Mechanic, Canadian Northern Ry., in order to enter private business in Winnipeg.

W. R. BAKER, C.V.O., Secretary, C.P.R., while the horse attached to a cab was running away, in Montreal, Apr. 2, jumped from the vehicle, and sustained serious injuries, including a wound on his head and a dislocation of the thigh. He was taken to the Royal Victoria Hospital, where he is likely to have to remain for some weeks.

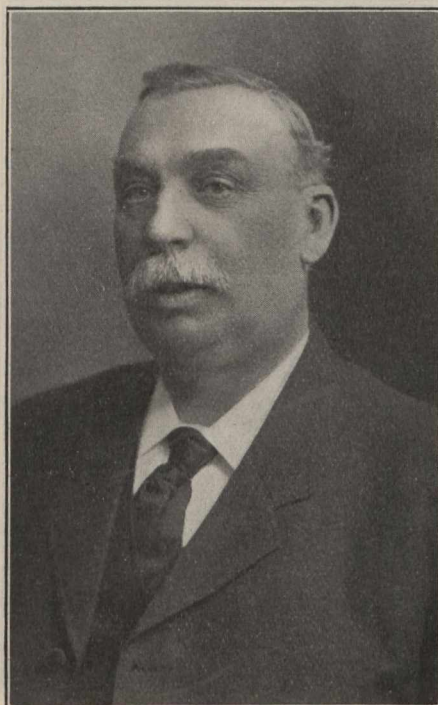
J. P. MEAGHER, a nephew of Lady Mackenzie, died at Joliette, Que., Apr. 6, as

a result of injuries sustained while attempting to board a moving locomotive. He had been in railway work for several years, latterly as roadmaster's clerk, Canadian Northern Quebec Ry., Joliette.

Mrs. R. W. Leonard, wife of R. W. LEONARD, Chairman of the National Transcontinental Railway Commission, has extended her offer to subscribe 10% of the total subscriptions for a women's residence in connection with Queen's University, Kingston, Ont., for another year.

A. SHIELDS, whose resignation of the position of General Master Mechanic, Canadian Northern Ry., Winnipeg, was announced in our last issue, has been elected President of the Railroaders Investment Co., there; the Vice President being W. R. Smith, until recently Superintendent of Works, Canadian Northern Ry.

A. S. GOODEVE, who has been appointed a member of the Board of Railway Commissioners, was born at Guelph, Ont., Dec. 15, 1860. He was mayor of Ross-



The Late E. A. Hall,
President, Ottawa Forwarding Company.

land, B.C., 1899-1900, Provincial Secretary of B.C. in 1902, Provincial Forestry Commissioner in 1909, and up to the date of his present appointment has represented Kootenay in the Dominion Parliament.

D'ARCY TATE, who has been Solicitor to the Grand Trunk Pacific Ry., at Winnipeg, since its inception, has resigned, in order to devote his time to the Pacific Great Eastern Ry. Co., the incorporation of which was announced in our last issue, and of which he is Vice President and General Counsel. Prior to entering G.T.P.R. service, he was, from 1895, connected with the Toronto, Hamilton and Buffalo Ry. legal department.

E. H. WOOD, who has been appointed car foreman, Hochelaga shops, C.P.R., Montreal, was born at St. John, N.B., Dec. 30, 1880, and entered C.P.R. service, July 4, 1899, since when he has been, to Aug. 1, 1903, car repairer at St. John, N.B.; Aug. 1, 1903, to Jan. 31, 1904, car inspector, St. John, N.B.; Feb. 1, 1904, to Jan. 24, 1911, car foreman, St. John, N.B.; Jan. 24, 1911, to Apr. 9, 1912, assistant car foreman, Hochelaga shops, Montreal.

C. B. MUTCHLER, who has been appointed Signal Engineer, Grand Trunk Pacific Ry., Winnipeg, was born at Pine Island, Minn., Mar. 8, 1879, and graduated from the University of Wisconsin in 1902, since when he has been, to 1904, engineer in the Bridge and Building Department, Chicago, Milwaukee and St. Paul Ry.; 1904 to 1910, in the Signal Department, same road; 1910 to Apr., 1912, engaged in signal and interlocking construction in Canada.

A. J. McDONALD, Superintendent, City Division, Quebec Ry., Light and Power Co., Quebec, resigned recently to become General Superintendent, New Orleans, Southern and Grand Isle Ry., of which company, C. E. A. Carr is General Manager. After going to New Orleans, and looking the property over, he concluded that as the greater portion of the work was steam railway operation, with which he was not familiar, he would not undertake the duties, and he left New Orleans again, Apr. 14, for the north.

E. A. HALL, President, Ottawa Forwarding Co., who died in Ottawa, April 7, and whose portrait is published in this issue, was born in Montreal, June 19, 1853. He lived at L'Orignal, Ont., for a number of years, engaged in hay and grain business. In 1884, in partnership with his two brothers, W. J. and J. H. Hall, of Ottawa, he bought the steamboat Welshman, which was the beginning of the present Ottawa Forwarding Co. In later years he branched out, and at the time of his death was interested in a number of vessels trading on the Great Lakes, St. Lawrence River and Gulf of St. Lawrence.

W. E. WOLFENDEN, whose appointment as General Passenger Agent, Pere Marquette Rd., Detroit, Mich., was announced in our last issue, was born at Port Hope, Ont., Mar., 1862, and entered railway service in 1881, since when he has been, to 1883, operator, Chicago and West Michigan Ry., Woodville, Mich.; 1883 to 1890, agent, same road, New Richmond and Benton Harbor; 1890 to 1893, Travelling Passenger Agent, same road; 1893 to 1900, General Baggage Agent, same road and Detroit, Lansing and Northern Line; 1909 to 1904, District Passenger Agent, Pere Marquette Rd., Grand Rapids, Mich.; 1904 to Mar., 1912, General Western Passenger Agent, same road, Chicago, Ill.

C. BERESFORD FOX, M.A., M. Can. Soc. C.E., of Wragge and Fox, consulting engineers, etc., Toronto, died there, April 15. He was the eldest son of Francis Fox, who with his brother, Sir Douglas Fox, form the firm of Sir Douglas Fox and Partners, civil engineers, London, Eng. Mr. Fox had been a resident of Toronto for the past three years. Prior to going to Toronto, he had been engaged in many important engineering works, having passed some years in South Africa on the Rhodesian railways, and at the construction of the bridge over the Zambesi River at Victoria Falls. He was also engaged for about two years at the building of the Assouan barrage on the Nile in Egypt, and for a time at the Simplon Tunnel.

T. MCHATTIE, who has been appointed Master Mechanic, Eastern Division, G.T.R., Montreal, and whose portrait appears in this issue, was born at Dufftown, Banffshire, Scotland, Aug. 8, 1854, and entered railway service, Oct., 1870, since when he has been consecutively to 1878 in locomotive shops, Great Western Ry., at Hamilton, Ont.; June, 1878, to Aug., 1886, locomotive engineer, same road; Aug., 1886, to Apr., 1889, locomotive foreman, G.T.R., Palmerston, Ont.; Apr., 1889, to Apr., 1898, General Foreman in charge of locomotives, same road, London, Ont.; Apr., 1898, to Jan., 1909, Master Mechanic, Eastern Division, same road, Montreal, Jan., 1909, to Apr., 1912, Superintendent of Motive Power and Car

Department, Central Vermont Ry., St. Albans, Vt.

The following subscriptions have been made to the fund for the Victorian Order of Nurses, for which an appeal was recently made by the Duchess of Connaught:—SIR HENRY M. PELLATT, \$5,000; SIR DONALD MANN, \$2,500; R. B. ANGUS, \$1,000; HUGH PATON, \$500; SIR H. MONTAGU ALLAN, \$500; R. W. REFORD, \$100.

E. ELEY, who has been appointed Divisional Car Foreman, Lake Superior Division, C.P.R., North Bay, Ont., was born in London, Eng., in 1867, and commenced railway service with the Great Northern Ry., at King's Cross, London, Eng., June, 1888, and came to Canada in 1889. He entered C.P.R. service in the Bridge and Buildings Department, Mar., 1894, and was transferred to the Car Department, at North Bay, Ont., Aug., 1894, and was, from Mar., 1902, to Jan., 1903, charge hand at Chapleau, Ont.; 1903 to July, 1906, leading hand at North Bay, Ont.; July, 1906, to Feb., 1907, Car Foreman at Quebec; Feb., 1907, to May, 1911, Car Foreman at Glen Yard, Montreal; May, 1911, to Apr., 1912, General Foreman, passenger car repair shops, West Toronto, Ont.

G. C. CONN, whose appointment as Vice President, Pere Marquette Rd., was announced in our last issue, was born at Woburn, Mass., July 1, 1867, and entered railway service, Oct. 1, 1884, in the general freight department of the Boston and Lowell Rd., and was, later, to 1888, with the Boston and Maine Rd., since when he has been, 1888 to 1890, Travelling Freight Agent, Pennsylvania Rd.; 1890 to 1897, Travelling Agent, Canadian Pacific Despatch; 1897 to 1900, Commercial Agent, Flint and Pere Marquette Rd., Minneapolis, Minn.; 1900 to 1904, General Agent and Assistant General Freight Agent, Pere Marquette Rd., Milwaukee, Wis.; 1904 to 1909, General Freight Agent, Minneapolis, St. Paul and Sault Ste. Marie Ry.; 1909 to Mar. 7, 1912, Freight Traffic Agent, Pere Marquette Rd.

I. G. OGDEN, Vice President, C.P.R., in charge of Financial and Accounting Departments, in whose honor the company's new shops at Maharg, near Calgary, Alta., are to be named the Ogden shops, and whose portrait appears in this issue, was born at New York, Oct. 10, 1844, and entered railway service, Mar., 1871, since when he has been, consecutively, to 1876, Paymaster and Accountant, Chicago and Pacific Ry.; 1876 to Mar., 1881, Auditor, under receiver, same road; Mar., 1881, to July, 1883, Auditor, C.P.R. Western Division, Winnipeg; July, 1883, to June, 1887, Auditor, same road, Montreal; Dec., 1901, to June, 1910, Comptroller, same road, Montreal; Dec., 1910, to June, 1910, Third Vice President, same road, Montreal, at which latter date, the numerical designations of the Vice Presidents were abolished.

SIR MAURICE FITZMAURICE, M. Am., M. Eng., M. Can. Soc., C.E., who received his recent knighthood in recognition of his having been engineer in charge of the construction of the stone embankment that lines the river frontage of the new London County Council hall in London, Eng., the foundation stone of which was laid by the King recently, was one of the original board of engineers appointed by the late Dominion Government for the construction of the Quebec bridge, after the collapse of the completed portion of the first structure. He has been Chief Engineer to the London County Council since 1901, and has been associated with many important works, including the Rotherhithe and Blackwall tunnels, the new Vauxhall bridge, Kingsway, and the tram subway in London. He was formerly engaged on the Forth bridge and the Assuan dam.

E. W. DUVAL, who has been appointed Superintendent, District 4, Manitoba

Division, C.P.R., Souris, was born at Toledo, Ohio, June 5, 1885, and entered railway service July 1, 1902, since when he has been, to June 1, 1905, in Superintendent's office, Canadian Northern Ry., Winnipeg, and at Port Arthur, Ont.; June 1, 1905, to Jan. 2, 1911, successively, secretary to General Superintendent, Central Division, C.P.R., Winnipeg, chief clerk to Superintendent, District 2, Central Division, C.P.R., Winnipeg; assistant chief clerk to General Superintendent, Central Division, C.P.R., Winnipeg; chief clerk to General Superintendent, Western Division, C.P.R., Calgary, Alta.; chief clerk to Assistant General Manager, and later to General Manager, Western Lines, C.P.R., Winnipeg; and Trainmaster, C.P.R. Terminals, Calgary, Alta.; Jan. 2, 1911, to Apr. 6, 1912, Superintendent, District 1, Saskatchewan Division, Moose Jaw.

R. E. MERKELEY, whose appointment as Trainmaster, District 3, Manitoba Division, C.P.R., Brandon, was announced in our last issue, was born at Ottawa, Sept. 3, 1882, and entered railway service, May, 1899, since when he has been, to May, 1901, timekeeper on construction, Ottawa Northern and Western Ry.; May, 1901, to June, 1903, freight clerk, Canada Atlantic Ry., Depot Harbor, Ont.; Jan., 1903, to Apr. 14, 1904, switchman, Union Pacific Rd., Denver, Col.; Apr. 14 to Sept. 15, 1904, chief statistical clerk, Canadian Northern Ry., Winnipeg; Sept. 15, 1904, to July 1, 1906, brakeman and switchman, C.P.R., Kenora, Ont., and Farnham, Que., July 1, 1906, to Oct. 18, 1909, Travelling Agent, Car Service Department, Canadian Northern Ry., Winnipeg; Oct. 18, 1909, to May 12, 1910, chief clerk, Winnipeg Terminals, Canadian Northern Ry.; May 12 to Aug. 1, 1910, car tracer, C.P.R., Calgary, Alta.; Aug. 1 to Sept. 15, 1910, chief clerk, Car Service Agent's office, C.P.R., Moose Jaw, Sask.; Sept. 15, 1910, to Feb. 25, 1912, Travelling Car Service Agent, Western Lines, C.P.R., Winnipeg.

F. F. BUSTEED, M. Can. Soc. C.E., who has been appointed Engineer in charge of C.P.R. revision and double tracking, west of Calgary, Alta., Kamloops, B.C., was born at Battery Point, Que., Oct. 10, 1858, and entered railway service in 1879, since when he was, to 1881, rodman; 1881 to 1883, transitman; 1883 to 1887, assistant engineer in charge of construction, 1887 to 1889, in charge of location, and Division Engineer of Construction, C.P.R.; 1890, locating and Division Engineer of Construction, Alberta Ry. and Coal Co.'s extension from Lethbridge, Alta., to a junction with the Great Falls and Canada Ry. at the International boundary; 1890 to 1892, locating engineer and city engineer, Bristol, West Virginia; 1892 to July, 1904, successively, Roadmaster, Assistant Engineer, Resident Engineer, Engineer of Maintenance of Way and Structures, Division Engineer, Superintendent at Nelson, B.C., all with C.P.R.; July, 1904, to Feb., 1907, Assistant Chief Engineer, Western Lines, C.P.R., Winnipeg; Feb., 1907, to June, 1910, General Superintendent, Pacific Division, C.P.R., Vancouver, B.C.; June, 1910, to Jan., 1912, General Superintendent, British Columbia Division, C.P.R., Vancouver.

E. P. GOODWIN, whose appointment as Inspecting Engineer, National Transcontinental Ry., Ottawa, was announced in our last issue, was born at Bale Verte, N.B., Mar. 17, 1865, and educated at Mount Allison University, Sackville, N.B., and Queen's University, Kingston, Ont. He commenced railway work in 1887, as chairman on the C.P.R., and from 1888 to 1893 was inspector and assistant engineer, Department of Public Works; 1894, provincial land surveyor; 1895, transitman on survey, Kingston, Smiths Falls and Ottawa; Oct., 1895, to Dec., 1896, Resident Engineer, St. Lawrence and Adirondack Ry., 1897, Resi-

dent Engineer, Missiquash Marsh Co.; 1898 to 1899, Resident Engineer and Division Engineer, Midland Ry. of Nova Scotia; 1900, Resident Engineer, Dominion Iron and Steel Co.; Jan. to Aug., 1901, in charge of location party, Nova Scotia Eastern Ry.; Aug., 1901, to Feb., 1903, in charge of party and Division Engineer, Cape Breton Ry.; Mar., 1903, to Dec., 1904, Chief Engineer, Nova Scotia Eastern Ry. Jan. to Mar., 1905, in charge of party, Canadian Northern Ry.; Mar., 1906, took charge of survey party, National Transcontinental Ry., and became Division Engineer when surveys were completed. He has been connected with the militia since 1881, and is captain in the Corps of Guides.

J. J. SCULLY, who has been appointed General Superintendent, Lake Superior Division, C.P.R., North Bay, Ont., was born at Montreal, Feb. 3, 1872, and entered C.P.R. service Jan., 1887, since when he has been, to June, 1888, in Car Service Department, Montreal; June to Sept., 1888, clerk in Superintendent's office, Farnham, Que., Sept. 1888, to Aug., 1890, chief clerk and car distributor, Farnham, Que.; Aug., 1890, to Apr., 1891, in Superintendent's office, Montreal; Apr., 1891, to Mar., 1893, in Superintendent's office, Farnham, Que.; Mar., 1893, to Sept., 1894, in Mechanical Department Farnham, Que.; Sept. 1894, to Mar., 1898, in Mechanical Department, Toronto, during which period the mechanical departments of the lines east and west of Montreal were consolidated; Mar., 1898, to Aug., 1901, Assistant Master Mechanic, Ontario and Quebec Division, Toronto; Aug., 1901, to Aug., 1902, Assistant Master Mechanic, Western Division, for roadwork, Winnipeg; Aug., 1902, to May, 1903, assistant to General Superintendent, Central Division, Winnipeg; May to June, 1903, in office of Assistant General Manager, lines east of Port Arthur, Ont., Winnipeg; June, 1903, to Nov., 1906, Superintendent Brandon, Man.; for a short period he was Superintendent at Fort William, Ont., and from Nov., 1906, to May, 1910, Superintendent, Moose Jaw, Sask., and from June, 1910, to Apr., 1912, General Superintendent, Saskatchewan Division, Moose Jaw.

S. P. BROWN, M. Am. Soc. C.E. and M. Am. Soc. M.E., who has been appointed Chief Engineer, Montreal Tunnel and Terminal Co., and Managing Engineer, Montreal tunnel and terminal construction, Mackenzie, Mann and Co., Ltd., Montreal, and whose portrait appears in this issue, was born at Dover, Me., Apr. 29, 1877, and graduated from the Massachusetts Institute of Technology, Boston, in 1900, upon which he entered, as a junior member, the firm of Collier and Brown, consulting engineers, Atlanta, Ga. He was, from 1904 to 1905, on the Bridgeport elevation and station construction, Hartford, New York, New Haven and Hartford Ry., and in 1905 entered the service of the United Engineering and Contracting Co., first on the Port Morris depression works, New York Central Ry., then on the St. Marys Park tunnel, and later as consulting engineer in the study of public utilities, San Juan, Porto Rico. Following this he was Chief Assistant Engineer, same company, on the cross town tunnels of the Pennsylvania Rd. in New York, where he had direct charge of all concrete and construction work, taking general charge later of all work west of Fifth Ave. In 1908-09 he was, in addition to being Chief Assistant Engineer, United Engineering and Contracting Co., designing engineer, Cuban Engineering and Contracting Co., and spent the summers of both years in Europe investigating European tunnel methods and studying hydro-electric construction. From 1909 to 1912 he was Chief Engineer, Tidewater Building Co., and T. B. Bryson, on sec. 11-A-3 of the Fourth Ave. Rapid Transit subway, Brooklyn, N.Y.

Transportation Appointments Throughout Canada.

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

Alberta Interurban Ry.—K. J. C. ZINCK, heretofore Assistant Engineer, Grand Trunk Pacific Ry., Winnipeg, has been appointed Chief Engineer, A.I.R. Office, Calgary, Alta.

E. P. NEWHALL, formerly Superintendent, Pacific Express Co., Toledo, Ohio, has been appointed General Freight and Passenger Agent, A.I.R. Office, Calgary, Alta.

Board of Railway Commissioners.—A. S. GOODEVE, M.P. for Kootenay, B.C., has been appointed a member of the board, in place of the late Thos. Greenway, who died in 1908, a few weeks after his appointment.

Canadian Express Co.—John Pullen, President, issued the following circular, April 1.—JAMES BRYCE, Vice President and Manager, who for nearly 40 years has devoted himself unremittingly to the best interests of the company, retires this day under the provisions of the pension rules. The office of Vice President and Manager is abolished.

Canadian Northern Ontario Ry.—A. J. ISBESTER, heretofore Division Engineer, Port Arthur District Office, Port Arthur, Ont.

H. C. NELSON and R. C. KEITH have been appointed Division Engineers, Division F., Port Arthur District.

Canadian Northern Ry.—G. EASSON, heretofore rate clerk, General Freight Agent's office, Toronto, has been appointed Travelling Freight Agent, Toronto, vice I. L. Healey, resigned.

H. A. ENGLISH has been appointed Locomotive Inspector, with supervision of the examination of enginemen, reporting to the Superintendent of Rolling Stock. Office, Winnipeg.

Canadian Northern Montreal Tunnel and Terminal Co.—S. P. BROWN, M. Am. Soc. C.E., and M. Am. Soc. M.E., has been appointed Chief Engineer. He has also been appointed Managing Engineer, Montreal Tunnel and Terminal Construction, Mackenzie, Mann and Co., Ltd.

J. C. K. STUART, heretofore on Canadian Northern Ry. surveys, has been appointed in charge of field work in connection with the Montreal tunnel construction.

Canadian Pacific Ry.—W. B. HOWARD, District Passenger Agent, St. John, N.B., has also been appointed General Agent, Atlantic Steamship Lines, there.

T. HARRIS, heretofore Divisional Car Foreman, Lake Superior Division, North Bay, Ont., has been appointed Car Foreman at St. John, N.B., vice A. G. Longeway, resigned.

I. B. MERRIMAN, heretofore dispatcher, has been appointed Chief Dispatcher, District 2, Atlantic Division, vice A. Williams, transferred. Office, Woodstock, N.B.

R. F. GAULD, heretofore clerk in charge of auditing pay rolls in the Audit Department, has been appointed Auditor of Pay Rolls. This appointment gives him a title, but does not materially change his duties. Office, Montreal.

F. TAYLOR, heretofore Division Engineer, Lake Superior Division, North Bay, Ont., has been appointed Division Engineer, Eastern Division, vice C. B. Brown, promoted. Office, Montreal.

W. WEBBER, heretofore Passenger Agent, Atlantic Steamship Lines, Montreal, has been appointed General Agent, same department. Office, Montreal.

E. H. WOOD has been appointed Car Foreman, Hochelaga shops, Montreal, vice F. E. Warren, promoted.

H. E. STEWART, heretofore chief clerk in office of assistant to Vice President, has been appointed Assistant Superintendent, District 4, Eastern Division,

vice J. H. Boyle, who is acting Superintendent, during the absence of H. B. Spencer, on leave. Office, Ottawa.

W. CORBETT, heretofore Travelling Passenger Agent, has been appointed Terminal Passenger Agent, in charge of passenger travel and matters pertaining to the Passenger Department at Toronto terminals.

R. CUNNINGHAM, heretofore chief clerk, Freight Department, Owen Sound, Ont., is reported to have been appointed station agent there, vice J. L. Simpson, transferred.

J. L. SIMPSON, heretofore station agent, Owen Sound, Ont., is reported to have been appointed station agent, Port McNicoll, Ont.

J. J. SCULLY, heretofore General Superintendent, Saskatchewan Division, Moose Jaw, has been appointed General Superintendent, Lake Superior Division, vice J. G. Taylor, transferred. Office, North Bay, Ont.

A. WILLIAMS, heretofore Chief Dispatcher, District 1, Atlantic Division, Woodstock, N.B., has been appointed Assistant Superintendent, District 1, Lake Superior Division, vice P. G.



S. P. Brown, M. Am. Soc. C.E.,
Chief Engineer, Canadian Northern Montreal Tunnel and Terminal Company.

Cromar, transferred. Office, North Bay, Ont.

E. ELEY, heretofore General Passenger Car Repair shop, West Toronto, has been appointed Divisional Car Foreman, Lake Superior Division, vice T. Harris, transferred to Atlantic Division. Office, North Bay, Ont.

J. J. ANDERSON, heretofore Travelling Passenger Agent, North Bay, Ont., has been appointed Travelling Passenger Agent, Toronto, vice W. Corbett, transferred.

P. G. CROMAR, heretofore Assistant Superintendent District 1, Lake Superior Division, North Bay, Ont., has been appointed Assistant Superintendent, District 2, Lake Superior Division, vice E. J. Brien, Trainmaster, transferred. Office, Schreiber, Ont.

E. J. BRIEN, heretofore Trainmaster Schreiber, Ont., has been appointed Assistant Superintendent, District 2, Lake Superior Division, vice W. Bartlett, transferred. Office, Chapleau, Ont.

A. J. WOLFE has been appointed Roadmaster, White River subdivision, Lake

Superior Division, vice C. Erickson, transferred. Headquarters, White River, Ont.

D. C. CHISHOLM, heretofore acting Resident Engineer, Winnipeg, has been appointed Resident Engineer, Fort William terminals.

C. S. MORSE, heretofore Travelling Freight Agent, Lethbridge, Alta., has been appointed District Freight Agent at Fort William, Ont.

D. C. COLEMAN, as announced in our March issue, was on Feb. 14 appointed acting General Superintendent, Manitoba Division. On Mar. 25, F. F. BUSTEED, M. Can. Soc. C.E., was appointed General Superintendent, Manitoba Division. On Apr. 1, D. C. COLEMAN was appointed General Superintendent, Manitoba Division, and F. F. BUSTEED was appointed Engineer in charge of grade revision and double tracking, Calgary and west, with office at Kamloops, B.C. He has also been given authority to issue time checks.

T. R. FLETT, heretofore Superintendent, District 4, Manitoba Division, Souris, has been appointed Superintendent, District 2, vice A. E. Stevens, transferred. Office, Winnipeg.

FRANK LEE, heretofore Division Engineer, Manitoba Division, has been appointed Principal Assistant Engineer, Western Lines. Office, Winnipeg.

R. C. ST. JOHN has been appointed Engineer of Maintenance of Way, Western Lines. Office, Winnipeg.

J. C. HOLDEN, heretofore Assistant Engineer, Winnipeg, has been appointed Engineer, Manitoba Division, vice F. Lee, promoted. Office, Winnipeg.

C. H. FOX, heretofore Resident Engineer, Fort William, Ont., has been appointed Assistant Division Engineer, Manitoba Division. Office, Winnipeg.

C. G. WASHBON, heretofore instrument man, Brandon, Man., has been appointed acting Resident Engineer, Winnipeg, Man., vice D. C. Chisholm, transferred.

A. HATTON, heretofore acting Superintendent of Car Service, Western Lines, has been confirmed in the position. Office, Winnipeg.

E. W. DUVAL, heretofore Superintendent, District 1, Saskatchewan Division, Moose Jaw, has been appointed Superintendent, District 4, Manitoba Division, vice T. R. Flett, transferred. Office, Souris.

R. K. SCARLETT, heretofore City Ticket Agent, Nelson, B.C., has been appointed City Ticket Agent at Regina, Sask., a new office, which will be opened at 1812 Scarth St., about May 20.

A. C. FRASER, heretofore Inspector of Telegraphs, District 1, Saskatchewan Division, Moose Jaw, has been appointed Inspector of Telegraphs, District 2, Saskatchewan Division, vice S. M. Thurston, transferred. Office, Regina.

J. G. TAYLOR, heretofore General Superintendent, Lake Superior Division, North Bay, Ont., has been appointed General Superintendent, Saskatchewan Division, vice J. J. Scully, transferred. Office, Moose Jaw.

A. E. STEVENS, heretofore Superintendent, District 2, Manitoba Division, Winnipeg, has been appointed Superintendent, District 1, Saskatchewan Division, vice E. W. DuVal, transferred. Office, Moose Jaw.

W. MCPHERSON, heretofore night foreman, Moose Jaw, Sask., has been appointed Locomotive Foreman, there, vice W. Jordan, who has left the service. G. Motta, who was Locomotive Foreman, Moose Jaw, up to Feb. 10, has returned to the shops as a fitter.

T. S. BARTRAM has been appointed night locomotive foreman at Moose Jaw, Sask., vice W. G. McPherson, promoted.

S. M. THURSTON, heretofore Inspector of Telegraphs, District 2, Saskatchewan Division, Regina, has been appointed Circuit Manager at Moose Jaw, Sask.

C. K. BROWN has been appointed Inspector of Telegraphs, District 1, Sas-

katchewan Division, vice A. C. Fraser, transferred. Office, Moose Jaw.

A. C. HARSHAW, heretofore Trainmaster, Macleod, Alta., has been appointed Terminal Trainmaster in charge of maintenance and operation, Calgary, Alta., vice C. Hood, transferred.

L. A. HUTTON has been appointed Inspector of Telegraphs, District 2, Alberta Division, vice C. H. Powell, transferred. Office, Calgary.

J. J. SCHEGGEN, heretofore Inspector of Telegraphs, District 1, Alberta Division, Medicine Hat, has been appointed chief operator, Telegraph Department, at Calgary, Alta.

J. L. DOUPE, General Townsite Agent, Department of Natural Resources, Calgary, Alta., has resigned.

C. H. POWELL, heretofore Inspector of Telegraphs, District 2, Alberta Division, Calgary, has been appointed Inspector of Telegraphs, District 1, Alberta Division, vice J. J. Schetgen, transferred. Office, Medicine Hat.

J. D. WATSON has been appointed District Master Mechanic, Saskatoon, Sask., vice J. P. McAnany, transferred to Revelstoke, B.C., as announced in our last issue.

D. SMEATON, heretofore senior ticket agent, Winnipeg station, has been appointed City Ticket Agent, Nelson, B.C., vice R. K. Scarlett, transferred to Regina, Sask.

F. R. PERRY, District Passenger Agent, Boston, Mass., has also been appointed General Agent, Atlantic Steamship Lines, there.

W. H. SNELL, Eastern Passenger Agent, New York, has also been appointed General Agent, Atlantic Steamship Lines, there.

J. J. FORSTER, heretofore Travelling Passenger Agent, Atlantic Steamship Lines, Seattle, Wash., has been appointed General Agent, same department, with jurisdiction over British Columbia, Oregon and Washington. Office, Seattle, Wash.

A. A. POLHAMUS, General Agent Passenger Department, Los Angeles, Cal., has also been appointed General Agent, Atlantic Steamship Lines, there.

G. M. JACKSON, General Agent Passenger Department, San Francisco, Cal., has also been appointed General Agent, Atlantic Steamship Lines, there.

Central Vermont Ry.—J. E. FITZSIMONS, heretofore Road Foreman of Locomotives, was on Apr. 1, appointed acting Superintendent of Motive Power and Car Department, vice T. McHattie, resigned, and on Apr. 22 was appointed acting Superintendent of Motive Power, devoting his entire time to the Motive Power Department.

W. GILLESPIE has been appointed Master Car Builder. Office, St. Albans, Vt.

H. G. BELL has been appointed acting Road Foreman of Locomotives, vice J. E. Fitzsimons, promoted. Headquarters, St. Albans, Vt.

Duluth, Winnipeg and Pacific Ry.—J. L. PICKLES, heretofore Chief Engineer and Superintendent, Shannon-Arizona Ry., Clifton, Ariz., has been appointed Assistant District Engineer, D.W. and P. Ry. Office, Duluth, Minn.

Grand Trunk Pacific Ry.—E. J. CHAMBERLIN, Vice President and General Manager, has been placed, temporarily, in charge of all the company's affairs, consequent on the death of the President, C. M. Hays.

C. B. MUTCHLER has been appointed Signal Engineer, with jurisdiction over the line west of Fort William, Ont., including branch lines. Office, Winnipeg.

E. McDONALD, heretofore chief clerk in charge of Baggage Department, Winnipeg, has been appointed District Baggage Agent, with territory, Fort William, Ont., and west. Correspondence formerly addressed to the General Baggage Agent there, is now addressed to the District Baggage Agent. Office, Winnipeg.

F. E. CORRIGAN, heretofore Locomotive Foreman, Fitzhugh, Alta., has resumed his former position as leading hand at Rivers, Man.

C. R. HEATH has been appointed Superintendent of Water Service, with territory from Winnipeg to Edmonton, including branch lines. Office, Melville, Sask.

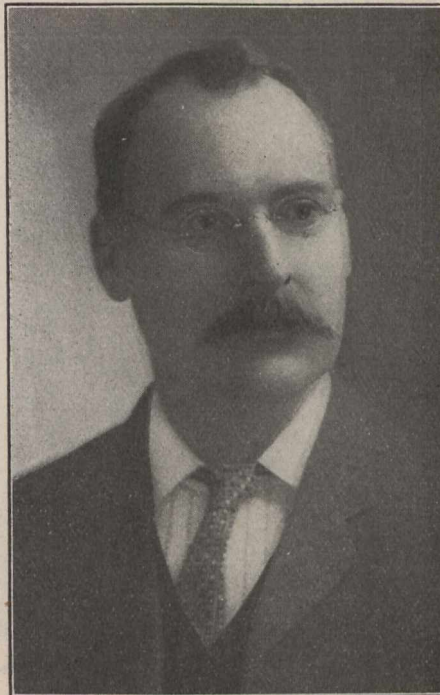
J. A. HEAMAN has been appointed Division Engineer, vice John Callaghan, resigned. Office, Fitzhugh, Alta.

E. L. GREEN and J. F. HARRINGTON have been appointed agents at Stony Plain and Wabamun, Alta., respectively.

W. E. DUPELOW, heretofore City Passenger and Ticket Agent, Vancouver, B. C., has been appointed General Agent, Passenger Department, in charge of territory in British Columbia, Rivers Inlet and south. Office, Vancouver.

C. F. EARLE, heretofore assistant City Passenger and Ticket Agent, Vancouver, B.C., has been appointed City Passenger and Ticket Agent, there, vice W. E. Duperow, promoted.

Grand Trunk Ry.—W. WAINWRIGHT, Senior Vice President, has been placed



F. F. Busteed, M. Can. Soc. C.E., Engineer in charge of C.P.R. grade revision and double tracking, west of Calgary, Alta.

temporarily in charge of all the company's affairs, consequent on the death of the President, C. M. Hays.

T. MCHATTIE, heretofore Superintendent of Motive Power, Central Vermont Ry., St. Albans, Vt., has been appointed Master Mechanic Eastern Division, G.T.R., vice J. Duguid, assigned to other duties. Office, Montreal.

L. HAROLD, heretofore station agent, London, Ont., has been appointed Assistant Trainmaster, Hamilton, Ont., vice C. H. Brown, resigned to enter another company's service.

D. W. HAYES, heretofore agent at Guelph, Ont., has been appointed agent at London, Ont., vice L. Harold, promoted.

H. V. GOODWIN, heretofore operator, has been appointed agent at Goldstone, Ont., vice J. M. Fairweather, transferred.

J. M. FAIRWEATHER, heretofore agent at Goldstone, Ont., has been appointed agent at Neustadt, Ont., vice C. E. Brigham, transferred.

C. E. BRIGHAM, heretofore agent at Neustadt, Ont., has been appointed agent at Paisley, Ont., vice W. F. Briggs, transferred.

W. F. BRIGGS, heretofore agent at Paisley, Ont., has been appointed agent at Guelph, Ont., vice D. W. Hayes, transferred.

The following agents have been appointed:—Levis, Que., pass., A. J. Roy; Nottawa and Glen Huron, Ont., L. A. Hill; London East, Ont., J. M. Little; Hamilton, Ont., King St. pass., J. W. Vanatter; Jordan, Ont., W. J. Meredith; Ingersoll, Ont., A. H. King; Burford, Ont., N. A. McCallum; Denfield, Ont., H. W. Millar; Hensall, Ont., A. L. Case; Walkerville and Windsor, Ont., S. V. Beck; Barry's Bay, Ont., F. O. Parent; Port Huron, Mich., C. F. Percival; Stratford, Ont., outside, Deacon and Trow.

Intercolonial Ry.—F. FONTAINE has been appointed acting Car Foreman, Chaudiere Jct., Que., vice S. Malouin, deceased.

J. LEMELIN has been appointed acting Roundhouse Foreman at Chaudiere Jct., vice J. E. Levasseur, resigned.

Midland Ry. of Manitoba.—C. H. BOOTH, heretofore assistant local freight agent, C.N.R., Winnipeg has been appointed local freight agent, M.R. of M., Winnipeg.

National Transcontinental Ry.—G. S. HODGINS a native of Toronto, and until recently engaged in technical journalism in the United States, has been appointed Consulting Mechanical Engineer, to make a special report concerning the shops and equipment of the various roundhouses, terminal shops, etc., either built or under construction on the line, which will occupy him for some months. He will have his headquarters at Ottawa.

New York Central and Hudson River Ry.—A. T. HARDIN, heretofore Assistant General Manager, has been appointed Assistant Vice President. Office, New York.

P. E. CROWLEY, heretofore Assistant General Manager, has been appointed General Manager. Office, New York.

H. L. INGERSOLL has been appointed Assistant General Manager, performing duties assigned. Office, New York.

W. J. FRIPP, heretofore General Superintendent, Eastern Division, Albany, N. Y., has been appointed Assistant General Manager. Office, Albany, N. Y.

New York Central Lines.—A. H. SMITH, heretofore Vice President and General Manager, N.Y.C., and H. R. Rd., has, while retaining the Vice Presidency of that road, also been appointed Vice President in charge of operation, maintenance and construction, Lake Shore and Michigan Southern, Cleveland, Cincinnati, Chicago and St. Louis, Peoria and Eastern, Toledo and Ohio Central, and Zanesville and Western Rys., Lake Erie and Western, Lake Erie, Alliance and Wheeling, Cincinnati Northern, Michigan Central, and Chicago, Indiana and Southern Rds., vice C. E. Schaff, resigned. Office, New York.

Northern Navigation Co.—PETER PATON, heretofore Travelling Western Representative, Winnipeg, has been appointed Assistant to the President. Office, Sarnia, Ont.

Northern Pacific Ry.—J. M. MAVER has been appointed Contracting Agent, at Montreal, vice Tracey Howard, promoted.

Pacific Great Eastern Ry.—D'ARCY TATE, heretofore Solicitor, Grand Trunk Pacific Ry., Winnipeg, has been appointed Vice President and General Counsel, P.G.E. Ry.

JOHN CALLAGHAN, heretofore Division Engineer, Grand Trunk Pacific Ry., has been appointed Chief Engineer, P.G.E. Ry.

Pere Marquette Rd.—NEWMAN ERR, D. E. WATERS and F. W. BLAIR, having been appointed receivers, by the U.S. district court for the eastern district of Michigan, and having duly qualified, have appointed W. COTTER, General Manager, J. L. CRAMER, Comptroller and J. E. HOWARD, Treasurer, for the receivers. All

other officers and agents of the operating, traffic and accounting departments in the service of the company at the time of the appointment of the receivers, are continued in their respective positions, until otherwise ordered.

Quebec Ry., Light, Heat and Power Co.—A. H. N. BRUCE, M. Can. Soc. C.E., Chief Engineer, Quebec and Saguenay Ry., has also been appointed Chief Engineer of the Q.R.L.H. and P. Co., and of all other railways controlled by Sir Rodolphe Forget and associates.

Quebec and Saguenay Ry.—E. A. EVANS, M. Can. Soc. C.E., having resigned as Consulting Engineer, HON. J. P. B. CASGRAIN, Q.L.S., A.M. Can. Soc. C.E., has been appointed Consulting Engineer.

Roberval-Saguenay Ry.—J. E. ROBITAILLE, Accountant and Auditor, Ha Ha Bay Ry., has also been appointed Treasurer, Roberval-Saguenay Ry., in charge of the Accounting Department. Office, Chicoutimi, Que.

Southern Ry.—G. W. CARTER is reported to have been appointed Traveling Passenger Agent at Montreal.

Temiskaming and Northern Ontario Ry.—W. BLACK has been appointed General Foreman, North Bay, Ont., vice A. J. Roberts.

Toronto, Hamilton and Buffalo Ry.—H. H. ADAMS, General Manager, is reported to have resigned, to accept the Presidency of the Kansas City Terminal Ry., Kansas City, Mo., vice W. S. Kinneer, resigned.

H. T. MALCOLMSON has been appointed Car Accountant, vice G. W. Wilson, resigned. Office, Hamilton, Ont.

Wabash Rd.—W. BOCKSTAHLER, heretofore Contracting Freight Agent, Detroit, Mich., has been appointed Traveling Freight Agent, Buffalo, N.Y., vice W. N. Price, promoted.

W. N. PRICE, heretofore District Freight Agent, Buffalo, N.Y., has been appointed General Agent, San Francisco, Cal., vice Z. T. George, resigned.

Cancellation of Central Ry. Co. of Canada's Ontario Land Grant.

The Ontario Legislature has passed an act respecting land grants to railways, which affects the claims of the Central Ry. Co. of Canada to participate in the grant made by chap. 112, of the act of 19 and 20 Vict., passed by the old Legislature of Canada, for aiding the building of a railway from Lake Huron to Quebec. The preamble to the act sets forth that the Canada Central Ry. was incorporated by chap. 80, 24 Vict., to take advantage of the 4,000,000 acres granted by the first-mentioned act, and that with the exception of the section of the line between Carleton Jct. and Ottawa—built prior to 1870, and which now forms part of the C.P.R., and in respect of which full and satisfactory settlement was made by the province—no part of the line has been built. Since the passing of the acts, continues the preamble, other lines have been built; serving the territory through which the projected line was to pass, and which lines have been aided by grants from the Ontario Legislature, as well as from the Dominion Parliament. It is enacted that "no person or company should be entitled to or receive a grant of land . . . out of any lands . . . reserved by any act or acts of the Parliament of the late Province of Ontario . . . for the purpose of aiding or encouraging the construction of a railway or railways."

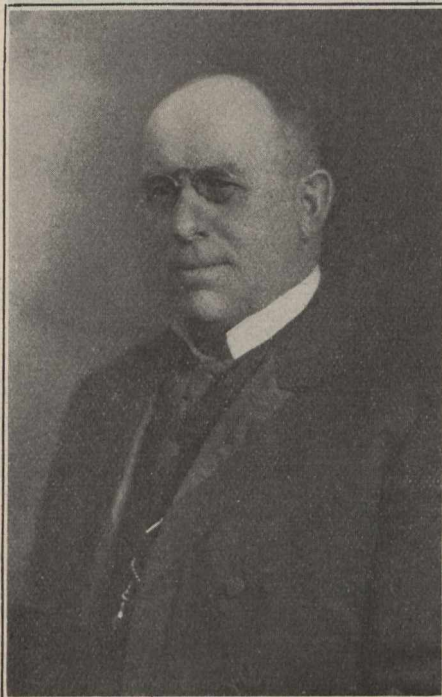
Application is being made for the incorporation of the Vancouver Monorail Co., to build a monorail line in Vancouver City. W. M. Shepard and M. Cameron, Seattle, Wash., are provisional directors.

Grand Trunk Railway Betterments, Construction Etc.

Back Cove Bridge, Portland, Me.—We are advised that a contract has been let to the John S. Metcalf Co., Ltd., Montreal, for building the rest piers for the new swing bridge at Back Cove, Portland, Me. Double walled caissons, open type, will be used, the piers being of concrete.

Southern New England Ry.—The Massachusetts Legislature has ordered the preparation of a bill granting the necessary permission to the company to enter Boston. The Legislature further directed that the bill should contain a provision extending to all railways in the state the privilege thus granted to the S.N.E.R.

The Rhode Island Legislature has granted the G.T.R.'s application, through the S.N.E.R., for a lease of part of the state's new docks at Providence. The lease will be for 20 years. The Legislature also authorized the expenditure of \$1,000,000 upon the completion of the docks.



T. McHattie,
Master Mechanic, Eastern Division, Grand
Trunk Railway.

Central Vermont Ry.—We are officially advised that press reports to the effect that the C.V.R. had under consideration plans for the electrification of its line and connections between Montreal, Que., and Providence, R.I., are in error. The only statement made by the management on the subject of electrification of lines is that the company will be ready to electrify the line to Boston, Mass., for the building of which legislative authority is being asked, as soon as the other lines entering that city are electrified.

The original counterpart no. 6 of the agreement and conditional sale between Blair and Co., the Central Vermont Ry., and the Bankers Trust Co., series D, dated Feb. 23, has been filed with the Secretary of State at Ottawa.

Lachine Bridge, Montreal.—The bridge across the Lachine canal at Wellington St., Montreal, is being rebuilt. It is situated on the branch line connecting the G.T.R. Point St. Charles yard with the Montreal harbor tracks. The new span consists of a 257 ft. single track equal arm skew and draw, with

run bearing centres. It will be erected on the existing masonry seats and pivot pier, and will be electrically operated. The old bridge was designed for engine driving axle loading of 24,000 lbs., while the new bridge is designed for engine driving axle loading of 50,000 lbs. The Dominion Bridge Co., which built the old structure in 1893, is putting up the new bridge.

Lachine, Jacques Cartier and Maison-neuve Ry.—We are officially advised that the length of this projected line is seven miles. It starts from St. Laurent on the Jacques Cartier Union Ry., and goes round Mount Royal, past the C.P.R. Angus shops, down to the terminal on St. Catherine St., between Harbor and Frontenac Streets, opposite the gas works. The construction is heavy, being practically all track elevation. The Board of Railway Commissioners has authorized the company to carry its line across the Montreal St. Ry., at three points by means of overhead bridges. It is expected that construction of the line will be started this year.

Bridge at Rockfield, Montreal.—A new highway bridge is being built over the G.T.R. and the Montreal Park and Island Ry. at Rockfield, Montreal, to replace the present level crossing. The cost is being met by the G.T.R., the Montreal Tramways Co., and the municipalities, supplemented by a grant from the Dominion grade separation fund.

Coteau to Ottawa.—We are officially advised that the relaying of the line between Coteau and Ottawa, 70 miles, with 80 lb. steel, will be started as soon as the frost is out of the ground.

Yards at Stoney Creek, Hamilton.—We are officially advised in reference to reports that large yards are to be located at Stoney Creek, near Hamilton, Ont., that no such plan has been decided on.

Brantford Improvements.—In connection with the projected early start on building the Holmedale extension, plans have been prepared for the erection of a new bridge across the Grand River. The present bridge, which has three spans of 100 ft. each, will be replaced by two truss spans of 114 ft. 10 in. each, and two girders 68½ ft. each, on concrete piers and abutments. The route map for the extension shows that it will be 5.68 miles long. The estimated quantities are 85,000 cubic yards of excavation, and 245,000 cubic yards of banks. The maximum gradient will be 1.25%. Construction work is to be started at once, and, according to the agreement with the city council, the line is to be completed by Oct., 1913.

Spur Line at London, Ont.—It is reported that a spur will be built at London to connect the G.T.R. with the London and Port Stanley Ry. now operated by the Pere Marquette Rd. (April, pg. 183.)

The Canadian Collieries (Dunsmuir), Ltd. is reported to have arranged to spend \$2,000,000 on betterments during this year. The work to be done includes the building of an extension of the railway to no. 8 mine in the Cumberland district, 6.5 miles. The contract for this line, press reports state, has been let to C. Hoard, Victoria, B.C.

The first divisional point, just east of Calgary, Alta., on the Canadian Northern Ry. branch from Saskatoon to Calgary, has been named Hanna, in honor of D. B. Hanna, the company's Third Vice President.

W. J. Camp, Assistant Manager, C. P. R. Telegraphs, while at a recent meeting of the eastern and western divisions of the Association of Railway Telegraph Superintendents, at Chicago, Ill., denied that the C.P.R. had abandoned the use of telephones for train dispatching, as reported in some newspapers. The ground for the reports was fully explained in our Jan. issue.

Electric Railway Department

Toronto's City Engineer on the Use of T and Girder Rails.

C. H. Rust, M. Can. Soc. C.E., City Engineer of Toronto, presented the following report to the city works committee recently, which is of great interest to street railway engineers and construction and maintenance officials:—

In reply to a communication from your committee, forwarding a notice of motion from council regarding the use of T rails as follows: "That the laying of T rails on the streets for street railway purposes be not permitted under any circumstances in the future, and that this council place on record its approval of the grooved rail for the aforesaid purpose," I beg to report as follows:—

Under either the name T or girder (grooved) rail are grouped the various types of rail being manufactured for street railway purposes. Figs. 1 and 2 show the type of T and girder rail which is in most general use today. About 19 miles of this T rail construction has been used in Toronto streets up to the present.

Before a decision can be made as to which is the most suitable rail to instal, consideration should be given as to which is better adapted to meet the requirements: 1. From a railway operating and maintenance standpoint; 2. From a street pavement standpoint; 3. From the standpoint of public convenience.

first against one rail and then against the other. This not only aggravates the spread of the gauge, but produces undue wear and tear on both the rail and rolling stock, hence decreasing their useful life and correspondingly increasing the maintenance bill. The friction between the rail and the wheel flanges is also increased because of this swaying motion of the car trucks, and more power is required to maintain the car service. In several instances in this and other cities, the tram of the girder rail has been broken from the rail proper, and the Toronto Ry. Co. is constantly meeting claims for damages for automobile tires cut, torn rubbers, etc., caused by these broken or partly severed trams of rail sticking up above the pavement.

As an illustration of how the gauge of girder rail can be spread by team traffic, the Toronto Ry. Co. laid a 73-lb. girder rail section on York St. in 1893, and for about five years only an occasional car was run between King and Queen Sts. on the northbound track. At the end of that time complaints from the conductors as to the condition of the track led the company to test the gauge, which was found to have spread over an inch, while the gauge of the southbound track, on which the street car traffic had been frequent and hence the team traf-

tection to the flanges of the car wheels, has long served as a convenient and smooth-going highway for vehicular traffic. However, a scoria block is now being made, so patterned as to form, when in place, the groove alongside the gauge side of the T rail, as shown in fig. 1. This block is in service on Wilton Av. and allows of as smooth a riding for vehicles as the ordinary brick pavement.

Unfortunately, while this arrangement meets the requirements for wide tired vehicles, the sharp corners between the gauge side of the head of the T rail and the groove of the scoria block once in a while catch the rubber tire of a light vehicle and force it from the wheel rim.

The swaying of street cars increases in proportion as the gauge of the track increases, and in a street car which is swaying from side to side to any extent, the discomfort to the passengers is considerable, especially so if the cars be crowded, as they are during the rush hours.

Another fact that must not be lost sight of is that the street railway tracks are laid not for the carriage of vehicular traffic, but for the convenience of such of the public as may wish to ride on the street cars that run upon them.

It would help considerably in that now vital problem of rapid transporta-

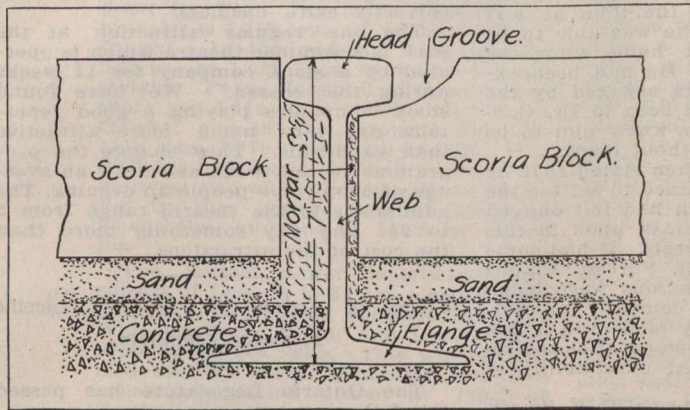


Fig. 1. T Rail Construction.

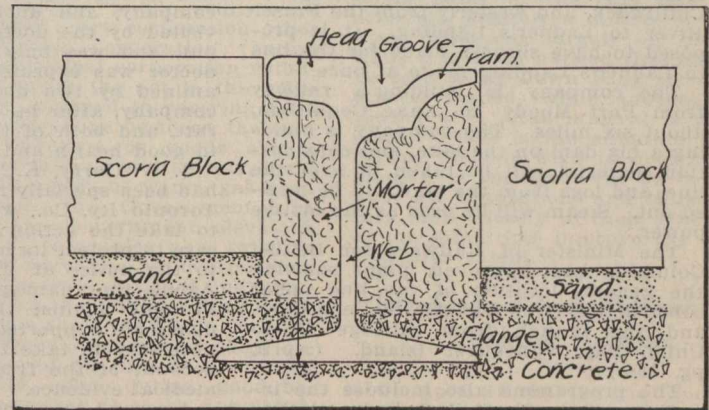


Fig. 2. Girder Rail Construction.

1. FROM THAT OF THE RAILWAY OPERATING and maintenance standpoint.—The most suitable rail from a railway operating and maintenance standpoint is that which produces the smallest operating and maintenance charge; i.e., which permits of the operating of the rolling stock with a minimum of power and necessitating the smallest possible expense for track and rolling stock maintenance. In the winter, especially in the outlying districts, the ice and snow has a tendency to collect in the groove, rendering it more difficult to maintain a proper service with a grooved girder rail than with a T rail.

1st. Because the head of the T rail is centred directly over the web, the wheel loads produce no overturning effect, and hence has no tendency to spread the gauge; while in the case of the girder rail, every car that passes over it produces an outward thrust because of the fact that the head of the girder rail is not centred directly over the web. The gauge, therefore, has a tendency to spread.

2nd. Heavy vehicles in travelling on the track allowance of girder rail construction cut into the groove of the rail, and also have a tendency to loosen up the gauge. When once this occurs, the trucks of the cars commence to bang,

fic but slight, had remained tight. To tighten and adjust the gauge of street railway track is an expensive operation, as it means tearing up all the pavement between the rails over the section to be repaired.

At present the city is not concerned with this railway operating and maintenance feature, but it soon will be, that is if it is decided to operate and maintain the civic car lines, or if, as has been suggested, it is decided to take over the Toronto Ry.

2. FROM A STREET PAVEMENT STANDPOINT.—The street railway track allowance throughout the city, with a few very small exceptions, is paved, and girder rail being harder to maintain than T rail, it is more often necessary to tear up the paving, which it is well nigh impossible to replace as evenly as before.

Furthermore, when once the tram side of girder rail has begun to wear, or has been bent out of position, it is impossible to keep the paving blocks alongside it in good condition, because of the severe bumps to which they are subjected by loaded vehicles.

3. FROM THE STANDPOINT OF PUBLIC CONVENIENCE.—Girder rail owes its popularity from a public standpoint, to the fact that the groove of this rail, which was intended primarily to act as a pro-

tection if the use of the tracks for vehicular purposes were discouraged.

Under the agreement between the Toronto Ry. Co. and the city, the type of rail to be used has to be approved of by the City Engineer, and I certainly would not recommend the total abolition of the T rail. Each case should be considered on its merits. I am of the opinion that in the congested parts of the city the grooved girder type of rail is the most suitable, but in the outlying districts, where the track allowance is not used so much by the travelling public, and where, during the winter, there is a tendency for snow and ice to gather in the grooved rail, the T rail is the more suitable.

[Notwithstanding the City Engineer's very full and convincing arguments, as given in the above report, the works committee of the city council, none of the members of which are practical men, or have any knowledge of the subject, decided that no more T rail be permitted, except on private right of way.—EDITOR.]

H. Knight, heretofore cashier, Quebec Ry., Light, Heat and Power Co., has been appointed manager of the company's Kent House at Montmorency Falls.

British Columbia Electric Ry's. Construction Work.

The construction programme so far as the B.C.E.R. Co.'s power and lighting plant is concerned will necessitate expenditures estimated at nearly \$3,000,000. The expenditure for railway work had not been announced to Apr. 15. It is not expected, however, that it will include much new work, owing to the fact that the question of the company's franchises in Vancouver and vicinity are being considered, and negotiations are in progress with respect to them. Certain work of doubling lines and extensions previously ordered will be completed.

The Minister of Railways for British Columbia has approved plan showing the general location of a proposed line from Highland Park to Twelfth St., New Westminster; and for a highway crossing over the Yale Road in district lot 2, group 2, New Westminster district. The New Westminster city council has approved of plans for the bridge over the Brunette River, on the extension to Fraser Mills.

Considerable progress is reported to have been made on the new car terminals on the Kitsiano Indian reserve, Vancouver.

The Vancouver, Fraser Valley and Southern Ry., a subsidiary of the B.C.E. Ry., has been authorized by the Dominion Parliament to enter into agreements with the B.C.E. Ry. and the Vancouver Power Co., and has been given an extension of time within which to build lines from New Westminster to the international boundary near Douglas; from the New Westminster bridge to Chilliwack, and westerly from the Fraser River to Ladner's Landing. It is proposed to have surveys made for the line to Ladner's Landing made at once.

The company is building a railway from Port Moody to Lake Coquitlam, about six miles. The company is building a big dam on the lake, and construction material will be taken in over the line, and logs from the lake will be hauled out. Steam will be used as the motive power.

The Minister of Railways for British Columbia has approved plans showing the general location of the line under construction from Victoria to Deep Cove, and the branch from mileage 20 to Union Bay, Vancouver Island. (April, pg. 196.)

The programme also includes the increasing of the North Arm hydro electric plant by the addition of three 14,000 h.p. units at a cost of \$1,000,000, the addition of a 5,000 k.w. turbo generator at the Vancouver steam auxiliary plant at a cost of \$250,000, the doubling of the capacity of the substations at Vancouver, Lulu Island, Point Grey, New Westminster and Burnaby and general light and power extension works.

Operations are steadily progressing on the preliminary work for the additional installation at the North Arm hydro electric plant, 900 men being now engaged on the new dam at the outlet of Lake Coquitlam. This number will be raised to 1,300 as the outdoor working season opens. At Lake Buntzen about 400 ft. has been driven on the 2,250 ft. tunnel which will convey the water from the dam to the generating station. This work is being rushed, operations being carried on through two shafts, 75 ft. deep. About 40,000 cubic yards of granite have been cleared away on the site for the new station. At Lake Coquitlam about 50,000 cubic yards have been placed in the toe wall of the large dam and the work of cementing the tunnel 28 x 18 ft., which will divert the river, is in progress. Extensive clearing operations and installation of special equipment for the New Westminster water supply are also being carried on.

Plans have been prepared for a new

substation on Earl's Road, South Vancouver, for the regulation of the light and power service in that district as well as on the Westminster interurban line, along which the station is located. The building will be 70 x 86 ft., one story, with an additional half story at one end for transformer gallery, the type of construction being reinforced concrete. The electrical equipment will consist of two 1,000 k.w. motor generator sets, two banks of transformers of 3,000 k.w. each for light and power service, eight arc regulators with a total capacity for 800 lamps and a switching station for a 10,000 volt feeder switch. The total investment at the point will be \$125,000.

Fake Accident Cases in Toronto.

In the county court at Toronto, A. Burnett recently claimed \$500 damages against the Toronto Ry. Co. for injuries alleged to have been sustained through his being jolted from a car in boarding it, on Oct. 12, 1911. The plaintiff not being in court when the case was called, the medical evidence was taken, when Dr. A. H. Garratt detailed conversations between himself and the plaintiff, covering the description of the alleged injuries by the plaintiff, the medical treatment administered, and an opinion as to the period during which partial disability would continue.

The plaintiff, on being called, stated that he had not been injured in any accident, but was a detective engaged by the Toronto Ry. Co. in an effort to stop the launching of fake, or trivial, claims for damages. His visit to Dr. Garratt was at the request of an official of the company, and during the time he was visited by the doctor he was able to be out, and was only at home when the doctor was expected. He had been examined by two doctors engaged by the company, after he had been to Dr. Garratt, and both of them knew him to be in good health and without mark.

J. W. Curry, K.C., then stated that he had been specially retained to act for the Toronto Ry. Co., which had felt obliged to take the action decided upon in this case to protect its interests. It had come to the notice of J. H. Forrest, Claims Agent, that damage actions were being brought against the company on evidence not supported by facts, and it was necessary to take the steps disclosed on account of the frequent unreliability of medical evidence.

A second case brought by W. E. Smalling, on similar lines, was also called, and after hearing the evidence as quoted above, both cases were dismissed.

As an outcome of the foregoing cases, R. J. Fleming, General Manager; J. H. Forrest, Claims Agent, Toronto Ry.; J. W. Curry, K.C., A. Burnett and W. E. Smalling were indicted before the grand jury of the general sessions at Toronto, Apr. 11, and true bills returned, charging them in five separate counts, with having conspired to commit the crime of fabricating evidence with intent to mislead a court of justice, of wilfully attempting to obstruct, pervert or defeat the court of justice, and by maliciously, fraudulently and vexatiously procuring the suits above mentioned, for damages for pretended injuries suffered by plaintiffs, when the suits were, as they well knew, feigned and fictitious actions, to bring into contempt and reproach, the courts of justice, one of the judges and the administration of justice, and against the peace of the King, his crown and dignity.

The matter is being discussed from all points by those concerned, and it is stated that the discipline committee of the Ontario Law Association is considering the question of taking action as regards the counsel engaged in the cases, while the attention of the Medical Council has also been directed to it, and to the posi-

tion of the medical men engaged in damage cases generally.

Whatever the ultimate outcome of these cases may be, they will doubtless serve as a warning to medical men, to the scrupulous ones to be extremely particular in thoroughly satisfying themselves as to reported injuries before giving evidence, and to the unscrupulous ones that they are running a great risk in assisting fake accident operators.

Park Attractions and Special Days.

By C. B. King, Manager, London, Ont., Street Ry.

We are somewhat limited in the way of park activities, as we operate a purely city system and have no park except the city waterworks park of some 700 acres, situated on the Thames river four miles below the city. Being a city park, the installation of park attractions is practically prohibited, so that about the only attractions there are picnic parties from the smallest up to the annual school picnic when there will be from 8,000 to 10,000 people on the grounds. This picnicing at the city park is encouraged by us when it seems favorable to do so by bonuses of some 5 to 10%.

Our principal holidays are Victoria Day, Dominion Day, Municipal Day, the first Monday in August, and Labor Day, the first Monday in September. The attractions and the traffic on these days, of course, depend almost entirely upon the weather. We endeavor to get large societies to hold their annual picnics on other days than these public holidays when general traffic is large enough anyway if the weather is good. By having the large picnics on an off day it is more correctly extra business.

The one regular attraction at the park is a summer theatre which is operated by a stock company for 12 weeks during the season. We have found stock companies playing a good repertoire are very much more attractive than vaudeville. They change the programme twice a week and draw an average of 500 or 600 people an evening. The admissions to the theatre range from 5 to 25c and pay something more than the cost of the attractions.

Hours of Labor for Ontario Electric Railway Employees.

The Ontario Legislature has passed the following act:—

1. The Ontario Railway and Municipal Board Act amended by inserting the following as section 58a:—

58a (1).—The board may regulate the hours during which conductors and motormen employes of a street railway company may be required or permitted to work, but in no case shall an employe be permitted to work more than six days in a week or 10 hours per day, and whenever practicable and reasonable, such 10 hours work shall be performed within twelve consecutive hours.

(2) The power conferred by subsec. 1 may be exercised notwithstanding the provisions of any agreement between a municipal corporation and a railway company as to hours of labor.

(3) Every company which, and every director, superintendent, manager or officer of a company who contravenes the provisions of any order of the board made under the authority of subsec. 1, or contravenes any of the provisions of this act, shall for each contravention incur a penalty of not less than \$100 and not more than \$250, recoverable under the Ontario Summary Convictions Act.

B. J. Arnold, of Chicago, Ill., has been engaged by the Montreal and Southern Counties Ry, as consulting electrical engineer, in connection with its projected extensions.

Electrification of the C.P.R. Rossland Subdivision

There have been persistent rumors during the last three or four years that the C.P.R. intended to electrify the mountainous portions of the British Columbia Division. Nothing definite has been done in the matter until quite recently, but now the electrification of the Rossland subdivision is to be pushed forward at an early date to determine the applicability of such a course under the heavy conditions to be encountered. The underlying purpose of this installation is to determine what electrification will do for main line operation.

The section to be electrified runs from Rossland to Castlegar Jct., the junction with the Boundary subdivision. From Smelter Jct. to the end of the section at Rossland, 10.6 miles, is one long continuous grade. The length of the Rossland subdivision is 29.3 miles, which with sidings and yard track amounts up to a total trackage of 43 miles, all laid with 80 lb. rails. From Castlegar Jct. to Smelter Jct., 18.7 miles, there is a ruling gradient of 2.2% except for a short distance at China Creek hill, where it is 4%. From Smelter Jct. to Rossland is the heavy portion of the line, with a 4.8% ruling gradient averaging 4% over the section, and a maximum curvature of 20°. One mine switch on this line has a 26° curvature. All grades and curves are compensated.

There is a fairly heavy tonnage to be handled over both portions of the line. The average daily tonnage from Castlegar Jct. to Smelter Jct. (the junction point for Trail, two miles distant on a branch) is 2,489 tons, of which 2,349 are freight. In the opposite direction the figures are 1,039 tons, of which 899 are freight. From Rossland to Smelter Jct. there are 2,110 tons, of which 1,970 are freight; and in the opposite direction 1910 tons, 1,770 tons being freight. This traffic is now being handled by five locomotives: two of 115% capacity or 23,000 lbs. tractive power, two of 180% or 36,000 lbs., and one of 120% or 24,000 lbs.

The motive power installation will consist of four 70 to 80 ton electric locomotives, power being obtained from the West Kootenay Power and Light Co. at probably 60,000 volts. This will be utilized through motor generator sets in a substation located either at Trail or Smelter Jct.

Two companies are tendering on the work, the Canadian Westinghouse Co., represented by D. L. Keiser, is advocating a.c. 6,600 volts, while the Canadian General Electric Co., represented by H. D. Byane, special agent, is advocating 2,400 volts d.c.

The matter is being considered by the C.P.R. management and a decision will probably be given at an early date.

Electric Trunk Railway Operation is actively being planned for in many of the German states. Prussia, Bavaria and Baden have led in this planning, and Saxony is about to consider the subject. The Bavarian and Baden state railways, it is stated, have adopted as standard the single-phase system, with 15,000 volts trolley-line potential and 16% cycles frequency. This is the same standard as adopted for the Prussian development.

Night Cars in Winnipeg.—The Winnipeg Electric Ry., under its contract with the city, was required to operate cars from midnight until 6 a.m. after the city's population reached 100,000, and to charge double the day rate of fare. The company has arranged with the city council to operate cars until 2 a.m. at the day fare, in lieu of an all night service.

The Future of the London Street Railway.

A street railway expert from New York City is working in London, Ont., on behalf of the city utilities committee, preparing figures as to the cost of purchasing the local system. His coming was not announced, but it is known that the object of securing his report is to try and prove that the price asked for the stock, viz., \$150—is excessive. The city authorities claim that \$125 is about the value of the shares. The action of the council in adopting the report of the committee as to track extension and general improvements is also significant. Friends of the company assert that the city is demanding its pound of flesh in order to influence the possible sale of the system. Under the charter granted to the company the entire system must be kept up to the standard of the lines operated in Cleveland, Ohio, and this is to be adhered to strictly. As a result air brakes must be installed on all cars, and many thousands of dollars worth of new equipment provided. Track extensions due to London on a population basis are to be laid in the north end, with a crossing over the C.P.R. at Adelaide street.

Establishment of Manitoba Public Utility Commission.

The Manitoba Legislature, at its recent session, passed an act providing for the establishment of a Public Utility Commission, and prescribing its powers and duties. The words "public utility" are defined to mean every corporation other than a municipal corporation (except where such municipal corporation voluntarily comes under the act in the manner provided) engaged in carrying on a telegraph or telephone business, the conveyance of travellers or goods over a railway, street railway or tramway, companies for the supply of water, gas heat, light or power, the Government telephones and the Government elevators, and covers all companies now existing, or which may hereafter be incorporated. The commission is to consist of one member to be called the Public Utility Commissioner, who shall constitute a court of record. The Commissioner shall devote the whole of his time to his duties, and shall hold office during good behavior. A secretary is to be appointed, and such experts as may be necessary shall be appointed upon the recommendation of the Commissioner. The Commissioner will sit where the Government shall fix his permanent office, but sittings may be held in other parts of the province. The remuneration of the Commissioner, Secretary and experts is to be fixed by the Government. The Public Utility Commissioner is to have jurisdiction in all matters given to the Railway Commissioner, the powers of that officer being vested in the Public Utility Commissioner; in all questions relating to the transportation of goods or passengers on lines of any tramway, street railway or steam railway under the jurisdiction of the province; in the matter of reducing tolls where found upon complaint to be unreasonable; to fix terms and conditions for the entering of any public utility in any municipality; to settle differences between companies and municipalities as to the placing of poles, stringing wires, etc., across, along, or under public streets; and power to order extensions of public utilities where necessary. Power is also given to investigate complaints, to value the property of public utilities, to fix rates, to require the filing of tariffs, to make regulations, to maintain necessary conveniences for the transaction of business. The act also contains provisions relating to the conduct of public utilities which the Commissioner has

power to enforce; sections governing the procedure of the Commissioner's court, the costs of the same. The decision of the Commissioner as to questions of fact or law is to be binding, and is not to be bound by the findings of any other court as to questions of fact or law. An appeal may be made to the Court of Appeal upon questions involving the jurisdiction of the Commission, with the permission of a judge of the Court of Appeal, to be applied for within 15 days after the decision questioned. In addition to any penalties imposed by the Commissioner, the offender may be proceeded against summarily before a police magistrate, and a fine of not less than \$50, nor more than \$100 and costs may be inflicted, with the alternative of imprisonment for not exceeding six months. All acts and parts of acts inconsistent with the present act are repealed. The act came into force, April 8.

T. D. Cumberland, county court judge at Brandon, has been appointed Commissioner.

Traffic Regulation in Hamilton.

When the new traffic bylaw comes into effect on May 1, the Hamilton, Ont., St. Ry. will inaugurate a few changes that will work for the benefit of the system. The bylaw calls for the direction of the cars at the corner of King and James streets and James and Barton streets by a policeman instead of an inspector, as is the case at present. Under the present system of running things the inspector holds all cars for connections at the points mentioned above. In so doing many of the cars lose on their schedule, possibly a minute or two minutes, depending largely on the crowds. Thus it is often noticed that one car will be seen going down King street, for instance, loaded, while another car following at a close interval is practically empty. This is the situation the street railway officials wish to overcome. The plan, it is thought, will be to do away with all connection, and thus keep the cars more closely to their schedule, and at the same time improve the service to a greater extent.

Interchange of Traffic Between Ontario Electric Railways.

On April 15 the Ontario Court of Appeal set aside the Ontario Railway and Municipal Board's order providing for an interchange of traffic between the city's municipal electric railway and the Toronto Ry. This, however, will not have any practical effect, as the Ontario Legislature at its recent session passed The Ontario Railway Amendment Act as follows:—

"Board" shall mean The Ontario Railway and Municipal Board.

"Corporation" and "corporations" shall include a municipal corporation.

Where two or more electric street railway systems owned or operated by different corporations lie contiguous to one another, it shall be the duty of each corporation to afford to the other or others all reasonable facilities for the interchange of traffic and running rights over its lines.

If the corporations are unable to agree as to the nature or extent of the facilities and running rights to be afforded to one another or as to the terms and conditions upon which they shall be exercised, the matter shall be determined by the Board, and it shall be the duty of each corporation to conform with and obey any order of the Board made in the premises.

The Board shall have jurisdiction and authority to require each of the corporations to give to the other such reasonable facilities for the interchange of traffic and running rights over its system or any

part of it as the Board shall deem to be in the public interest and on such terms and conditions as the Board may deem just.

The Board may from time to time vary the terms of any order made under either of the next preceding sections, as it may deem just.

The powers conferred on the Board may be exercised in respect of an electric street railway system which a corporation has authority to construct, the location and plans of which have been approved by the Board, notwithstanding that no part or that part only of the system has been constructed, and such powers may also be exercised notwithstanding that a corporation has the exclusive right to build and operate surface railways within the municipality or any part of it.

This act shall not come into force until a day to be named by the Lieutenant-Governor by proclamation.

Toronto Railway Single Truck Cars.

About 50 single truck cars have just been turned out of the Toronto Railway Co.'s shops for use on its own lines in the city. In general design they closely resemble the large double truck cars which have been turned out from time to time from the company's shops. The side sills are reinforced with steel side plates, as in the larger cars, and both ends have enclosed vestibules much larger than the platforms of the older type of single truck cars built some few years ago. In conformance with the railway company's standard practice, the cars are semi-convertible for use in summer traffic. The trucks are new in the company's practice, the design resembling the frame and spring rigging of a locomotive, this construction being calculated to minimize the swaying motion incidental to single truck cars. Among the new features of construction embodied in these new cars may be mentioned the front door arrangement. It is a swing door operated by the motorman by a handle conveniently located near the controller. The door is glazed in the lower panels in order that the motorman may observe the movements of the alighting passengers.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Feb., \$473,036; operating expenses, \$290,661; net operating earnings, \$182,375; renewal funds, \$37,935; net earnings, \$144,440; approximate income from investments, \$25,000; net income, \$169,440, against \$348,332 gross earnings; \$212,239 operating expenses; \$136,093 net operating earnings; \$29,770 renewal funds; \$106,323 net earnings; \$20,000 approximate income from investments; \$126,323 net income for Feb., 1911. Aggregate gross earnings for eight months ended Feb. 29, \$3,791,677; net earnings, \$1,339,531, against \$2,708,734 aggregate gross earnings; \$1,096,775 net earnings for same period 1910-11.

Calgary Municipal Ry.—Passenger earnings for March, \$39,436.20; miscellaneous earnings, \$615.10; total earnings, \$40,051.30; operating expenses, \$24,525.71; net operating earnings, \$15,525.59; contingent account, and interest and sinking fund, \$7,271.89; net profit, \$8,259.70, against \$22,493.10 passenger earnings; \$323.15 miscellaneous earnings; \$22,816.25 total earnings; \$11,639.53 operating expenses; \$3,856.69 contingent account, interest and sinking fund; \$7,320.03 net profit, for March, 1911. Revenue per car mile, 28.828c.; expenses per car mile, 17.041c.; gross surplus per car mile, 10.787c.; cost of power per car mile, 4.135c.; proportion of expenses to revenue, 61.2%.

Calgary Municipal Ry.—The annual statement issued by the Calgary, Alta., city council for the year 1911 shows that the electric railway is carried as an asset of \$1,416,120.

Cape Breton Electric Co.—Gross earnings for Feb., \$23,693.29; expenses and taxes, \$15,356.19; net earnings, \$8,337.10; interest charges, \$4,495.83; balance, \$3,841.27; sinking and improvement fund, \$1,140; net balance, \$2,701.27, against \$22,082.92 gross earnings; \$14,212.88, expenses and taxes; \$7,870.04 net earnings; \$4,512.50, interest charges; \$3,357.54, balance; \$1,141.66, net balance for Feb., 1911.

London St. Ry.—Gross earnings for March, \$23,540.98; expenses, \$16,912.69; net earnings, \$6,528.29; deductions, \$2,450. net income, \$4,178.29, against \$21,175.20 gross earnings; \$15,370.73, ex-441.75, deductions; \$3,362.72 net income, for March, 1911. Aggregate gross earnings for three months ended March 31, \$68,785.78; expenses, \$48,265.01; net earnings, \$20,520.77; deductions, \$7,176; net income, \$13,344.77, against \$61,080.86 aggregate gross earnings; \$45,065.94, expenses; \$16,041.92 net earnings. \$7,000.05, deductions; \$8,925.80, net income for same period, 1911.

Montreal St. Ry.—Passenger earnings for March, \$422,619.90; miscellaneous earnings, \$5,043.82; total earnings, \$427,663.72; operating expenses, \$270,968.86; net earnings, \$156,695.86; city percentage of earnings, \$34,037.12; interest on bonds and loans, \$15,822.10; rent leased lines, \$661.37; taxes, \$5,000; total charges, \$55,520.59; surplus, \$101,175.27; expenses per cent. of earnings, 63.36, against \$368,079.75 passenger earnings, \$3,912.68, miscellaneous earnings, \$371,992.43, total earnings; \$234,484.22, operating expenses; \$137,508.21, net earnings; \$25,616.79, city percentage of earnings; \$15,498.86, interest on bonds and loans; \$607.10, rent leased lines; \$4,700, taxes; \$46,422.75, total charges; \$91,085.46, surplus; 63.03, expenses per cent. of earnings, for March, 1911. Aggregate total earnings for six months ended March 31, \$2,533,428.96; operating expenses, \$1,569,567.30; net earnings, \$963,861.66; total charges, \$261,301.78; surplus, \$702,559.88. expenses per cent. of earnings, 61.91, against \$2,202,914.82, aggregate total earnings; \$1,370,472.62, operating expenses; \$832,442.25, net earnings; \$229,205.39, total charges; \$603,236.86, surplus; 62.21, expenses per cent. of earnings for same period, 1910-11.

Montreal Tramways and Power Co.—The sale of \$5,000,000 6% collateral gold notes to the National City Bank and Potter, Choate and Prentyo, of New York, was confirmed Apr. 9. They are dated Apr. 1, and mature on Apr. 1, 1915. They were placed on the market, Apr. 11, at about par, with interest; and the issue was considerably over subscribed. The amount realized will be used for the retirement of all the floating indebtedness of the company, and no further financing is contemplated during the life of the notes.

Montreal Tramways Co.—President E. A. Robert is quoted as stating, April 9, that negotiations for the financing of the company's complete programme were proceeding satisfactorily, and he hoped before long to be able to announce that the money necessary was in hand. The additional funds are required for improvements to existing lines and for the building of extensions.

Quebec Ry., Light, Heat and Power Co.—The directors decided, Mar. 29, not to pay any dividend for the present, but to utilize the surplus earnings for the improvement of the lines.

Toronto Ry.—Gross earnings for Feb., \$640,264; operating expenses, \$320,407; net earnings, \$319,838, against \$556,056 gross earnings; \$274,198 operating ex-

penses; \$281,858 net earnings for Feb., 1911. Aggregate gross earnings for two months ended Feb. 29, \$1,296,355; net earnings, \$649,276, against \$1,146,474 aggregate gross earnings; \$579,126 net earnings for same period 1911. The figures quoted cover the earnings, etc., of the Toronto Ry., Toronto and York Radial Ry., and the allied companies.

Winnipeg Electric Ry.—Gross earnings for Feb., \$299,246; operating expenses, \$164,942. net earnings, \$134,304, against \$309,500 gross earnings; \$162,074 operating expenses; \$147,426 net earnings, for Feb., 1911. Aggregate gross earnings for two months ended Feb. 29, \$618,680; net earnings, \$278,325, against \$655,645 aggregate gross earnings; \$305,221 net earnings for same period 1911.

Nelson Street Railway Co., Ltd.

This line, which commenced operation Nov. 9, 1910, ran for 21 days, when an accident caused by running over the belt line extension before the track was properly in shape, together with a serious breakdown in the city's power plant, kept the systems shut down until June 21, 1911, since which time the line has been run steadily. The operating account to Feb. 29, 1912, is as follows:—

Receipts	\$10,258.38
Operating expense	9,037.35

Operating profit	\$ 1,216.03
Personal injury	\$ 750.00
Repairing wrecked car	1,345.56
	2,095.56

Net loss	\$879.53
----------------	----------

No allowance has been made for meeting fund requirements at the rate of \$800 a year for two years, under the debenture deed, nor of depreciation for the same period.

The authorized capital is \$50,000; subscribed, \$34,639; paid up, \$30,309.69; outstanding calls, \$4,329.31. The assets are stated as \$71,245.04, and the liabilities as \$42,937.04.

We are advised that no extensions of the system are contemplated at present.

Electric Railway Notes.

The British Columbia Electric Ry. is having a number of its interurban cars re-modelled.

L. G. Robinson, of the British Columbia Electric Ry. engineering department, has resigned to enter private business.

R. Knight, Superintendent, Edmonton Radial Ry., sent his resignation to the Edmonton, Alta., city council, April 12.

The British Columbia Electric Ry. has received the last of the 25 city cars which it ordered from the J. G. Brill Co. in Dec., 1911.

The Montreal Tramways Co. has received one steel underframe pay-as-you-enter car, from the Canadian Car and Foundry Co., Montreal.

The St. John Ry., St. John, N.B., has ordered six 21 ft. semi-convertible, pay-as-you-enter cars, 32 ft. long over all, from the Ottawa Car Co.

The New Brunswick Public Utilities Commission sat in Moncton, Mar. 28, to settle the Moncton Tramways, Electricity and Gas Co.'s schedule of rates.

The Grand Valley Ry. began re-operating its cars between Brantford and Galt, Ont., Mar. 26, the line having been blocked with snow since early in the winter.

The Toronto city council, April 1, declined to authorize the engagement of Ford, Bacon and Davis, New York, to make a report on the street railway traffic problem in the city.

E. P. Newhall, formerly Western Superintendent, Pacific Express Co., has been appointed in charge of the freight

and passenger departments of the Alberta Interurban Ry., now being organized.

During Feb., only one fatal accident to an employe, connected with the operation of electric railways in Canada, was reported, and four non-fatal accidents. The fatality was due to a rear end collision.

E. L. Milliken, heretofore Superintendent of Lighting, Cape Breton Electric Co., Sydney, N.S., has been appointed Manager, vice H. C. Foss, appointed General Superintendent, Savannah Electric Co., Savannah, Ga.

The Calgary Municipal Ry. has received six 33½ ft. car bodies, 46½ ft. long over all, semi-convertible, pay-as-you-enter type, mounted on 27-G-1 trucks, equipped with Westinghouse 101-B-2 motors, from the Ottawa Car Co.

It was reported during April, that owing to some dispute arising between the Levis County Ry. and the city of Levis, Que., in relation to the company not rebuilding the elevator which connected the upper and lower levels of the city, and which was destroyed by fire last year, that the company would suspend its city car service on May 1. We are officially advised that there is no truth in the report.

H. C. Foss, General Manager, Cape Breton Electric Co., which operates the street railway service in Sydney, the Sydney and Glace Bay Electric Ry., and the ferry service between Sydney and North Sydney, N.S., has been appointed General Superintendent Savannah Electric Co., Savannah, Ga. Both these companies are under the Stone and Webster Corporation's management.

C. W. Moodie, who recently issued a writ against the directors of the Dominion Power and Transmission Co., Hamilton, Ont., for breach of trust, issued a second writ, Apr. 1, for \$2,595.55, alleged to be due on preferred stock he holds. It is stated that on the formation of the present company he declined to exchange his then existing stock, which was bearing interest at 5%, for new stock, with interest at 6%, since raised to 7%, and that his claim is for the difference between the interest on the old and present stocks.

The Dominion Power and Transmission Co. has ordered, from the Preston Car and Coach Co., Preston, Ont., 24 cars, for its electric railway services. The number mentioned is being divided between single and double truck cars, but in what proportion has not, at the time of writing, been decided. The double truck cars, will be 30 ft. over bodies, 43 ft. over all, 4½ ft. wheel base, with 33 in. wheels, with 27-G-1 trucks, and the single truck cars, will be 21 ft. over bodies, 33 ft. long over all, 8 ft. wheel base with 33 in. wheels.

The British Columbia Electric Railway Co. has ordered 24 interurban cars from the St. Louis Car Co., the additional rolling stock, with electrical equipment, representing an outlay of \$250,000. Twenty-two of the cars are intended for passenger service. They will be 50 ft. long, providing seating accommodation for 64 persons, 44 in the main section and 20 in the smoking compartment. They will be of ironclad construction, solid steel riveted plates forming a band around the entire body of the car. The roof will be of the arch type and slat seats will be used for sanitary reasons. The air brake equipment and interior finish and fittings will be in accordance with the latest improvements. The electrical equipment will consist of four 75 h.p. motors. The two baggage cars will be 55 ft. long and similar in construction to the cars now used for the purpose on the company's Fraser Valley branch.

Electric Railway Projects, Construction, Betterments, Etc.

Alberta Interurban Ry.—We are officially advised that rapid progress is being made with location surveys for the first line proposed to be built. Location plans for the first 25 miles out of Calgary, Alta., have been prepared, and application is being made to the Minister of Railways at Ottawa for their approval. The survey work is in charge of K. J. C. Zinck, formerly Assistant Engineer, G.T. Pacific Ry., Winnipeg; H. G. Dimsdale as assistant. A meeting for the formal organization of the company and the authorization of construction was held at Calgary, Apr. 16. (Apr., pg. 196.)

Brandon Electric Ry.—The Manitoba Legislature has amended the company's act of incorporation in various particulars, notably as to the method of organization, power to make regulations for the operation of traffic, and power to make agreements with or to amalgamate with other companies.

A proposition for the incorporation of a company to build an electric railway in Brandon, under the title of the Wheat City Electric Ry., was not proceeded with.

The city council passed a resolution, Apr. 10, approving the agreement with J. D. McGregor, as amended at meetings of the council held Apr. 9 and 10, for a franchise for an electric railway in the city. It was ordered that a bylaw be prepared embodying the provisions of the agreement for submission to the ratepayers upon the earliest possible date. The agreement gives Mr. McGregor an exclusive franchise in the city for 30 years. The bylaw will be voted by the ratepayers May 13.

Mr. McGregor intimated that he expected to be able to acquire the Brandon Electric Light Co.'s plant and franchises for operation in connection with the railway, and he also expected that his company would build radial railways in several directions from the city. (Mar., pg. 147.)

Burrard, New Westminster and Boundary Ry. and Navigation Co.—W. McNeill, Assistant General Manager, Western Canada Power Co., was in Victoria, B.C., Apr. 4, negotiating with the Government for the building of the proposed electric railway from Vancouver to Mission, B.C. The estimated cost of the line and the bridge across the Pitt River near Coquitlam is \$4,000,000, and the company is asking for Government aid to build the bridge. The Premier is said to have promised favorable consideration to the project.

The Board of Railway Commissioners has approved the location plan for the line from Michen to Port Moody, 40 miles.

The annual meeting of the Western Canada Power Co. was held in Montreal, Apr. 3. C. H. Cahan, President, being in the chair. The company has now contracts for the delivery of 15,000 h.p. from its Stave Falls plant. The present plant can be extended to deliver 25,000 h.p. at very little extra expenditure, and there is sufficient water power to enable the plant to be increased so as to deliver 100,000 h.p. A. R. Doble is Secretary of the company and R. F. Hayward General Manager. (Apr., pg. 196.)

Edmonton Radial Ry.—The Edmonton, Alta., city council has given a contract to the E. Manders Construction Co. for grading and paving street railway allowance on certain streets, at an estimated cost of \$30,000. The contractor is to do the excavation, grading, concrete and surface work; the city provides and lays the ties and rails, and the overhead work. It is expected that tenders will be invited at an early date for the construction of additional lines on unpaved streets.

Plans for the proposed new car barns

at Edmonton are being prepared by the City Architect. The building will be 310 x 500 ft., with capacity for about 150 cars. The structure will be of brick with stucco trimmings and with tar and gravel roof, and will be 27 ft. high. At one end of the building offices will be arranged. It is proposed at present to build the office section and about 123 ft. frontage of the barn. (Apr., pg. 196.)

Forest Hill Electric Ry.—The Ontario Legislature has refused to incorporate a company with this title. (Apr., pg. 196.)

Galt, Preston and Hespeler St. Ry.—The town of Berlin wants the G.P. and H.S.R. to exercise running rights over the Berlin and Waterloo St. Ry., owned by the town, and to build from Waterloo to Elmira.

Greenwood-Phoenix Tramway Co.—We are advised that the tunnel, which is 9 x 9 ft., had been driven 3,000 ft. under the hill, between Greenwood and Phoenix, B.C., when work was suspended at the end of Dec., 1911. It was not known when we were advised, Apr. 10, when work would be resumed. (Jan., pg. 38.)

Guelph Radial Ry.—An order is reported to have been given to the Algoma Steel Co. for rails for the extension of the line in St. Pauls Ward, Guelph, Ont.

Hamilton, Grimsby and Beamsville Electric Ry.—Press reports state the project to extend the line from Beamsville into St. Catharines have been abandoned, and that surveys are being made for a new line from Hamilton to St. Catharines. The projected route will probably parallel Barton St. to Winona, then along the present tracks to Grimsby, and following a new route from just outside Grimsby to St. Catharines. (Apr., pg. 196.)

Hamilton Street Ry.—The special railway committee reported to the Hamilton city council, Apr. 2, that the company did not intend to make any extensions or to lay any new track this year. (July, 1910, pg. 683.)

Hamilton, Waterloo and Guelph Ry.—The Dominion Parliament has extended the time for the construction of the company's authorized lines of railway, repealing sec. 4, chap. 106, of the statutes of 1908, and enacting a new section fixing the capital stock at \$9,000,000.

Press reports state that plans have been prepared for the entrance of the company's lines into Toronto, by means of a tunnel, the construction of which is estimated to cost \$7,500,000. Some of those associated with J. Patterson in the promotion of the company stated that the company's engineer was negotiating for the entrance into Toronto, and that the plans included a subway starting from near High Park. (Apr., pg. 196.)

Hull Electric Ry.—Track approaches are being laid to the new car barns at Maniwaki Jet., and a new double switch is being put in at Brewery St. and Avlmer Road, Hull, Que. (Apr., pg. 196.)

International Ry. (British Columbia).—H. T. Thrift, Hazlemere, B.C., is Secretary of the International Ry. and Development Co., which is reported to have under consideration a project to build an electric railway from Ladner, B.C., to Huntingdon, Wash. (Mar., pg. 148.)

Lake Erie and Northern Ry.—The Dominion Parliament has voted a subsidy up to \$6,400 a mile, upon the usual terms and conditions for the building of a line from Galt to Port Dover, not exceeding 58 miles, and from Paris to Ayr, 10 miles.

The approved route of the line is west of the G.T.R. out of Port Dover, crossing to the east side, just south of Simcoe, and across the G.T.R.-Wabash line,

and then making straight for Brantford, passing through Bloomsburg, Waterford, Boston, and Mount Pleasant. The terminal station in Brantford will be on the old G.T.R. station site, Colborne St. There will be a maximum gradient on this section of the line of 1%. The route from Brantford to Galt will pass through Paris, Blue Lake and Glenmorris, and the branch to Ayr will start from Paris. On this section the maximum gradient will be 0.5%. The track will be laid with 80 lb. steel, and the overhead wires, carrying 11,000 volts, will be strung on steel bridges instead of poles. Sub-stations will be built at Simcoe and Waterford, the main station being at Brantford. There will be four heavy bridges on the line, one 475 ft. across the Michigan Central Rd., and the Toronto, Hamilton and Buffalo Ry. at Waterford; a 1,200 ft. trestle at Mount Pleasant, and bridges over the Grand River at Brantford and Paris.

The location plans for the line from Port Dover to Brantford have been approved, and the location surveys north of Brantford are reported to be nearly completed. (Mar., pg. 148.)

Lethbridge Municipal Ry.—A start was made on the grading for the municipal electric railway in Lethbridge, Alta., Apr. 8. The work was started with a public ceremony at the corner of Third Ave. and Thirteenth St. South. Superintendent Reid is in charge of construction and expects to have the first section of the line in operation early in Oct. (Feb., pg. 31.)

London and Lake Erie Ry. and Transportation Co.—The Aylmer, Ont., board of trade passed a resolution, Apr. 4, inviting the company to extend its line from St. Thomas to that place. The company's officials in London are quoted as having stated, Apr. 6, that the extension to Aylmer will come some time, but nothing has been done yet in the direction of making surveys. (Dec., 1910., pg. 148.)

A conference was held in London, April 17, between the company's officers and a deputation from Aylmer and district relative to a proposal to extend the company's line from St. Thomas to Aylmer. W. K. George and A. B. Wood, Toronto, and T. H. Purdon, K.C., London, represented the directors and arranged to go over the proposed route at an early date, and stated that the company would be ready to undertake the building of the line provided arrangements were made for the right of way, and for the guarantee of a certain percentage of bonds.

Medicine Hat., Alta.—A press dispatch of Apr. 13 says the ratepayers voted against granting an electric railway and power franchise to Montreal, Toronto and New York people.

Montreal and Southern Counties Ry.—The Board of Railway Commissioners has authorized the company to build from the G.T.R. property east of Front St., St. Lambert, Que., to the Central Vermont Ry., crossing Victoria Ave., by an overhead bridge. Work is being progressed with rapidly on the new station building in St. Lambert, which it is expected to have completed by May 31. The extension of the line to the Country Club and La Prairie is expected to be finished early in May.

Application was made to the board of control, Apr. 9, to have the company's proposals for an additional right of way so that its lines may be extended to St. Catherine St., Montreal, be dealt with at once.

B. J. Arnold, of Chicago, has been appointed Consulting Electrical Engineer and is considering a comprehensive scheme for the extension of the company's lines. (Apr., pg. 197.)

Montreal Tramways Co.—The Quebec Legislature has confirmed the amalgamation of the Montreal Street Ry. and its various subsidiary companies, under the title of the M.T. Co., and has amended

its charter in various details. It has also confirmed an agreement between the city of Montreal, the M.T. Co., and the Montreal Park and Island Ry. (Apr., pg. 197.)

Mount McKay and Kakabeka Falls Ry.—W. F. Hogarth, President and General Manager, attended a meeting of the Fort William, Ont., city council, Apr. 9, and explained the company's plans for entering the city along Neebing Ave. He said the company had also its plans completed for a line to Port Arthur. (Mar., pg. 148.)

Niagara Falls, Welland and Dunnville Electric Ry.—We are officially advised that the company is negotiating with an English firm with respect to the building of its projected line. No construction has yet been undertaken.

The second paragraph in the item on pg. 197 of our last issue contained the names of the officers of the Niagara Welland and Lake Erie Electric Ry., the officers of the N.F., W. and Dunnville E. Ry. are:—President, F. R. Labor, M.P., Dunnville, Ont.; Vice President, Dr. Boulter, Niagara Falls, Ont.; Secretary, F. Misener, Marshville, Ont.; Treasurer, G. H. Bursar, Welland, Ont.; Chief Engineer, J. E. Gardiner, A.M. Can. Soc. C.E., Niagara Falls, Ont.; Solicitor, G. H. Pettit, Welland, Ont. (Apr., pg. 197.)

Niagara, St. Catharines and Toronto Ry.—The St. Catharines, Ont., city council decided, April 2, to obtain counsel's opinion on the question of the franchise held by the company in certain parts of the city. The company contends that the franchise is self-renewing every 20 years unless the city takes over the operation of the line on the expiry of the 20-year period. The present franchise expires Dec., 1913. (Dec., 1910, pg. 1171.)

Ottawa and Lake McGregor Ry.—The Dominion Parliament has incorporated a company with this title to build an electric railway from Ottawa to Lake McGregor, Que. (April, pg. 197.)

The Ottawa and St. Lawrence Electric Ry.'s franchise is reported to have been acquired by J. A. Morden and Co., Ottawa, as well as that of the North Lanark Ry., for British financial interests. The company proposes to build a line from Ottawa to Morrisburg, thence along the St. Lawrence River to Brockville, then northerly through Perth and Lanark, to Arnprior, and then along the Ottawa River to Ottawa, a total length of 274 miles. (May, 1910, pg. 455.)

The North Lanark Ry. was incorporated by the Ontario Legislature in 1899 to build a railway from near Mile Lake on the Kingston and Pembroke Ry., to the Canada Atlantic Ry. or the C.P.R., near Arnprior, Ont., the line to be operated either by steam or electricity. In 1903 an amending act was obtained authorizing a change in the location of the line from Blythfield tp. to Ottawa, and authorizing the construction of the line along highways in the event of electricity being used as a motive power. Some surveys were made in 1905, and plans were filed with the Minister of Public Works for Ontario in 1906, but nothing was done.

A meeting of shareholders was held at Arnprior, April 9, for the purpose of passing resolutions for the financing of the construction of the line. (Feb., 1909, pg. 103.)

Niagara, Welland and Lake Erie Electric Ry.—We have been informed that this company has a mile and a half of line "in the town of Welland running as a street railway." (Feb., pg. 91.) See also Niagara Falls, Welland and Dunnville Electric Ry.

North Bay, Ont.—The town solicitor of North Bay, Ont., is reported to be about to apply for a charter to build an electric railway to connect North

Bay with Collander, Trent Mills and Sturgeon Falls.

Ottawa Electric Ry.—It was reported, April 10, that the Dominion Government had declined to grant permission to the company to lay tracks on Wellington St., Ottawa. The object in view in endeavoring to obtain a line on this street is to relieve the present congestion of traffic at the corner of Bank and Sparks streets. (April, pg. 197.)

Port Arthur and Fort William Electric Ry.—It is proposed to change the location of the shops in Port Arthur, Ont., from Elgin St. to River St., and from James St. to Wolseley St. (April, pg. 197.)

Quebec Ry., Light and Power Co.—The mayor of Quebec stated, April 2, that he had been advised instructions had been given for the immediate starting of construction of the line in Lincoln and St. Malo, Que. (Mar., pg. 149.)

Rainy River Radial Ry.—The Dominion Parliament has extended the time within which the company may build its projected lines radiating from Kenora, Ont. (Feb., pg. 91.)

Rainy River Radial Ry.—The Dominion Parliament has voted a subsidy for the building of a line from near Fort Frances to the mouth of Little Grasse River, Ont., not exceeding 50 miles.

Rural Ry. of Manitoba.—The Manitoba Legislature has amended the company's charter in certain details, notably giving power to amalgamate with other companies; to operate on lines in Winnipeg subject to an agreement with the Winnipeg Electric Ry., and subject to the consent of the city. The company is also authorized to build extensions of its lines upon the approval of the Lieutenant-Governor in council, and its capital is increased to \$10,000,000. (Feb., pg. 91.)

St. Thomas St. Ry.—The St. Thomas, Ont., city council, April 10, passed resolutions for the submission of two by-laws to the citizens, one for the expenditure of \$6,000 to build extensions on Ross and William Streets, and the second to expend \$24,000 on the purchase of three new cars, to provide electric equipment for three other cars, and for other improvements on existing lines. (April, pg. 197.)

St. John Ry.—We are officially advised that negotiations have been completed between the company and the New Brunswick Government for crossing the new cantilever bridge to be erected at the reversible falls. The company will have a double track line on the centre of the bridge, which will also have a roadway on either side of the tracks for vehicles, and pathways for foot passengers. It is likely that the bridge will be started during the summer.

The General Manager is quoted as having recently stated that ties are on hand for the extension of the tracks to Kane's corner, that the other materials are being delivered and that the extension of the line to Rothesay will be started at an early date. (Dec., 1910, pg. 1173.)

Saskatoon Electric Ry. and Power Co.—The provisional directors named in the act of incorporation are:—H. M. E. Evans, W. D. Woodhead, J. H. M. Fmsley, Edmonton, Alta.; B. M. Wakeling, P. D. Tanner, Saskatoon, Sask.

The Dominion Parliament has passed an act confirming the charter of the Saskatoon Power Co. and extending the time within which the development of the water power on the Saskatchewan River might be proceeded with. The S. P. Co. is controlled by H. M. E. Evans of Edmonton, Alta., and others. (April, pg. 197.)

Shelbrooke Ry. and Power Co.—We are officially advised that the press report referred to in our last issue, that the company proposed building a line to

Stansied, Que., is incorrect. (April, pg. 197.)

Three Rivers Tramway Co.—The Quebec Legislature has incorporated a company with this title to build an electric railway in the city of Three Rivers. (April, pg. 197.)

Windsor, Chatham and London Ry.—The Dominion Parliament has authorized the company to issue bonds for \$25,000 a mile of single track built, and has granted an extension of time for the building of the authorized lines. (Dec., 1910, pg. 1173.)

Winnipeg Electric Ry.—The Manitoba Legislature has authorized the company to sell any part of its undertaking. It also sought power to build elevated and underground lines in the city. This was objected to and after a considerable discussion terms were arranged, and certain extra powers were given. An agreement between the company and the municipal council of Kildonan, as to extensions of lines, etc., was also confirmed.

The Manitoba Legislature has confirmed agreements between the Winnipeg, Selkirk and Lake Winnipeg Ry. company and the town of Selkirk for the sale of power, and with the rural municipalities of Stonewall and Rockwood for the extension of its lines to Stoney Mountain. The W.S. and L.W. Ry. is owned by the Winnipeg Electric Ry. (April, pg. 198.)

Among the Express Companies.

The Canadian Northern Ex. Co. has opened offices at Kingston, Ont., Woodnorth, Man., Munson, Alta., and has closed its offices at Rhein, Sask., at Steep Rock, Ont., and Mistatim, Sask.

E. E. McIntosh, a former C.P.R. brakeman, was recently arrested at Ogdensburg, N.Y., and taken to Toronto, on a charge of stealing 4,000 partially signed bank notes of the Traders Bank from the Dominion Ex. Co., while in transit from Ottawa to Toronto, Mar. 30, 1909.

F. W. Atherton, formerly senior purser on the C.P.R. s.s. Empress of Ireland, who was recently arrested in Chester, Eng., and charged at London with theft of £3,400 from the Dominion Ex. Co., is to be transferred to St. John, N.B., for trial, the alleged theft having been committed within Canadian jurisdiction.

E. P. Newhall, who has been appointed General Freight and Passenger Agent, Alberta Interurban Ry., Calgary, Alta., was connected with the Pacific Express Co. in various capacities for the past 25 years. For the past 12 years he was Superintendent at Toledo, O., and left the company, when the control passed into other hands, in Aug., 1911.

The Board of Railway Commissioners has issued order 16331, Apr. 18, amending order 13,357, Mar. 30, 1911, which ordered express companies under its jurisdiction, to collect and deliver traffic, from and to all points within the municipal boundaries or limits of all cities, towns and villages, by adding the following clause:—"Express companies are absolved from making delivery under the terms of this order where the condition of the roads or streets is not in a reasonably passable state for vehicular traffic."

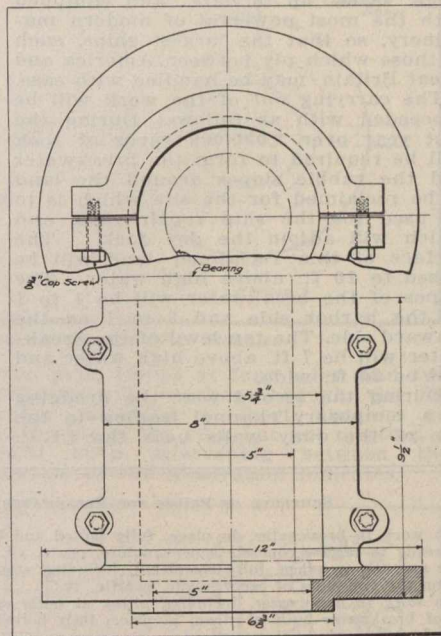
James Bryce, who has retired from the position of Vice President and Manager, Canadian Ex. Co., under the provisions of the pension rules, was born at Galt, Ont., Mar. 30, 1846, and commenced express service with the Canadian and American Ex. Cos. He served at Dundas, Hamilton, Guelph and Toronto, and from 1882 to 1889 was Superintendent, Intercolonial Ex. Co., at St. John, N.B. He was appointed General Superintendent, Canadian Ex. Co., at Montreal in 1889,

and was eventually appointed Vice President and Manager, which position has now been abolished.

Boring Large Bearings at the Halifax Electric Tramway Co.'s Shops.

In The Railway and Marine World for April, the method of boring small journals in use at the Halifax Electric Tramway Co.'s shops, was outlined. A somewhat different method is followed for the larger journal bearings, this process being here described.

As will be remembered, a specially designed and constructed jig was used in the drill press; but in this case a much simpler jig is employed on a 30-in. vertical boring mill. The design of this jig is outlined in the accompanying illustration, where a bearing is shown mounted therein. The 6 3/4-in. boss on the lower face of the jig fits into a corresponding recess in the centre



Chuck to Hold Bearing in Boring Mill.

of the boring mill table, to which the jig is bolted. The jig is made in two sections—one solid with the base, and the other secured to the solid section by bolts, so that the contained bearing may be securely clamped in place for machining.

To catch the falling chips or cuttings, a cylindrical can of sheet iron was made of correct diameter to fit loosely into the hollow spindle of the boring mill table. The upper end is open, and has a flanged edge fitting into a shoulder at the top of the spindle hole. This is placed in position previous to mounting the jig in place on the table. The brass cuttings are thus saved in a very simple manner, much of the usual loss from this source being done away with. This saving is particularly noticeable where the machine is frequently changing from one metal to another, in which case sufficient cuttings will not have dropped between changes to make it worth while cleaning up the shavings from under the mill. This can, being loose, is removable at will.

The jig requires no careful adjusting on mounting, the boss on the base fitting directly into the recess of the table, automatically lining up the jig into a correct central position. Consequently it is almost as convenient to use it for only one journal as for several, the time of setting up being so short.

Canadian Street Railway Association.

PRESIDENT, James Anderson, General Manager, Sandwich, Windsor and Amherstburg Ry.; VICE PRESIDENT, P. Dubee, Secretary Montreal Tramways Co.; SECRETARY-TREASURER, Acton Burrows, Managing Director, The Railway and Marine World.

ASSOCIATION'S OFFICE, 70 Bond St., Toronto. EXECUTIVE COMMITTEE.—E. P. Coleman, Manager of Railways, Dominion Power and Transmission Co.; H. M. Hopper, General Manager, St. John Ry.; J. E. Hutcheson, Superintendent, Ottawa Electric Ry.; C. B. King, Manager, London St. Ry.; D. McDonald, General Manager, Montreal Tramways Co.; M. N. Todd, President, Galt, Preston and Hespeler St. Ry.

ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager, The Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

Brakeshoe Tests.—Some interesting results have been obtained by the Brooklyn Rapid Transit System in a series of tests of brakeshoes conducted by G. L. Fowler. The suggestion was made as a result of these tests that no chemical requirements be introduced into brakeshoe specifications, although it was ascertained that the best results were obtainable if the carbon of the shoe is evenly balanced between the combined and graphitic so that half appears in each form. Close attention should be paid to the condition of the brakeshoe rigging to insure a uniform pressure and wear on each side. Four types, chilled end and unchilled, with steel backs, were tested, the deduction resulting in the conclusion that both the co-efficient of friction and hardness are matters of apparently minor importance. Best results were obtained with the hardness around 275 of the Brinnell scale. Chilled-end shoes had a longer life, but where shoes were purchased on the mileage basis, it was considered preferable to have them unchilled, even at a slightly higher cost, due to greater co-efficient of friction and increased life of the wheels.

Co-operative Tie-treating Plants for the joint use of a group of electric railways which are too small individually to have plants of their own, have been suggested. The suggestion was made by F. P. Smith, Superintendent of Way and Structures of the Indianapolis, Columbus and Southern Traction Co., in a paper read at the Central Electric Railway Association's annual meeting. He did not consider it advisable for a railway having less than 100 miles of track to establish a timber-treating plant, but thought that electric railways in the same territory might co-operate in the construction and operation of such a plant. Not only the treatment but also the purchase and inspection of timber for ties and other purposes could be handled economically through such a central plant.

The Canadian Traffic Bureau has been incorporated under the Manitoba Companies Act with a capital of \$15,000 and office at Winnipeg, to adjust and otherwise handle traffic and railway claims of every nature, and kindred objects. The provisional directors are:—C. R. Blackburn, W. S. Boyd, H. M. Bickford, C. J. Jamieson, N. K. Boyd, Winnipeg.

The fire which occurred at the Oshawa Ry. car barns at the end of Madch, destroyed the entire barn, together with all tools and spare equipment, about one-half of the station building, and two large double truck closed cars, one closed single truck passenger car, one freight shunter and one sweeper. We are advised that the buildings will be immediately replaced by up to date fire proof structures, and new equipment is being secured as speedy as possible. It was reported, Apr. 22, that four convertible cars and a shunter had been ordered in the U.S., it being impossible to obtain delivery as soon as required, if ordered in Canada.

Marine Department

Harbor Improvements, Dry Dock and Ship Repairing Plant at St. John.

The illustration published in The Railway and Marine World's April issue gave a good general idea of the harbor improvements, etc., at Courtenay Bay, St. John, N.B., for which the Dominion Government has awarded a contract to Norton Griffiths and Co., Ltd. (Canada). The works, the whole of which are to be completed by March 30, 1917, embrace:—

The construction of a breakwater 4,570 ft. long, including that of five groynes each 150 ft. long.

The dredging of a channel about 6,800 ft. long and 500 ft. wide at bottom to a depth of 32 ft. below low water, from the main ship channel leading into the St. John River to the head of the breakwater mentioned above.

The dredging of a basin to a depth of 32 ft. below low water in Courtenay Bay.

The construction of about 4,890 lineal ft. of quay walls.

The filling of an area of about 28 acres.

The construction of a dry dock of the first class.

The work on the breakwater, dredging, quay walls and filling is at schedule prices and is estimated to amount to \$7,500,000 as per table appended hereto. The dry dock is to be built under the provisions of the Dry Dock Subsidies Act, 1910, and together with its plant is to be kept in working order and in repair by the contractors during the term of the subsidy. The estimated cost is \$4,500,000, on which the Government will pay a subsidy of 3½% for 35 years. There will be a ship repairing plant in connection, which will also be operated by the contractors.

Tenderers were required to deposit an accepted cheque for \$500,000. One half of the contractor's deposit will be returned if half of the whole work is satisfactorily completed within two years. Ninety per cent. of the progress estimated will be paid weekly and an advance of 50% of the actual cost of material delivered will be made.

Norton Griffiths and Co., Ltd. (Canada) head office is in Vancouver, B.C., with another office at 28 Victoria Square, Montreal. The President is J. Norton Griffiths, member for Wednesbury in the British House of Commons; the Managing Director, W. Burton Stewart, and the Chief Engineer, P. R. Warren. The St. John works will be under the direct charge of G. F. Palmer, C.E., who will have charge of construction, with the title of Contractors' Agent. It is probable that the contractors will sublet the rock excavation and the breakwater. Work will be started almost immediately.

The complete scheme, as laid out for the future, encloses an area of approximately 400 acres by means of a breakwater 4,570 ft. long. The area of the harbor is to be dredged to 32 ft. below low water, and is to be increased later on to 36 ft. The entrance channel, 6,800 ft. long and 500 ft. wide at the bottom, will also be dredged to a similar depth in two operations. In the first operation it is to be dredged to 15 ft. below low water, and its whole length and width, the balance to be done at the second operation. The dredging plant, composed of suction and bucket type dredgers, will be large and modern and capable of dredging to a depth of 65 ft.

A large area will be reclaimed for railway terminals and wharves on the city side of the bay, adjoining the Intercolonial tracks, and according to the

complete plan some 22 berths will be provided, for vessels from 700 to 1,000 ft. long. The present contract includes nearly 5,000 ft. of wharves.

The main entrance to the harbor between this reclaimed land and the end of the breakwater will be about 1,600 ft. The dry dock will be built on the north east side of the bay, but the exact location has not been definitely fixed. This dock will be 900 ft. long, 110 ft. wide at the entrance and 35 ft. depth of water on sill at high water.

A reclamation will be made of sufficient size to allow for a shipyard and repair shops. The plans of the shops show that the plant is to be erected on a large scale, up to date, and equipped with the most powerful of modern machinery, so that the largest ships, such as those which ply between America and Great Britain, may be handled with ease.

The carrying out of the work will be proceeded with as follows: During the first year over 1,000,000 yards of rock will be required to form the breakwater and the rubble slopes around the land to be reclaimed for the site which is to be used for the ship repair yard, and which will adjoin the dry dock. The surface of this reclaimed land will be raised to 10 ft. above high water. The slopes of the breakwater will be 1 to 1 on the harbor side and 2 to 1 on the seaward side. The top level of the breakwater will be 7 ft. above high water and will be 20 ft. wide.

During the second year the dredging of a temporary channel leading to the site of the quay walls near the I.R.C.

will be carried down to 39 ft. below low water and rubble will be deposited 5 ft. deep for the foundation of the cribwork. The cribs, which are to be made of birch timber, will be 48 ft. wide on the base, 43½ ft. high and 120 ft. long. They will be built on a convenient part of the foreshore nearby, floated into position and sunk. The face timbers of the cribs will be 2 ft. thick and the base or platform of the crib will be one foot thick. The upper portion of the cribs will be finished off with a timber platform 10 ins. thick, on which will be constructed a wall or concrete superstructure 26½ ft. high and 18 ft. wide on base.

The filling behind the cribs and portion of land adjoining the quay walls will be reclaimed by depositing the dredgings from the basin. 4,734 lin. ft. of quay wall will be constructed in this way, giving 32 ft. at low water for vessels lying alongside and berths from 700 to 1,000 ft. long. 1,800 ft. of the breakwater will be formed of cribwork and carried out at the same time as the similar work for the quay walls. The superstructure will be of plain and reinforced concrete. The shore end of breakwater for 2,770 ft. will be constructed entirely of rubble.

With the protection of the breakwater completed the dredging of the entrance channel and basin will be carried on with suction and bucket dredges until a depth of 32 ft. below low water has been obtained, the dredged material being used in the reclamation work of the shipyard and berths near the I.R.C.

SCHEDULE OF PRICES FOR BREAKWATER, DREDGING, QUAY WALLS AND FILLING.

Crib work in breakwater, in place, fully bolted and ballasted, and ready to receive concrete superstructure, per c. yd.	146,000	c. yds.	\$ 4 50	\$ 657,000
Pile groynes, in place, fully completed, including stone rip-rapping on the two sides of each groyne, per lin. ft.	750	l. ft.	60 00	45,000
Crib work in breakwater, including piling at outer end of portion of breakwater built of stone, in place, fully bolted and ballasted, per c. yd.	4,000	c. yds.	5 125	20,500
Concrete footing blocks in breakwater, in place, ready to receive the mass concrete, per c. yd.	11,000	"	10 00	110,000
Mass concrete in breakwater, in place, per c. yd.	30,000	"	8 00	240,000
Reinforced concrete flooring in breakwater, in place, including pillar in centre of crib, all completed, per c. yd.	4,000	"	18 00	72,000
Large stone for covering top and all slopes of breakwater, 2 tons, 3 tons and 5 tons weight, in place, per c. yd.	70,000	"	3 80	266,000
Small stone for breakwater, in place, per c. yd.	190,000	"	2 50	475,000
Dredging for foundation of crib work in breakwater. This only includes quantities below 32 ft. below low water, per c. yd.	65,000	"	0 50	32,500
Stone foundation for crib work in breakwater, in place, per c. yd.	27,000	"	2 00	54,000
Crib work in quay walls, in place, fully bolted and ballasted and ready to receive concrete superstructure, per c. yd.	303,000	"	4 75	1,439,250
Concrete footing blocks in quay walls, in place, ready to receive the mass concrete superstructure, per c. yd.	17,700	"	11 00	194,700
Mass concrete in quay walls, in place, per c. yd.	46,700	"	8 50	396,950
Dredging for foundation of crib work in quay walls, below 32 ft. depth only, per c. yd.	150,000	"	0 60	90,000
Stone for foundation of crib work in quay walls, in place, per c. yd.	73,000	"	2 50	182,500
Bollards in breakwater and quay walls, in place, each	100	bollards.	146 00	14,600
Dredging basin in Courtenay Bay, material to be dumped at sea, 2½ miles tow, per c. yd.	4,000,000	c. yds.	0 31	1,240,000
Dredging basin in Courtenay Bay, material to be used for filling, price to include cost of dredging and cost of filling, per c. yd.	3,500,000	"	0 24	1,200,000
*Rock in channel basin, or under quay walls, removed and placed where directed, per c. yd.	1,500,000	"	0 50	750,000
	1,000	"	20 00	20,000
				\$7,500,000

*The prices for this last item "Rock" to be as per the following scale in accordance with the quantity removed. For any quantity under and up to 1,000 cubic yards, \$20; for any quantity under and up to 5,000 cubic yards, \$15; for any quantity under and up to 10,000 cubic yards, \$12; for any quantity under and up to 20,000 cubic yards, \$10; for any quantity up to and over 50,000 cubic yards, \$8.

tracks towards the head of the breakwater, and also to the site of the dry dock will be proceeded with. The material raised by the suction dredger will be pumped by pipe line on to the site of the ship repair yard or else taken to sea. The dredging for the quay walls

tracks as required, the remainder being taken to sea. The total amount of dredging in channel and basin is 10,000,000 cu. yds.

The construction of the dry dock will then be well in hand. The side walls and bottom will be of 6 to 1 concrete,

and where the concrete and rock join each other a seal of 4 to 1 concrete will be placed right along the sides of the dock. The face work of all concrete or the inside of the dock will be of 4 to 1 concrete 6 in. thick. The copings 3 ft. x 2½ ft., and altars 2½ ft. x 1 ft., will be of the same quality of concrete. A keel block course, 9 ft. wide and two bilge block courses 6 ft. wide by 21 in. thick will be put along the floor of the dock.

The dock will be 900 ft. long with an entrance of 110 ft. and depth of water

Repairing Cracked Valve-Chest Steam Pipe on Car Ferry Scotia.

Somewhat over a year ago the Inter-colonial Ry.'s car ferry Scotia, used to ferry trains across the Strait of Canso, met with an accident consisting of a cracked valve-chest steam pipe. The approximate extent of the fracture is shown in the illustration, fig. 1, the view to the left representing the pipe from the steam chest before being repaired.

shops, these being the nearest, and the repairing was placed in the hands of W. Peveril, one of the machinists. He devised a method of repair which, considering the limited facilities at hand, was both novel and ingenious. This consisted of boring out the pipe opening from its original 6 ins to about 7 ins., threading this bore, and fitting in a threaded sleeve having a 5½-in. inside diameter, all as indicated to the right in fig. 1.

This method, after suggesting itself to Mr. Peveril, next required some careful planning before being executed, as the machinery in the Halifax shops is all rather small, with neither a lathe nor boring mill capable of handling anything quite so large. Consequently, special tools, simple in form, had to be made. The more important of these are shown in fig. 2. A supporting bracket of the form indicated was made, of a size to be bolted to the face of the pipe flange. This was bored to a 2 5/16-in. diameter, for a boring bar support, the support being 6 ins. long. A boring bar of the form shown was held in this bracket in a bushing screwed into the bracket bore, and was made a snug working fit in this bushing, so that no play in the bar would exist when working forward during the machining operation. In the forward end of the bar a 3/8-in. round boring tool was held radially in the bar by a 1/2-in. set screw. The bar was driven from the keyway end by an air motor through a train of gears mounted on an improvised wrought-iron frame; these gears were old lathe change gears, pressed into service for the occasion. The bar was fed forward in its supporting bracket by a screw bearing against the rear end from an outside block, temporarily placed for the purpose, the screw being given a turn each revolution of the bar. As previously mentioned, about 1/2-in. of metal was removed from each side.

A very similar bar was made for the threading, having the same general dimensions, the only difference being that the bushing which supports it in the bracket is threaded, as is also the threading bar body itself. It having been decided that the repair-bushing thread should be 8 per inch, the threading bar body was cut with a corresponding number of threads. Thus, this bar as it revolved, automatically fed forward through its bushing, giving the correct lead to the thread-cutting tool. When the thread had been cut to the required depth, the whole jig with bar was removed, and the bushing turned up and threaded in a lathe, a fit being made to the threaded pipe opening. The introduction of this bushing into place completed the job.

Those who saw the completed job remarked on the excellent manner in which the repair was made, the inspector expressing himself as being well

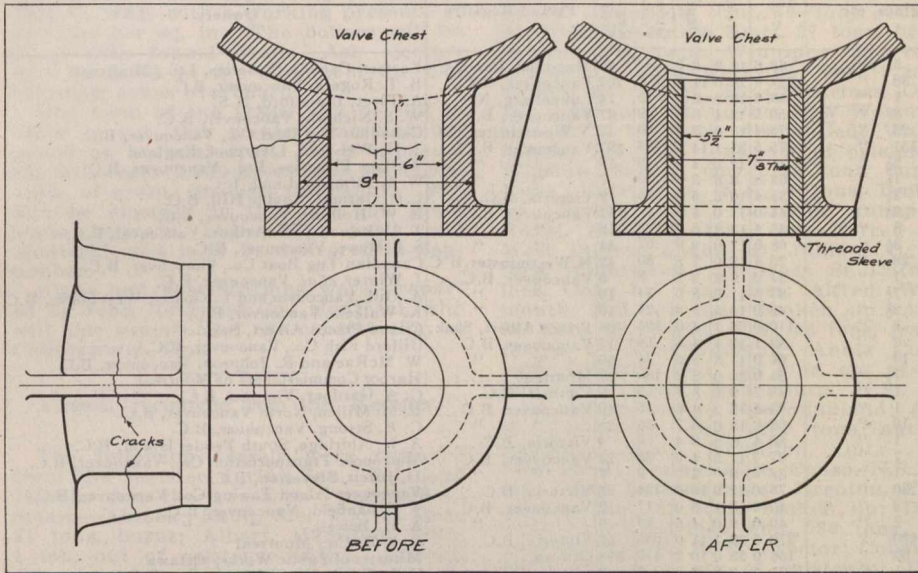


Fig. 1. Cracked Steam Pipe before and after Repair.

over sill of 35 ft. at high water. An outer caisson stop will be provided which will increase the length of the dock to 923½ ft. The entrance to the dry dock will be closed by a ship caisson 110 ft. wide and 44½ ft. high. The deck will be 15 ft. wide and will have a track to allow railway traffic to be transferred from one side of the dock to the other.

The water from the dock will be discharged into the basin by three electrically driven pumps of the centrifugal type, 54 in. dia., which will empty the dock when full in three hours. The water from the dock will pass through an emptying culvert 12½ ft. x 8 ft. into the suction culvert 20 ft. x 16½ ft. high. The water will then pass through the pumps to a main discharge chamber and then into the non-return valve chamber. From this basin the water will pass through two 10 ft. dia. culverts to the basin. The main pumps will lower the water to the floor level of the dock, the remainder being pumped out by a smaller drainage pump, also of the centrifugal type. The water will be let into the dock through two filling culverts 8 ft. high by 5 ft. wide, situated on each side of the entrance. The emptying and filling culverts will be provided with the necessary penstocks, which are worked electrically. The pump house, near the entrance to the dock, will be 80 x 50 ft., and the floor level 8 ft. above the level of low water.

On the site for the shipyard which is to be reclaimed, repair shops, including machine, platers, boiler shops, etc., will be built and fitted up with machines and tools for repairing vessels.

An order in council has been issued amending article 4 of the bylaws of the pilotage district of Quebec, providing that apprentice pilots after completing their seven years of apprenticeship, with the necessary ocean going voyages, shall hold a mate certificate, coasting, instead of a certificate of first mate seagoing competency.

The pipe, ribbed at four sides, had two adjacent ribs cracked through, the fissures extending a short distance on each side of the ribs, but not meeting, a solid strip intervening between the cracks, as the illustration indicates.

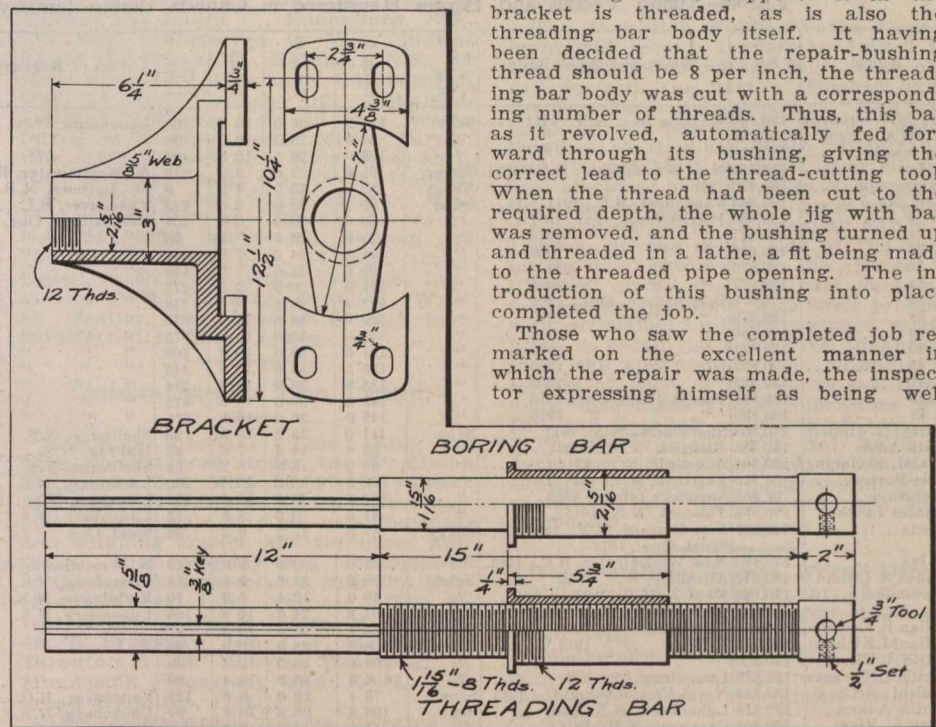


Fig. 2. Supporting Bracket and Boring and Threading Bars.

As too much time would be required to cast and machine a new cylinder and chest, some method of repair had to be immediately improvised, as the ferry must of necessity be kept out of service as short a time as possible. The cylinder was taken to the I.R.C. Halifax

pleased with the way in which the task had been performed. Had such a plant been at hand it would seem to have been a splendid place to apply oxy-acetylene welding, this having been used to advantage under very similar circumstances on numerous occasions

Keystone Transportation Co. Orders Another Vessel.

The Keystone Transportation Co., Montreal, has ordered a full sized canal steamboat with the following dimensions:—Length over all, 258 ft.; length between perpendiculars, 250 ft.; breadth moulded, 42 1/2 ft.; depth moulded, 20

ft. The vessel is to be practically a duplicate of the company's steamboat Keystorm, with such modifications as are required by the builders to meet their standard practice. She will be built on the channel system of framing, having very large fore peak tank and deep water bottoms. The hold will be divided in three compartments by two steel watertight bulkheads. She will be rigged

with two steel masts and three cargo derricks and the necessary winches. Accommodation for the captain will be provided in the texas forward in the usual way. Under the fore-castle deck on the port side will be the accommodation for the officers and crew, and on the starboard side commodious quarters will be provided for all departments, both forward and aft; also bathrooms

List of Steam Vessels Registered in Canada during January, February and March, 1912

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
A. C. Newhall	85,409	Salisbury, Mass., 1858	sc 5 nhp.	63 6	18 3	6 3	32	30	Magdalen Islands	Eastern Canada Fisheries, Ltd., Montreal
Aquilo	130,842	South Boston, Mass., 1901	" 88 "	127 4	20 0	11 3	176	104	Vancouver, B.C.	B. T. Rogers, Vancouver, B.C.
Asaph F.	130,737	Little Tancook, N.S., 1911	" 1 "	43 6	10 8	6 6	15	14	Lunenburg, N.S.	A. Fleet, Blandford, N.S.
Centre Star	130,849	Vancouver, B.C., 1912	" 8 "	50 5	13 4	6 4	39	27	Vancouver, B.C.	W. S. Nicholls, Vancouver, B.C.
Cheerful	130,493	Fraser Mills, B.C., 1912	" 28 "	73 4	18 0	7 8	80	42	N. Westminister, B.C.	Canadian Tug Boat Co., Vancouver, B.C.
Chelohsin	130,805	Dublin, Ireland, 1911	" 131 "	175 5	35 1	14 0	1134	597	Vancouver, B.C.	J. H. Welsford, Liverpool, England
Cohoe	130,852	Seattle, Wash., 1911	" 2 1/2 "	44 6	12 6	4 9	19	13	"	Wallace Fisheries, Ltd., Vancouver, B.C.
Don 2	130,844	Lund, B.C., 1911	" 1 1/2 "	33 8	8 6	3 7	10	7	"	W. R. Armon, Lund, B.C.
Dragon Fly	130,615	Bay City, Mich., 1911	" 2 1/2 "	39 4	10 6	5 0	15	9	Victoria, B.C.	L. O. Garnett, Cobble Hill, B.C.
Emoh	130,845	Vancouver, B.C., 1912	" 3 1/2 "	44 0	11 0	4 8	17	12	Vancouver, B.C.	R. W. Holland, Vancouver, B.C.
Enola	130,808	Ballard, Wash., 1902	" 8 "	43 4	13 2	6 2	26	18	"	T. Duke and J. McArthur, Vancouver, B.C.
Epauline	130,804	Vancouver, B.C., 1911	" 3 1/2 "	68 0	17 0	8 0	57	44	"	S. L. Howe, Vancouver, B.C.
Fearful	130,494	Fraser Mills, B.C., 1912	" 28 "	73 4	18 0	7 8	80	42	N. Westminister, B.C.	Canadian Tug Boat Co., Vancouver, B.C.
Flower of Buchan	130,853	Steveston, B.C., 1912	" 1 "	37 0	9 2	3 1	8	5	Vancouver, B.C.	J. Winter, et al., Vancouver, B.C.
Francis Idaho	130,846	Vancouver, B.C., 1911	" 7 1/2 "	37 5	11 0	5 0	14	10	"	A. Gill, Vancouver and L. Godel, West Sooke, B.C.
Full Moon	130,847	" 1912	" 2 1/2 "	48 0	10 5	5 3	24	16	"	K. Walkem, Vancouver, B.C.
George V	122,295	Prince Albert, Sask., 1911	" 4 "	110 0	26 7	4 0	105	66	Prince Albert, Sask.	City of Prince Albert, Sask.
Gilford	130,806	Seattle, Wash., 1907	" 2 "	39 1	12 4	4 6	18	12	Vancouver, B.C.	Gilford Fish Co., Vancouver, B.C.
Glenboro	130,800	Vancouver, B.C., 1912	" 13 "	64 0	17 3	8 6	74	50	"	W. McRae and R. Johnson, Vancouver, B.C.
H. C. M. No. 1	130,406	Montreal, 1868	" 7 1/2 "	80 4	24 0	8 2	135	72	Montreal	Harbor Commissioners of Montreal
Iance	130,612	Simpson, B.C., 1911	" 1 "	38 7	9 2	3 7	13	9	Victoria, B.C.	C. A. Gardner, Victoria, B.C.
Kitwinmar	130,801	Seattle, Wash., 1912	" 1 "	43 4	12 2	4 6	15	10	Vancouver, B.C.	E. McMillen, North Vancouver, B.C.
Lady Lake	130,802	Ballard, Wash., 1896	" 16 1/2 "	58 2	15 0	6 7	56	38	"	C. E. Strong, Vancouver, B.C.
Letitia-Sophia	130,614	Victoria, B.C., 1910	" 1 "	30 4	8 2	3 4	6	4	Victoria, B.C.	A. H. Aldridge, South Pender Island, B.C.
M. F. Co. No. 2	130,803	Decatur, Wash., 1907	" 7 "	57 7	11 5	4 9	33	22	Vancouver, B.C.	Metropole Transportation Co., Vancouver, B.C.
Mulke	130,810	Steveston, B.C., 1911	" 1 "	38 0	9 0	3 7	9	7	"	D. Jureit, Steveston, B.C.
Olive M.	130,611	Victoria, B.C., 1911	" 30 "	78 0	22 0	10 0	134	63	Victoria, B.C.	Vancouver Island Towing Co., Vancouver, B.C.
Orlourah	130,807	Vancouver, B.C., 1910	" 2 "	40 0	10 1	5 0	17	12	Vancouver, B.C.	J. J. Banfield, Vancouver, B.C.
Port Mann No. 1	130,850	" 1911	" 2 "	40 0	9 0	4 6	13	9	"	A. H. Bowell, "
Princess Patricia	115,685	Dumbarton, Scotland, 1902	" 450 "	270 0	32 1	11 0	665	52	Victoria, B.C.	C. P. R. Co., Montreal
Restigouche	130,642	Kinderdyk, Holland, 1900	" 60 "	156 0	33 0	10 2	470	319	Ottawa	Minister of Public Works, Ottawa
Sedar Isle	116,305	Charlottetown, P.E.I., 1905	" 1 "	25 3	7 8	3 0	3	2	Charlottetown, P.E.I.	V. L. Goodwill, Charlottetown, P.E.I.
Tamerlane	130,841	North Vancouver, B.C., 1910	" 1 1/2 "	21 6	9 0	3 4	4	3	Vancouver, B.C.	W. G. Breeze, Vancouver, B.C.
Traversier No. 1	126,856	Sorel, Que., 1911	" 1 "	50 3	26 1	3 3	37	31	Sorel, Que.	J. Salvail, Sorel, Que.
Venture	129,475	Old Kilpatrick, Scot., 1910	" 171 "	180 4	32 1	17 0	1011	580	Victoria, B.C.	Boscovitz Steamship Co., Victoria, B.C.
W. No. 1	130,851	Seattle, Wash., 1911	" 2 1/2 "	50 0	13 3	4 8	27	19	Vancouver, B.C.	Wallace Fisheries, Ltd., Vancouver, B.C.
We Lead	130,798	Vancouver, B.C., 1910	" 3 "	42 0	8 5	3 2	9	6	"	A. B. Bettes, "
Wyrill	130,799	" 1911	" 3 "	48 8	11 0	4 8	23	16	"	W. A. Bauer, "
Zelma T. Young	130,813	Little Tancook, N.S., 1912	" 1 "	43 6	10 8	6 9	16	15	Lunenburg, N.S.	V. Zinck, M.O., Blandford, N.S.

List of Sailing Vessels and Barges Registered in Canada during January, February and March, 1912

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Ada M. Westhaver	130,739	Mahone Bay, N.S., 1911	Schr.	114 3	26 0	10 2	100	Lunenburg, N.S.	D. Westhaver, M.O., Lunenburg, N.S.
Albert A. Young	130,740	" " " "	"	94 8	25 0	10 3	92	"	J. Hiltz, M.O., Indian Point, N.S.
Araucania	130,818	" " " "	"	108 0	25 5	10 5	92	"	M. Rodenheizer, M.O., Lunenburg, N.S.
B. Jax	130,489	New Westminister, B.C., 1911	Barge	95 0	32 0	9 0	249	N. Westminister, B.C.	A. M. Garnett, Victoria, B.C.
Barracouta	130,426	" " " "	Scoop	32 2	10 5	4 3	9	St. Andrews, N.B.	W. Hope, Montreal
C. B. No. 1	130,843	Vancouver, B.C., 1911	Scow	80 2	35 0	6 0	223	Vancouver, B.C.	Columbia Bitulithic, Ltd., Vancouver, B.C.
D. 3	130,836	Fort William, Ont., 1911	"	80 0	28 0	5 0	104	Port Arthur, Ont.	Great Lakes Dredging Co., Port Arthur, Ont.
D. 4	130,837	" " " "	"	75 0	28 0	5 5	98	"	" " " "
D. 25	126,675	" " " "	"	94 0	24 0	7 8	149	"	" " " "
D. 26	126,676	" " " "	"	95 6	24 0	7 6	149	"	" " " "
D. 34	126,677	" " " "	"	121 5	29 0	9 2	272	"	" " " "
D. 35	126,678	Port Arthur, Ont., 1909	"	122 4	28 8	9 4	278	"	" " " "
D. 39	126,679	" " " "	"	149 0	36 0	15 5	675	"	" " " "
D. 38	126,680	" " " "	"	149 0	36 0	15 5	675	"	" " " "
D. 40	130,831	" " " "	"	151 0	36 0	10 8	502	"	" " " "
D. 41	130,832	" " " "	"	135 5	36 0	10 8	445	"	" " " "
D. 42	130,833	" " " "	"	135 5	36 0	10 8	444	"	" " " "
D. 43	130,834	Fort William, Ont., 1910	"	149 0	36 0	15 5	675	"	" " " "
D. 48	130,835	" " " "	"	149 0	36 0	15 5	675	"	" " " "
Donald G. Hollett	130,508	Shelburne, N.S., 1911	Schr.	111 0	25 2	10 9	99	Shelburne, N.S.	T. V. Hollett, Burin, Nfld.
Edith Adele	130,585	Tancook, N.S., 1912	"	52 6	14 6	7 6	33	Halifax, N.S.	J. C. Martin, M.O., Ketch Harbor, N.S.
Ella M. Rudolph	130,504	Allendale, N.S., 1912	"	66 2	18 9	8 2	54	Shelburne, N.S.	W. MacMillan, et al., Lockport, N.S.
Elsie Porter	130,819	La Have, N.S., 1911	"	109 2	26 0	10 8	100	Lunenburg, N.S.	N. Reinhardt, M.O., LaHave, N.S.
Evolution	94,855	Spencer's Island, 1889	"	107 0	28 3	10 5	173	Liverpool, N.S.	Queens County Ry. Co., Wilkins Siding, N.S.
Frances Lenore	130,783	Tancook, N.S., 1911	"	41 6	10 0	5 6	12	Lunenburg, N.S.	R. Garrison, M.O., Indian Harbor, N.S.
Frieda	126,857	Fort Enward, N.Y., 1887	Barge	87 0	17 2	6 2	98	Sorel, Que.	D. Chevrier, St. Joseph de Sorel, Que.
G. Jax	130,490	New Westminister, B.C., 1911	"	95 0	32 0	9 0	249	N. Westminister, B.C.	A. M. Garnett, Victoria, B.C.
Gladys & Lillian	130,812	Allendale, N.S., 1911	Schr.	88 5	24 8	9 5	84	Lunenburg, N.S.	H. Adams, M.O., Lunenburg, N.S.
Lapewalem	130,664	Rexton, N.B., 1911	"	32 0	12 4	5 0	10	Richibucto, N.B.	J. Doucett, Rexton, N.B.
Leo	85,342	Mahone Bay, N.S., 1882	Bgtn.	97 2	24 6	10 8	165	Lunenburg, N.S.	J. L. Publicover, M.O., Dublin, N.S.
Lillian B. Corkum	130,815	Liverpool, N.S., 1912	Schr.	108 7	25 6	10 3	97	"	W. Corkum, M.O., Lunenburg, N.S.
Lillian M. Richard	130,811	" " " "	"	108 7	25 6	10 3	98	"	E. Richard, Jr., M.O., "
Lottie A. Silver	130,820	" " " "	"	108 6	26 0	10 2	99	"	R. Silver, M.O., "
Lucille B. Creaser	130,814	Lunenburg, " " "	"	106 8	26 3	10 4	99	"	A. Creaser, Riverport, "
McBride & Co. 2	130,848	North Vancouver, B.C., 1911	Scow	73 4	28 0	6 6	123	Vancouver, B.C.	T. G. McBride, M.O., Vancouver, B.C.
Marion Adams	130,816	Lunenburg, N.S., 1912	Schr.	106 8	26 3	10 4	99	Lunenburg, N.S.	H. Adams, M.O., Lunenburg, N.S.
Mary E. Rive	130,655	Caraquet, N.B., 1911	"	41 5	14 2	6 4	21	Chatham, N.B.	H. Rive, Caraquet, N.B.
Matapedia	130,736	Shelburne, N.S., 1911	"	103 0	26 4	10 6	98	Lunenburg, N.S.	J. Backman, M.O., Riverport, N.S.
Mianus	130,821	Tancook, N.S., 1912	"	45 2	10 8	6 0	15	"	L. Hubble, Indian Harbor, N.S.
Nidge No. 1	130,613	Victoria, B.C., 1912	Barge	60 0	20 0	4 7	46	Victoria, B.C.	Vancouver Island Power Co., Victoria, B.C.
P. A. L.	130,659	Caraquet, N.B., 1911	Schr.	38 0	14 0	6 0	17	Chatham, N.B.	P. A. Lantaigne, Caraquet, N.B.
P. D. C. 2	130,491	New Westminister, B.C., 1909	Dredge	67 0	23 5	5 3	157	N. Westminister, B.C.	J. W. Pike, New Westminister, B.C.
P. D. C. 5	130,492	" " " "	"	71 3	19 7	6 0	149	"	" " " "
Province	130,938	Fort William, Ont., 1911	Scow	162 0	40 0	10 0	580	Port Arthur, Ont.	Canadian Towing & Wrecking Co., Port Arthur, Ont.
R. L. Borden	130,817	Liverpool, N.S., 1912	Schr.	115 4	26 1	10 3	99	Lunenburg, N.S.	A. Himmelman, M.O., Rose Bay, N.S.
Theresa Maud	130,505	Allendale, N.S., 1912	"	91 5	25 2	9 3	78	Shelburne, N.S.	W. Forsey, Grand Bank, Nfld.
Wabash No. 1	130,610	U. S. A.	Barge	50 0	15 0	3 5	20	Victoria, B.C.	F. A. MacFarlane and F. MacFarlane, Sidney, B.C.

for officers and crew, including showers for the firemen.

The vessel will be lighted throughout by electricity. The main propelling engines will consist of one set of triple expansion surface condensing engines having cylinders 16, 26 and 44 ins. diam., with a common stroke of 36 ins. The air, feed and bilge pumps will be worked from the main engine. Exceptionally large ballast pumps are being fitted, capable of dealing with the 850 tons of water ballast in about two hours.

The boilers, two in number, will be of the marine Scotch type, 11½ ft. diam. by 10½ ft. long, with a working pressure of 180 lbs. per sq. in. The boilers will be fitted with forced draft. Ash ejectors will be fitted in the stokehold for discharging ashes overboard.

The form of the vessel will be full in order to get the greatest carrying capacity on a canal draft. It is expected she will carry 2,200 gross tons, or 85,000 bush. of grain, through the canals. She will be engaged in the coal and grain trade between Lake Erie ports and Montreal, and is to be delivered in September.

Plans and specifications were prepared by John Reid and Co., Montreal, who will also superintend the construction at Collingwood, Ont.

Vessels Removed from the Register.

The following vessels were removed from the register during Jan., Feb. and March, for the reasons assigned:—
 Steam—Ahtek, Sault Ste. Marie, Ont., 21 tons, burnt; Albert, Hamilton, Ont., 1 ton, out of existence; Alice Brooks, Owen Sound, Ont., 11 tons, wrecked; Ampere, Hamilton, Ont., 3 tons, broken up; Anderson, Collingwood, Ont., 11 tons, broken up; Argo, Sault Ste. Marie, Ont., 4 tons, sunk; Beatrice, Collingwood, Ont., 21 tons, burnt; Beaver, Hamilton, Ont., 2 tons, out of existence; Chieftain III, Kingston, Ont., 147 tons, sunk in collision; Circe, Collingwood, Ont., 2 tons, out of existence; City of Mount Clemens, St. Catharines, Ont., 69 tons, sunk; Conveyor, Victoria, B.C., 380 tons, dismantled; Distributor, Victoria, B.C., 379 tons, dismantled; Dot, Quebec, Que., 7 tons, broken up; Eagle, Sarnia, Ont., 9 tons, out of existence; Edna, Hamilton, Ont., 8 tons, out of existence; Edna, Sault Ste. Marie, Ont., 7 tons, dismantled; Estella, Collingwood, Ont., 6 tons, abandoned; Fairy, Cobourg, Ont., 15 tons, out of existence; Forrester, Windsor, Ont., 2 tons, out of existence; George Douglas, St. Catharines, Ont., 15 tons, burnt; Gordon Gauthier, Windsor, Ont., 18 tons, burnt; Grace Darling, Collingwood, Ont., 19 tons, abandoned; Hazel W., Sault Ste. Marie, Ont., 3 tons, dismantled; Henrietta, Hamilton, Ont., 2 tons, out of existence; Huron Belle, Collingwood, Ont., 18 tons, abandoned; Inez, Hamilton, Ont., 2 tons, out of existence; Imperial, Sault Ste. Marie, Ont., 22 tons, dismantled; Interocean, Collingwood, Ont., 98 tons, lost; Iona, Sydney, N.S., 35 tons, sold to foreigners; James Adams, Port Arthur, Ont., 35 tons, broken up; James Leighton, Sarnia, Ont., 14 tons, out of existence; James Norris, St. Catharines, Ont., 34 tons, out of existence; John Hunter, St. Catharines, Ont., 22 tons, out of existence; John Jordan, Sault Ste. Marie, Ont., 3 tons, dismantled; John William, Collingwood, Ont., 10 tons, abandoned; Joe Knight, St. Catharines, Ont., 11 tons, out of existence; Kate, Quebec, Quec., 7 tons, out of existence; Kildare, Hamilton, Ont., 4 tons, out of existence; Lady Ida, Port Hope, Ont., 17 tons, out of existence; Lady of the Lake, Owen Sound, Ont., 25 tons, foundered; Lady of the Lake, Victoria, B.C., 13 tons, dismantled; Lewis Shikluna, St. Catharines, Ont., 11 tons, out of existence; Lion, Port Hawkesbury, N.S., 13 tons, broken up;

Louisa, St. Catharines, Ont., 5 tons, out of existence; Maida, Collingwood, Ont., 2 tons, out of existence; Marie, Quebec, Que., 21 tons, out of existence; Mary Beck, Collingwood, Ont., 11 tons, burnt; May Flower, Collingwood, Ont., 17 tons, dismantled; Minto, New Westminster, B.C., 23 tons, abandoned; Mona, Hamilton, Ont., 2 tons, out of existence; Operator, Victoria, B.C., 380 tons, dismantled; Quiddy, St. John, N.B., 10 tons, broken up; Rescue, Collingwood, Ont., 17 tons, abandoned; Rover, Sault Ste. Marie, Ont., 3 tons, abandoned; Sea Gull, Sarnia, Ont., 35 tons, dismantled; Secret, Hamilton, Ont., 6 tons, burnt; Skylark, Brockville, Ont., 27 tons, broken up; Shamrock, Winnipeg, 55 tons, broken up; Spry, Kingston, Ont., 9 tons, broken up; Union, St. Catharines, Ont., 163 tons, sunk; Vandyke, New Westminster, B.C., 157 tons, dismantled; Wales, Sarnia, Ont., 238 tons, out of existence; Winslow, Sarnia, Ont., 193 tons, burnt; Yuba, Barrington, N.S., 6 tons, broken up. Sailing—A. F. Davidson, Annapolis Royal, N.S., 503 tons, transferred to West Indies; Abana, St. John, N.B., 97 tons, condemned; Albatross, St. Catharines, Ont., 317 tons, lost; Alfred, Weymouth, N.S., 29 tons, broken up; Alice M. Pike, Shelburne, N.S., 86 tons, transferred to Newfoundland; Annie Cuthbert, Cobourg, Ont., 36 tons, out of existence; Arginia, Lunenburg, N.S., 90 tons, transferred to Newfoundland; Ayr, St. Catharines, Ont., 299 tons, out of existence; Azov, Hamilton, Ont., 195 tons, sunk; Bonnie Kate, Canso, N.S., 14 tons, sold to foreigners; Brenton, Yarmouth, N.S., 69 tons, broken up; Defiance, St. Catharines, Ont., 89 tons, out of existence; E. R. C. Proctor, Cobourg, Ont., 163 tons, out of existence; Effie May, Lunenburg, N.S., 49 tons, stranded; Emulator, Lunenburg, N.S., 99 tons, stranded; Evolution, Parrsboro, N.S., 173 tons, sold to foreigners; Florence B. W., Halifax, N.S., 24 tons, transferred to Newfoundland; Janet R., Halifax, N.S., 37 tons, transferred to Newfoundland; Kate, Sault Ste. Marie, Ont., 30 tons, burnt; Kittie J., St. John, N.B., 1 ton, broken up; Laura C., Lunenburg, N.S., 249 tons, transferred to West Indies; Laura E. Franklin, Halifax, N.S., 46 tons, wrecked; Messenger, Collingwood, Ont., 94 tons, broken up; Minnie J. Smith, Lunenburg, N.S., 99 tons, transferred to Newfoundland; Mittie, Sarnia, Ont., 18 tons, wrecked; Nina L., Sydney, N.S., 96 tons, lost at sea; Oresa, Halifax, N.S., 14 tons, lost; Pearl, Halifax, N.S., 17 tons, broken up; Rhoda, Liverpool, N.S., 199 tons, lost at sea; Stanley and Frank, Shelburne, N.S., 74 tons, transferred to Newfoundland; Virginia, Lunenburg, N.S., 134 tons, stranded; W. S. M. Bentley, Parrsboro, N.S., 364 tons, transferred to West Indies.

Canadian Interlake Line, Limited.

Canadian Interlake Line, Ltd., has been incorporated under the Dominion Companies Act, with \$2,000,000 capital, and office at Toronto, to operate steam and other vessels, and act as shipowners and shipping agents, and for other purposes. This company is a consolidation of the interests associated with the Merchants Mutual Line, Toronto. The directors are, J. W. Norcross, M. J. Haney, T. Bradshaw and J. F. M. Stewart, Toronto; R. M. Wolvin, Winnipeg; H. Munderloh, Montreal, and E. H. Ambrose, Hamilton, Ont.

The vessels which will be operated by this company, during the season, are, Acadian and Canadian, formerly owned by the Mutual Steamship Co., Toronto; Renvoyle, formerly owned by Point Anne Quarries, Ltd., Toronto, and A. E. McKinistry, formerly owned by Interlake Transit, Ltd., Toronto, all of which were, last year, operated by the Merchants Mutual Line. In addition to these,

three vessels have been ordered, two of them being built by the Western Dry Dock and Shipbuilding Co., Port Arthur, Ont., and the third by the Clyde Shipbuilding and Engineering Co., Port Glasgow, Scotland. The two first mentioned, which will be named respectively, Calgarian and Hamiltonian, are being built on the Isherwood system, especially for package freight, and will be equipped with engines having cylinders, 18, 38 and 50 ins. diam., by 42 ins. stroke. The dimensions will be, length 250 ft., breadth 42½ ft., depth 26½ ft. They will be practically, duplicates of the steambot Acadian. The third vessel, which will probably be named Indian, under construction at Port Glasgow, will be of the same dimensions, and will be used for the package freight trade, but she will be equipped with Diesel oil combustion engines with four cylinders 18 by 36 ins. It is anticipated that all the vessels will be ready for delivery by about June 1.

The vessels owned by Canadian Interlake Line, Ltd., will be operated as a part of the Merchants Mutual Line, as will also, the vessels A. E. Ames, Beaverton, H. M. Pellatt, J. H. Plummer, Mapleton and Saskatoon, owned by the Merchants Mutual Line, Ltd.; Scottish Hero, Turret Chief and Turret Court, owned by the Canadian Lake and Ocean Navigation Co., and D. A. Gordon, owned by the International Steamship Co.

It is announced that an issue of \$520,000 first mortgage bonds is being placed on the market, and it is stated that this issue represents 50 per cent. of the value of the vessels owned. The bonds will be for 15 years with provision for retirement at 105, through an annual sinking fund, of the whole at maturity. The annual net earnings are estimated to realize about 3½ times the amount of the annual bond interest, and the insurance carried covers about 150 per cent. of the outstanding bonds.

Dry Dock for Quebec.

The Dominion Public Works Department will receive tenders to July 2 for the construction within four years of a dry dock in the port of Quebec under the Dry Dock Subsidies Act. The dock is to be not less than 1,150 ft., usable length, 110 ft. clear width at entrance, and at least 37 ft. in depth over sill and keel blocks at ordinary high water spring tide, and to be in three compartments.

The dock is to be located either at Lauzon, on the south side of the river, or in the estuary of the River St. Charles, or on the Beauport flats, and tenders are to submit with their proposal a report signed by their engineer, setting forth in detail the respective advantages from the viewpoint of the shipping interests of each of the above mentioned sites; also plans and specifications with full and detailed estimates of cost.

The Government will not build the dock, but will pay a subsidy in aid of the construction, of 3½% per annum for 35 years on an expenditure of about \$5,000,000.

The Dominion Public Works Department received tenders to Apr. 22, for the construction of a single screw steam tug, 80 ft. long.

During Feb., one employe connected with Canadian navigation was killed, and three were injured, the fatality being due to drowning.

A considerable amount of improvement work will be undertaken in Owen Sound harbor during the present season. The cement wharf is to be extended north to the G.T.R. property, the dock on the west side is to be repaired, as is also the North Keppel wharf. The Dominion Government has included \$65,000 for the work in the estimates.

Proposed Sale of Niagara Navigation Co. to the R. & O. N. Co.

The Richelieu and Ontario Navigation Co. has offered to buy a controlling interest in the Niagara Navigation Co., Ltd., at \$200 per \$100 share, payable in cash or in R. and O.N. Co.'s shares at \$120, at shareholder's option, i.e., five shares of R. and O.N. stock will be given for three of N.N. Co. The offer is good until May 4, subject to an extension not later than June 1, in the case of shareholders who, owing to absence, etc., have not an opportunity of deciding within the first mentioned time limit. The R. and O.N. Co. has deposited \$100,000 with the Montreal Trust Co., to be forfeited to the owners of deposited stock if the company fails to carry out its offer. The N.N. Co. directors have issued a circular to shareholders saying they have decided to accept the offer for their own shares, subject to the acceptance of it by holders of 51% of the stock.

The N.N. Co.'s capital stock at the close of the last financial year was \$1,000,000, of which \$701,700 had been subscribed and paid. To pay in part for the purchase of the Hamilton Steamboat Co. and the Turbine Steamship Co. in Dec., 1911, 1,981 shares of the N.N. Co. were issued and 1,002 shares were offered to shareholders at par, bringing the capital issue up to \$1,000,000, all of which has been paid up except a very few shares. Power was given at the last annual meeting to increase the capitalization to \$3,000,000, but none of the \$2,000,000 has been issued. The company has paid 8% per annum in half yearly dividends for a number of years.

The N.N. Co. owns eight steamboats. The Cayuga, Chippewa, Corona, Chicora and Ongiara comprised its own fleet up to the end of last year, the three former for the Toronto, Niagara, Queenston and Lewiston run. The Chicora, it is announced, will run between Toronto and Olcott, N.Y., this year, and the Ongiara in ferry service on the Niagara River. The Macassa and Modjeska, bought from the Hamilton Steamboat Co., and the Turbinia from the Turbine Steamship Co., are to run between Toronto and Hamilton.

The N.N. Co.'s directors are:—Sir Edmund B. Osler, President; Barlow Cumberland, Vice President; Hon. J. J. Foy, J. Bruce Macdonald, F. G. Osler and Hon. J. S. Hendrie. The officials are:—B. W. Folger, General Manager; J. M. Sullivan, Secretary; R. H. McBride, Treasurer; J. V. Foy, General Passenger Agent; J. A. Goodearle, General Freight Agent; S. J. Murphy, Travelling Passenger Agent; H. E. Weller, City Ticket Agent, Toronto; W. E. Bishop, General Agent, Hamilton.

A circular addressed to N.N. Co. shareholders, April 22, by the President, Sir Edmund B. Osler, states that in addition to getting 200 for their stock they will receive a bonus of about \$12 for each share held, which will be realized on the 1,981 shares issued in Dec., 1911, as part payment for the Hamilton Steamboat Co. and the Turbine Steamship Co. The owner of these companies, J. C. Eaton, Toronto, decided not to hold the stock, but to sell it at cost, and in order to protect the price of the stock the directors arranged for Mr. Eaton's stock to be taken over through a third party, the benefit of which transaction the shareholders are to receive.

The Livingstone channel, in the Detroit River, which is considered to be the next important channel to the Sault Ste. Marie locks, in the development of lake commerce, will be opened for traffic about July 1. The construction has occupied about five years and cost the U. S. Government about \$10,000,000.

Oil for Fuel on R. and O. N. Co.'s Steamships.

The Richelieu and Ontario Navigation Co. is equipping with fuel oil burning apparatus two of its steamboats, Rapids Queen and Rapids Prince, which run on the St. Lawrence River between Montreal and Prescott, Ont.

The Rapids Queen is being equipped with an English system of burners at Levis, Que., and the Rapids Prince with a United States system at Sorel, Que., the work of installation being done by the company's workmen. The two systems will be tested against each other during the ensuing season and on the results will depend the adoption of oil instead of coal on some of the company's other boats, particularly the Toronto and the Kingston, which run between Prescott and Toronto, and will probably be equipped next year.

The Rapids Queen and Rapids Prince are being fitted with round steel storage tanks in the coal bunker space, capacity of from 25 to 30 tons oil being provided on each vessel.

Merchant Service Guild of British Columbia.

This guild has been formed with headquarters in Victoria to combine the whole of the navigators (commanders, pilots and officers) engaged in the B.C. merchant service, with the object that they shall through the guild be represented in any matters whatsoever connected with their profession, and also to advance and defend the interests and independence of its members, to obtain a voice in the making of the laws under which they are governed, and to promote cordial relations with their employers, the various shipping companies and owners. One of the most important aims of the guild will be to provide those of its members who abide by its constitution and rules, with legal defence in cases involving the cancellation or suspension of certificates.

The fees, etc., are as follows:—Captains and port pilots, entrance fee \$10, annual subscription \$15. Officers, all grades, entrance fee \$5, annual subscription \$10.

Marine Insurance on the St. Lawrence Route

While in Montreal, Apr. 4, the Minister of Marine is reported to have said: "Something must shortly be done if the insurance people persist in discriminating against the route. It may be that a Canadian Lloyd's may have to be established in order to remove what is practically an embargo on the St. Lawrence. The people of this country have spent millions of dollars improving the channel. In spite of all this, and the assurance that the work of improving the water highway to the sea will be continued, the insurance rates have remained stationary. Such discrimination cannot be tolerated forever. How this can be brought about is under our consideration."

The Lake Carriers' Association is being asked to request the U.S. Government to abolish arbitrary closing of the navigation on the Great Lakes, on Dec. 1, each year. It is to be urged that grain, lumber and coal vessels can safely operate up to Jan. 1, if the aids to navigation are allowed to remain.

The canal lock at Black Rock harbor, Buffalo, N.Y., which makes the connection between Lake Erie and the new Erie barge canal, has been completed. It is stated to be the largest inland water lock in the world. The gates are of steel, and will be operated by electricity. The cost was \$1,250,000.

Coast Lake and River Officers for 1912.

The following appointments made by navigation companies engaged in Canadian navigation for their various steam vessels and tugs for the current year, have been officially reported to The Railway and Marine World, by the managements, in addition to those given in our last issue. In the first column is given the name of the vessel, in the second that of the captain, and in the third that of the chief engineer.

ALL RED LINE, LTD., VANCOUVER, B.C.		
Selma	S. Mortimer	J. Stephens
G. A. BINET, FRASERVILLE, QUE.		
Canada	A. Belanger	P. Bolduc
CANADIAN INTERLAKE LINE LTD., TORONTO.		
A. E. McKinistry,	A. C. Leitch.	A. E. Stinson,
Acadian,	R. McIntyre,	J. Duguid.
Calgarian	.....	.....
Canadian,	W. Anderson,	R. McLaren.
Hamiltonian,	A. B. McIntyre,	.....
Indian,	H. Larush,	.....
Renvoyle,	H. Redfearn,	A. McLaren.
CANADIAN LAKE AND OCEAN NAVIGATION CO., LTD., TORONTO.		
Scottish Hero,	F. Davis,	J. W. Taylor.
Turret Chief,	H. Aitken,	A. E. House.
Turret Court,	N. Barrett,	S. Jones.
CORNWALL AND MONTREAL TRANSPORTATION CO., MONTREAL.		
Hebron,	H. Caza,	Alf. Cote.
City of Toronto,	P. Hains,	Alp. Cote.
F. BURNET, BIRDSALL, ONT.		
Rainbow	F. Burnet	T. C. Whitred
INTERNATIONAL STEAMSHIP CO., LTD., TORONTO.		
D. A. Gordon,	R. F. Pyette,	G. Adams.
LEMCKE TUG CO., LTD., LIONS HEAD, ONT.		
Chas. Lemcke,	A. Webster,	E. B. Rumley.
MAY QUEEN STEAMSHIP CO., LTD., GAGETOWN, N.B.		
May Queen,	R. H. Weston,	W. Pitt.
MERCHANTS MUTUAL LINE, LTD., TORONTO.		
A. E. Ames,	F. Dalby,	I. McMillan.
Beaverton,	W. Zealand,	H. Myler.
H. M. Pellatt,	E. McConkey,	W. Harmon.
J. H. Plummer,	P. McIntyre,	R. Chalmers.
Mapleton,	R. D. Simpson,	H. MacDonald.
Saskatoon,	P. McCarthy,	A. E. Kennedy.
MIRAMICHI STEAM NAVIGATION CO., LTD., CHATHAM, N.B.		
Alexandra,	J. Nowlan,	W. Stewart.
Miramichi,	J. P. Bullicke,	C. Johnston.
Sybella, H.,	E. Steel,	A. C. McIntyre.
NORTHLAND TRANSPORTATION CO., LTD., ATHABASCA LANDING, ALTA.		
Northland Call,	R. B. Barber,	M. Smith.
Northland Lake,	.....	Under construction.
Northland Light,	L. R. Morton,	F. J. Davis.
Northland Star,	J. Matheson,	T. Prentiss.
Northland Sun,	.....	J. A. Patterson.
WESTERN NAVIGATION CO., LTD., FORT WILLIAM, ONT.		
Kaministiquia,	E. L. Stephen,	H. Young.

Oil Engines Are to Be Used for a fleet of 14 vessels now being built for the Glasgow (Scotland) Motor Coasting Co. Eight of these, of 140 tons each, will have 90-h.p. engines and are intended for traffic on the Forth and Clyde canal. Two others are to be of 230 tons, with 120-h.p. engines, two more of 280 tons with 130-h.p. engines, and two of 360 tons with 160-h.p. engines. The fuel tanks of all will hold oil sufficient for three weeks running. The 140-ton vessels can carry 35 to 40 tons more cargo than similar vessels propelled by steam.

Dominion Marine Association.

PRESIDENT, Jas. Playfair, Midland, Ont.; COUNSEL, F. King, Kingston, Ont.

Great Lakes and St. Lawrence River Rate Committee.

CHAIRMAN, W. F. Wasley, Gravenhurst, Ont. SECRETARY, Jas. Morrison, Montreal.

International Water Lines Passenger Association.

PRESIDENT, A. A. Heard, Albany, N.Y. 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. McManagh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

Atlantic and Pacific Ocean Marine.

The report that the Allan Line had purchased the White Star Line s.s. *Cretic* is incorrect, she having been sold to Italians.

A Vancouver press dispatch states that the Royal Mail Steam Packet Co. will establish a service between Europe and British Columbia, with Victoria as the Canadian port, via the Panama canal.

The first transatlantic steamship scheduled to come up the St. Lawrence this season was the C.P.R. *Empress* of Britain, due to arrive at Quebec, Apr. 26.

The Warren Line, which has been operating a line of steamships between Liverpool, Eng., and Boston, Mass., has been acquired by Lord Furness, of Furness, Withy and Co., and other shipping interests with Canadian connections.

Manchester Liners, Ltd., operating a direct line between Canada and Manchester by the Manchester ship canal, is reported to have ordered a new vessel for the service, in England. This company is controlled by the Furness interests.

Holt and Co., Liverpool, England, operating the Blue Funnel line, on a round-the-world service, calling at Vancouver, are reported to have placed orders for the construction of five steamships for the Panama canal service. They will be about 8,000 tons register, with a speed of 16 knots an hour.

The two vessels which the Cunard Co. recently ordered in Great Britain for its Canadian service, operated as the Cunard-Thomson Line, with Robert Reford Co., as agents, will be named *Andania* and *Alaunia*. They will each be about 520 ft. long and of 15,000 tons register, with accommodation for 425 cabin passengers and 1,600 third-class passengers.

It is reported from Japan that the C.P.R. s.s. *Empress* of China, which was wrecked off Shirahama, Japan, July 26, 1911, and which was floated, early this year, has been declared by the underwriters to be a total constructive loss, and that she will be offered for sale by public auction.

The Canada-Calais Line is reported to have been organized in Chatham, N.B., to carry on a steamship service, chiefly in the pulp wood, hay, and store cattle trade between Chatham and Calais, France. It is stated that a vessel has been secured for the service, which will be commenced shortly, and the trip made every six weeks.

The Government has renewed the mail contract to the Allan Line for 12 months from May 1, for \$600,000 as before, the same arrangement between the Allan Line and the C.P.R. being also continued as heretofore. It is said that this renewal is of a temporary character, as the whole of the mail service is to be put on a new basis entirely.

La Compagnie Generale Transatlantique is reported to have decided to establish a regular steamship service between Canada and France, with Halifax and Quebec as the Canadian ports and Dunkirk and Havre as the French ports. The first sailing was announced to take place from Havre, April 27. S. Cunard and Co., Halifax, N.S., are the company's agents.

We are officially advised that there is no truth in the press reports from the Pacific coast, to the effect that the Canadian Northern Ry. is chiefly interested in the recently inaugurated steamship service between Canada and Australia. While it seems a natural thing, that the company might inaugurate such a service, it is, as yet, some time in the future.

The reports circulated towards the end of last year that the C.P.R. was about to discontinue its service between

the St. Lawrence and Avonmouth, and that the steamships *Montcalm* and *Monmouth*, engaged in that service, were to be sold, was incorrect, as the *Monmouth* sailed from Avonmouth, Apr. 15, and it was announced that the *Montcalm* would follow, May 1.

A Montreal press dispatch states that so far as can be ascertained, proposals are being made by the C.P.R. for the establishment of a steamship service between the Maritime Provinces and the West Indies, and that it will transfer its *Empress* steamships from the Pacific for this purpose, in addition to building large summer hotels at St. John, N.B., Yarmouth, N.S., and in Bermuda and Jamaica.

The European and Brazilian Shipping Co., Ltd., has been incorporated under the Dominion Companies Act, with \$250,000 capital, and office at Toronto, to operate lines of steamers and other vessels, and carry on a general ship-owning and shipping business, throughout the Dominion and elsewhere. The incorporators are:—J. S. Lovell, C. D. Magee, S. G. Crowell, J. F. Lash and others, of Toronto.

In connection with the agreement between the Dominion and the West Indies, announcement of which was made Apr. 9, the Minister of Trade and Commerce stated that the question of improved cable and steamship connection had been carefully considered, and as the agreement had yet to be submitted to the British and West India Governments for consideration, the details could not be made public.

The Quebec board of trade has asked the Minister of Trade and Commerce that all vessels owned or controlled by companies in receipt of Dominion subsidies for the carrying of European mails, be bound, as a condition of the subsidy grant, to carry freight and passengers to and from Quebec at a cheaper rate than to and from Montreal, in proportion to the mileage saved, and also that all freight shippers shall be treated equally as to rates and rebates.

The Ulster Steamship Co., which operates the Head Line of steamships to Canada, in its annual report for the half year ended Jan. 31, showed net earnings of £17,929 9s 10d. The net balance to credit of profit and loss, after paying interest on deposits, income tax, etc., is £16,269 16s 6d, from which £10,000 has been written off for depreciation. A dividend of 5 per cent. for the half year is being paid, leaving £1,394 16s 6d to be carried forward. It was announced that the Dominion Government had renewed the subsidy for the service between Canada and Ireland.

The Allan Line steamships *Alsatian* and *Albnyan*, which are under construction in Great Britain, will, it is expected, be delivered by March, 1913. G. Hannah, Passenger Traffic Manager, Montreal, is reported to have stated recently, in connection with the report, that the company is to remove its Canadian terminus to Quebec, that it is a question whether the two new vessels will be able to come up to Montreal, as they will be of a type that has not yet been up the St. Lawrence, each having four convertible shafts, no other vessel with more than three having come to Montreal as yet.

A Montreal press report states that the C.P.R. has placed orders for building three steamships, larger and faster than the present vessels operating across the Atlantic, for the Canadian-British service. The report continues, "In Kingston, Jamaica, Mar. 6, A. H. Harris, who is an assistant in Vice-President Bosworth's office, and, therefore, in a position to know the company's plans, made the following announcement to the members of the Merchants Exchange, 'The C.P.R. has a record of having the finest ships between Canada and Liver-

pool, and they are now building 30,000-ton boats to travel between Liverpool and Halifax.' " We are officially advised that there is no truth in the report.

The two twin screw steamships which the Cunard Steamship Co. have ordered from Scotts' Shipbuilding and Engineering Co., Greenock, Scotland, for the Canadian trade, will each be about 540 ft. long, 63 1/4 ft. in breadth, 46 ft. deep to shelter deck, and of about 13,000 gross. Accommodation of a superior character will be provided in each for over 500 second class and over 1,500 third class passengers, the latter being all in two and four berth rooms. The equipment will include all the most modern improvements. The machinery will consist of two sets of quadruple expansion engines, balanced, and having cylinders 26 in., 37 in., 53 in., and 76 in., in diameter, respectively, and a stroke of 54 in. Steam will be supplied by five double-acting engines, having a high service speed.

The Central Vermont Transportation Co. has ordered two steamships for its service between Providence, R.I., and New York. They are chiefly designed for passengers, but some express freight will also be carried. They will be of steel, built to Lloyds' requirements for the highest class, with double bottoms, subdivided by steel watertight bulkheads. The machinery will consist of two sets of triple expansion engines, balanced on the Yarrow, Schlick and Tweedy system, boilers of the return fire tube type with forced draught, supplying steam at 180 lbs. pressure. They will be 332 ft. long and 66 ft. wide at the widest part of the deck, and of twin screw type, designed for a speed of 20 miles an hour. The passenger accommodation is to be of the most up-to-date description, for about 500 first class and 200 second class passengers.

Maritime Provinces and Newfoundland.

A. McDougall, Maitland, N.S., has been appointed inspector of hulls for Nova Scotia, vice Capt. Seeley, deceased.

The Victoria Steamship Co., Ltd., North Sydney, N.S., has increased its capital stock from \$12,000 to \$40,000.

N. P. Freeman has been appointed superintendent of the survey and measurement of ships, and surveyor of accommodation for seamen, at Liverpool, N.S.

H. D. Troop, of the old firm of Troop and Son, reputed, in its day, to be the largest owners of sailing ships in the world, died at St. John, N.B., Apr. 1, aged 73.

The Red Cross Line is reported to have chartered the s.s. *Erna*, of St. John's, Nfld., for its Montreal service, this year, on account of the loss of the *Bonavista*.

The Imperial Dry Dock Co. is applying to the New Brunswick Legislature for an extension of time for the commencement and completion of the projected dry dock at St. John.

The Minister of Marine stated in the House of Commons, recently, that tenders would shortly be asked for the construction of a lightship to be stationed off Halifax harbor.

A. Boston, Mass., dispatch of April 17 says the Dominion Atlantic Ry. steamships, running between Yarmouth, N.S., and Boston, and which came under C.P.R. control with the D.A.R., have been sold to the Eastern Steamship Co., which has its headquarters in Boston.

The New Brunswick Legislature has before it, Apr. 9, the St. John Canal and Dock Co.'s bill, providing for the construction of a canal from the head of St. John harbor to Marble Cove. The expenditure is estimated at between \$2,000,000 and \$3,000,000, apart from

any expenditure on wharves and other facilities. Consideration was deferred.

The British s.s. *Kamarasca*, under charter to the Dominion Coal Co., arrived at Louisburg, N.S., early in April. She was built at Newcastle, Eng., in 1911, and was for a few months in the East India trade. She has been specially built for the coal trade, with deck hatches arranged for quick loading and unloading. Her dimensions are, length, 398 ft., breadth 52 ft., depth 41 ft., with 8,000 dead weight capacity, and a speed of 13 knots an hour.

The North Sydney, N.S., board of trade is complaining that while vessels of no matter what tonnage, only pay \$5 tonnage dues on entering Sydney, they are obliged to pay at the rate of 1c a ton on entering North Sydney, some vessels paying as much as \$130 a trip. A resolution was passed that steps be taken to have the port placed on an equal footing with Sydney and asking that the statute of 1879 respecting the appointment of harbor commissioners for North Sydney be repealed.

Island Fisheries, Ltd., has been incorporated under the Dominion Companies Act, with \$20,000 capital, and office at St. John, N.B., to carry on a general fishing business, and in connection therewith, to own and operate steam and other vessels. The incorporators are:—P. P. Russell, G. D. Grimmer, St. Andrews; A. Wooster, S. D. Guptill, Grand Manan, N.B.; W. McLure, Pictou; W. H. Starratt, Halifax, N.S.; H. H. Acorn, Souris, P.E.I.; C. F. Matilage, New York, and A. E. Richards, Hamilton, Ont.

The preliminary enquiry into the loss of the British s.s. *Isleworth*, which ran on the rocks off Chebucto Head, Halifax, recently, has been held by Capt. W. R. Lugar, who found that the loss was due to the crippled condition of the vessel, several blades having been stripped off her propellers, due to contact with ice, thus making her unmanageable. The report will be forwarded to England, where a further enquiry will be made, as the vessel is on the British register. She was under charter to the Dominion Coal Co.

Prof. A. R. Kirkpatrick of Queen's University, Kingston, Ont., was visiting various points in Nova Scotia and Prince Edward Island, early in April, for the purpose of investigating their possibilities as terminals for the proposed car ferry service between the mainland and the island. Richibucto, Brule and Pictou on the main land, and Summerside, West Cape, Charlottetown, Carleton, Tormentine, and other points on the island were visited, and he is reported to have stated that with car ferries of the proper design and strength, it would be possible to carry on a service throughout the winter, the conditions being no worse than have already been overcome in Canada and elsewhere.

Province of Quebec Marine.

H. Labelle, chief grain inspector for the port of Montreal, died there, recently, aged 78.

The sheds which the Montreal Harbor Commissioners are erecting on the Victoria wharf, are expected to be completed and ready for occupation by July.

C. C. Ballantyne, one of the members of the Montreal Harbor Commission, has announced that he will retire from the board in September, to devote his time to his private affairs.

The Postmaster General advised the Quebec board of trade, Apr. 9, that the Minister of Railways and Canals, the Chairman of the National Transcontinental Ry. Commission, the Chairman of the Quebec Harbor Commission, and

himself would inspect the port towards the end of the month, with a view to arranging for the early carrying out of the proposed harbor improvements and railway terminals.

The Quebec board of trade council, decided, Apr. 5, to memorialize the Dominion Government regarding winter navigation of the lower St. Lawrence, laying special stress on the records made during the past winter by the steamships *Montcalm* and *Mahone*, and the possibilities, should such service be undertaken by larger and stronger vessels. The council will also take up with the Government the question of deepening the channel below Quebec.

Ontario and the Great Lakes.

John White, a former harbor master at Midland, died there, Apr. 10, aged 67.

The Fort William Coal Dock Co., Ltd., has increased its capital stock from \$200,000 to \$500,000.

A report from Deseronto states that the Government will dredge the harbor to a uniform depth of 15 ft.

The Hamilton city council has appointed H. S. Wallace as its representative on the Hamilton Harbor Commission.

The Keystone Transportation Co., Montreal, has ordered the construction of an additional steamboat in Collingwood.

Interests allied with the Canadian Northern Ry., are reported to be negotiating for the purchase of the Rideau Lakes Navigation Co.

The Department of Railways and Canals received, Apr. 26, tenders for improving the lower extreme to lock 15 of the Cornwall canal.

It is reported that the Department of Railways and Canals will shortly enter into a contract with the Ontario Government for the lighting of the canals system by electricity.

The Niagara, St. Catharines and Toronto Navigation Co.'s steamboat *Dalhousie City*, entered Toronto harbor, from Port Dalhousie, Apr. 10, being the first vessel of the season.

Peter Paton, heretofore Travelling Western Representative, Northern Navigation Co., Winnipeg, Man., has been appointed Assistant to the President, with office at Sarnia, Ont.

The Toronto and Niagara Navigation Co., Ltd., has been incorporated under the Dominion Companies Act with an authorized capital of \$2,000,000, to do a general steamboat business.

New rules for the regulation of pleasure craft in Toronto harbor, provide for the carrying of various lights on small vessels, according to class, any infringement making the offender liable to fine or imprisonment.

Press reports state that some of the C.P.R. vessels operating on the Great Lakes will be equipped with wireless telegraph apparatus before going into service this season. It is stated that the Marconi system is to be adopted, and that the shore station will be near Midland.

Consequent on the removal of the headquarters of the C.P.R. Upper Lakes Service, from Owen Sound to Port McNicoll, it is announced that the s.s. *Manitoba* will call at Owen Sound, en route to Sault Ste. Marie, on Wednesday in each week, and that no call will be made on the return trip.

Up to April 15 no official announcement had been made by the Minister of Railways and Canals as to what action it had been decided to take on the Dominion Marine Association's request for the earlier opening of the St. Lawrence canals and their continuous operation during the navigation season.

The Toronto Board of Trade's marine section has elected the following officers:—Chairman, F. Barlow Cumberland; Deputy-Chairman, J. T. Mathews; Secretary-Treasurer, F. G. Morley; Executive Committee, Capt. S. Crangle, E. Rogers, R. E. Gibson, A. A. Wright, F. Plummer and G. Sommerville.

The Toronto Harbor Commission has estimated the total revenue for the current year at \$55,377, and the expenditure at \$54,750. The expenditures include repairs to Centre island, Brock St., and other wharves, as well as development, surveys and organization, dredging, etc. A contract for dredging has been let to J. E. Russell.

Sir Robert Perks, of the Ottawa and Georgian Bay Ship Canal Co., was in Montreal, Apr. 10, in connection with the company's business, and is reported to have stated that work could be started and carried on very expeditiously, once the contract for the construction of the canal was awarded. He expected that the whole work could be completed within five years of its commencement.

The Citizens Coal and Forwarding Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of \$40,000, and office at Gananoque, to carry on a wholesale and retail coal and lumber business, and to act as wharfingers and forwarders. W. J. Gibson, A. N. Robinson, W. T. Sampson, C. J. Wilson, D. Bain, M. McParland and F. B. Cowan, Gananoque, Ont., are provisional directors.

The Canadian steamboat *Wasaga*, which sank, after burning, off Copper Harbor, in Lake Superior, in 1909, and which has since constituted a menace to navigation, is to be dynamited, the U.S. War Department having awarded a contract for the work, for \$3,500. The vessel was a wooden freighter, formerly known as *Wissahickon*, built in the U. S., and owned by the Collingwood Shipping Co., Collingwood, Ont.

In connection with recent reports to the effect that the Farrar Transportation Co. was about to be absorbed by the Playfair interests, T. I. Thompson, President, is reported to have stated that although the interests named had been seeking to obtain a controlling interest of the company's stock, there would be no merger. The prospects for the year were good, and it had been decided to build another vessel, probably in 1913.

The Northern Navigation Co., has placed the contract for the construction of its new vessel, with the Western Drydock and Shipbuilding Co., Port Arthur. The contract price is quoted as \$750,000, and she is to be ready for launching, June, 1913. She is to be built on similar lines to the company's s.s. *Hamonie*, with steel hull, equipped with four cylinder, triple expansion engines, supplied with steam by four Scotch boilers. Her dimensions will be, length 385 ft., beam 52 ft., depth 28 1/4 ft.

The work of restoring the highways in the neighborhood of Holland Landing, which were cut for the construction of the Newmarket canal, has been completed, and it is stated that the locks and other works are to be put in as good condition as possible, so that should work be resumed at any future time, the expenditure already made will not be entirely wasted. The completion of the canal was suspended recently by the Government on account of the alleged impracticability of the scheme through lack of water.

The Northern Navigation Co., which is now a subsidiary of the Rochelieu and Ontario Navigation Co., has ordered from the Western Dry Dock and Shipbuilding Co. another steamship for the Sarnia-Port Arthur-Fort William route. The new vessel is to be 385 ft. long, 52 ft. beam and 29 ft. depth of hold. The general layout will be similar to the

Hamonic, except that she will have one more deck for passenger accommodation which will give her about 290 state-rooms, which is about 125 more than the Hamonic has.

A North Bay, Ont., deputation waited on the Dominion Government recently to urge the immediate commencement of canalizing the French River, a part of the proposed Georgian Bay canal scheme. The portion of the work which is being urged covers about 60 miles of the river, and in the total length of 82 miles there is a rise of 72 ft., necessitating the construction of three locks, and the estimated cost of that portion is \$14,000,000. The canal would leave Lake Nipissing almost opposite North Bay and enter Georgian Bay a few miles north of Key Harbor.

The lake freighter Toiler, equipped with internal combustion engines, descriptions of which have been given in *The Railway and Marine World*, is reported to have been sold to Jas. Playfair, President, Inland Lines, Ltd., and Northern Navigation Co. The Toiler was built at Wallsend-on-Tyne, Eng., and brought to Canada last year, and was operated as a grain carrier towards the end of last season. She is the first vessel of the kind to have crossed the Atlantic under her own power, and although of slow speed, is stated to have been a distinct success as an experiment.

The Northern Michigan Transportation Co., Chicago, Ill., will operate its steamboat Missouri, between Chicago and Collingwood, Ont., this season, the first sailing from Collingwood taking place on July 3, and further sailings on Wednesday in each week, leaving Chicago on Saturday in each week. The route to be followed is along the eastern shore of Lake Michigan, Mackinac Island, Sault River, and through the north channel of the Georgian Bay, calling at Little Current, Killarney and Parry Sound. The steamboat Missouri was built in 1904, her dimensions being length 225 ft., breadth 40 ft., depth 16 ft., tonnage, 2,434 gross, 1,484 register.

It was announced at a meeting of the Toronto Harbor Commissioners, Apr. 2, that the Dominion Government will undertake a number of improvement works in the harbor, this season, at an approximate expenditure of \$238,517. They include protection for the reclaimed lands, about 46 acres, at the new western channel, construction of the island breakwater from west of the eastern channel along the shore to west of Centre island, the dredging of the eastern channel to 25 ft., and the renewal of the superstructure of the western channel pier. It was also stated that the new western channel would be completed this season, including a new lighthouse.

The Rainy River Navigation Co. has announced that it will not operate its vessels between Kenora and Rainy River points, this season. G. A. Graham, Manager, is reported to have stated that the company had made every effort to develop trade in the face of many difficulties, such as low water, the lack of a lock at the Long Sault rapids, etc., and it was hoped to continue the service, if the Government subsidy for carrying mails between Kenora and other points on the route, had been re-voted for this year, but as this had not been done, the service would be discontinued. The local board of trade will probably see if some arrangement cannot be arrived at for a continuance of the service.

The Mathews Steamship Co., Toronto, recently ordered another vessel to be built at Sunderland, Eng., for the lake and canal trade. J. T. Mathews, who recently returned from England, stated that delay had occurred in delivery, owing to the coal strike there, but he ex-

pected that she would arrive on this side about the end of June, or early in July. She has been named Easton, and is equipped with engines having cylinders, 17, 28 and 46 ins. diam., by 33 ins. stroke, supplied with steam by two Scotch boilers, 12 by 11 ft. The construction will be with double bottom, and she is fitted with steam steering gear, steam winches, electric light, etc. Her dimensions are, length 257 ft., breadth 42½ ft., depth 18 ft.

The Thousand Island Steamboat Co. received over 6,000 suggestions for naming its new steamboat now being built at Toledo, Ohio. The one selected, is Thousand Islander, which was proposed by many contestants. Miss E. Walsh, of Kingston, Ont., was the first to send in this name, and receives the \$25 prize. As the vessel will be on the U. S. register, and will run in international waters, the management has awarded an additional prize of \$30, divided equally between the second and third proposers of Thousand Islander, viz., G. H. Dreyfus, Traffic Agent, International Ry. Co., Buffalo, N.Y., and R. L. Jackson, chief clerk to General Agent, New York Central Lines, Watertown, N.Y. The Thousand Islander is nearing completion and will appear on the river early in June.

It is reported from Hamilton that the Mackay-Hall Steamship Co. is being organized for the operation of steamboats on the Niagara route and the Great Lakes. It is stated that the steamboats Massachusetts and Robert R. Rhodes have been purchased from the Gilchrist Transportation Co., Cleveland, Ohio, and that four other steamboats, at present operating between Montreal and the Great Lakes, will also be taken over by the new company. A. D. Mackay, Hamilton, and F. E. Hall, Montreal, are stated to be the promoters of the company. The steamboat Massachusetts was built in 1882; dimensions, length 235 ft., breadth 36 ft., depth 25 ft.; tonnage, 1,415 gross, 1,041 register. The Robert R. Rhodes was built in 1887; dimensions, length 246 ft., breadth 40 ft., depth 21 ft.; tonnage, 1,576 gross, 1,286 register; both are wooden vessels.

The Dominion Government has issued orders for the compilation of detailed plans and specifications for the proposed Welland canal route, and, it is stated, tenders will be called for in June, allowing about two months for the preparation and submission of same. The estimated cost of the work on the Ten Mile creek route is \$45,000,000. The recent estimates included \$200,000 for preparatory work. It is reported that the preliminary plans show seven locks with lifts of 46½ ft. each, 800 ft. long and 80 ft. wide, that the width of the canal at the bottom will be about 150 ft., that lock 1 will be at McCalla's Grove, which will be the site of the harbor, that the canal will cross the Queenston road, near Homer and will cross the present canal at lock 11, where the new lock 3 will be built, that the new canal will again cross the present canal near Marlatt's Pond, and that the depth of water in the locks will be 30 ft., and in the canal, 25 ft.

The Canadian opposition to the proposal of the Chicago drainage district to take an increased flow of water from the Great Lakes, through its canal, were heard by the U. S. authorities at Washington, recently. It was declared that the depth of water in the Montreal harbor would be affected 10¼ ins., if the proposal were carried into effect, and that last year, under the then existing conditions, two ocean-going vessels sacrificed 8,340 tons of cargo capacity, through low water. Arguments were also presented showing the effect on water levels in Kingston and Toronto harbors, and the lake levels generally. The following made representations:—F. King, counsel, Dominion Marine Asso-

ciation, who also filed a protest from the Kingston board of trade; A. A. Allan, Allan Steamship Line; F. E. Meredith, Shipping Federation of Canada; D. Seath, Montreal Harbor Commission; R. W. Reford, Montreal board of trade; F. S. Spence, Toronto Harbor Commission, and G. T. Blackstock, K.C., representing various Niagara River interests.

Manitoba, Saskatchewan and Alberta.

A paper on the navigability of the Red River was read before the Grand Forks, N.D., Commercial Club, recently, by E. F. Chandler of North Dakota University. He contended that tests had proved that for a considerable portion of the year the river was navigable, while trade would be suspended for the remainder. To overcome the difficulties caused by floods and low water, he mentioned the construction of controlling works at the outlet of Red Lake, which would partially, at any rate, equalize the flow of the river and prevent low stages to some extent, thus diminishing the suspension of traffic. Another plan proposed was the installation of a series of locks and dams, so arranged as to raise the water levels about three feet throughout the length of the river, at extreme low stages. The fall of the river between Grand Forks and Winnipeg is 75 ft., so that few dams would be required for the purpose. The lower section, near Winnipeg, has already been improved by the construction of the St. Andrews lock and dam. It is stated that the construction of three 8 ft. or 10 ft. dams would be sufficient to extend slack-water navigation as far as Grand Forks.

British Columbia and Pacific Coast Marine.

I. E. Lowe, Ladysmith, has been appointed a commissioner for the pilotage district of Nanaimo, vice W. C. Fraser. Capt. W. S. French, R.N.R., who was well known as a navigator of the Yukon River some years ago, died at Vancouver recently, of pneumonia.

The C.P.R. s.s. Princess Patricia, which has been equipped with oil-burning apparatus, will be placed on the Vancouver-Nanaimo route early in May.

The Union Steamship Co.'s s.s. Chelohsin, which recently arrived at the coast from Ireland, struck a rock in the Skeena River, Apr. 1, and had to be beached.

The G.T.P. Coast Steamship Co.'s s.s. Prince Albert, in leaving Victoria harbor recently, struck a rock off Shoal Point, and was taken to Esquimalt for repairs.

The Coulti Tug and Barge Co., Ltd., has been incorporated under the British Columbia Companies Act, with \$100,000 capital, and office at Vancouver, to carry on a general tug and navigation business.

Capt. E. McCoskrie, formerly master of the C.P.R. s.s. Amur, but who has for the past few years been engaged in private business, has been appointed as the first harbor master of Prince Rupert.

The C.P.R. British Columbia Coast Service will commence a direct steamship service, early in May, between Victoria and Tacoma, calling at Seattle. The s.s. Iroquois will be placed on the run, daily, except Sundays, between these points.

The C.P.R. British Columbia coast steamships Princess Victoria and Princess Patricia (formerly Queen Alexandra), are being fitted at Victoria with the oil burning equipment. The steamships Charmer and Princess Ena are also being overhauled at the same port.

The Western Canada Lumber Co. is

having a steam tug named Dreadful built on the Thames, Eng., for the towing of logs from Comox to Howe Sound. She is 125 ft. long, and will cost about \$60,000. She was expected to leave England during April for Vancouver.

The steamer *Jessie Mac*, owned by Capt. John McDawen, Vancouver, has been sold to H. Eaden for \$10,000. She was built at Vancouver in 1905, and is equipped with engine of 8 n.h.p., driving a screw. Her dimensions are, length 61.5 ft., breadth 16 ft., depth 7.5 ft.; tonnage 57 gross, 39 register.

A. A. Watson, a well-known ship-builder on the Pacific coast, died recently at Victoria, aged 79. He was born in Scotland, and settled in Vancouver Island, then a Crown colony, in 1863. He designed and built a number of stern wheel steamboats for river service, and was at one time in the Canadian Pacific Navigation Co.'s service.

A press report from Victoria states that a company has been formed in England, and the capital subscribed in London and Paris, to build a floating dry dock for Vancouver. It is stated that the dock will have a lifting power of 15,000 tons, will be so constructed that it can be used in sections for small vessels, and will be 600 ft. long, 80 ft. wide and 55 ft. deep.

The Marine Transportation Co., which has recently been formed for the purpose of operating the s.s. *Rupert City*, which it has acquired, will, it is reported, shortly order, or purchase, a vessel in Great Britain, to run in conjunction with it. The officers appointed to the *Rupert City* are given as:—Capt. Stewart, secretary, Vancouver Shipmasters' Association, captain; J. Johnson, chief engineer.

It is reported from Vancouver that the Port of Vancouver Drydock Co., formerly the Imperial Car, Shipbuilding and Drydock Co., has secured a considerable British and French backing, and has placed an order for the construction of a drydock and machinery, in Glasgow, Scotland. It is stated that the plant will be located at Roche Point on Burrard Inlet, where about 500 acres are reported to have been secured for the purpose, and for business sites, and that the dock will be built so that it can be enlarged, the plans showing a length of 650 ft., and a width of 35 ft., with a lifting capacity of 15,000 tons.

Capt. C. H. Nicholson, Manager, G.T.P. Coast Steamship Co., has replied to the complaints of the Shipmasters' Association, as to the alleged danger caused by the location of the company's oil storage tanks on the water front at Vancouver, that before construction was undertaken, the plans were submitted to the local building inspector and the Fire Underwriters, and approved by them, that the whole construction is absolutely fireproof, and that as the oil used would have to be heated to 250 deg. F. before it would ignite, sparks from locomotives, even if they could reach the oil, would not constitute a danger.

The British s.s. *Rupert City*, which has been lying idle at Vancouver for over a year, is reported to have been sold to S. P. Dunlevy, Vancouver, for \$50,000. It is stated that she will be overhauled and operated in the freight trade between Vancouver, Tacoma and Portland, and Mexican ports. She was formerly known as the *Powhatan*, and was built at Barrow, Eng., in 1886, her dimensions being, length 310 ft., breadth 38.2 ft., depth 25.3 ft.; tonnage, 2,536 gross, 1,640 register. She is equipped with quadruple expansion engines with cylinders 18, 18, 38 and 60 ins. diam. by 42 ins. stroke, of 254 n.h.p. She was engaged in the Chinese coolie service with Mexico for several years, and on the stoppage of that service, was laid up at Hong Kong, and was later operated in

the Prince Rupert trade, by Mackenzie Bros., of Vancouver, and later, for the remainder of her charter period, in the coal trade to Alaskan ports.

Canadian Notices to Mariners.

The Department of Marine has issued the following:—

18. Mar. 28. 47. British Columbia, Vancouver Island, west coast Kyuquot sound, Kokshittle arm, uncharted rock, buoy established. 48. British Columbia, Vancouver island, east coast, Moresby passage, Canoe rock, light established on beacon. 49. British Columbia, Active pass, Galiano island, Mary Anne point, white sector inserted in light. 50. British Columbia, Baynes sound, Denman island, red sectors inserted in light.

19. Mar. 30. 51. Ontario, Lake Ontario, east end, Little Cataraqui bay, range lights established near Portsmouth. 52. Ontario, Lake Ontario, chart, Main Duck island to Presqu'ile, issued. 53. Ontario, Niagara River, Chippawa, Hog island, lighthouse established. 54. Ontario, Lake Huron, north channel, blind river, buoyage.

20. Apr. 10. 55. Nova Scotia, Cape Breton island, east coast, Sydney harbor, southeast bar, red sector inserted in light.

21. Apr. 15. 56. Ontario, Lake Ontario, Toronto harbor, range lighthouses under construction at the new western entrance, temporary lights. 57. Ontario, Lake Erie, Rondeau harbor, gas lighted beacon established on west breakwater pier. 58. Ontario, Lake Huron, shoal water in the entrance to Goderich harbor, caution. 59. Ontario, Georgian Bay, Owen Sound, back range light again in operation.

22. Apr. 18. 60. Ontario, River St. Mary, St. Joseph island, Sailors Encampment range, front light again in operation. 61. Ontario, Lake Superior, Thunder Bay, Hare island reef, change in position of gas and bell buoy, caution.

Telegraph and Cable Matters.

The Great North Western Telegraph Co. has closed its offices at Embro and North Augusta, Ont., and Longue Pointe, Que.

N. R. Duetta has been appointed agent, Great North Western Telegraph Co., at Trenton, Ont., vice A. Christie. This is a new telegraph office.

The Canadian Northern Telegraph Co. has opened offices at Woodnorth, Man., Munson, Alta., and has closed its offices at Steep Rock, Ont., and Mistatim, Sask.

G. Marconi, who was in Canada during April, in connection with the Marconi Wireless Telegraph Co.'s affairs, has been made a life member of the Italian senate.

W. R. Thom has been appointed agent, Great North Western Telegraph Co., at Cobourg, Ont., vice F. M. Hawley, who has resigned after a number of years in the company's service.

The Dominion Government has commenced a night lettergram service over its telegraph lines, similar to the service adopted some time ago by private companies throughout the continent.

The Marconi Wireless Telegraph Co. of America has absorbed the United Wireless Telegraph Co., and settlements have been made in the actions by the former company for infringement of patents.

The annual convention of the Association of Railway Telegraph Superintendents will be held in New York, June 4 to 7, when a comprehensive programme of business and entertainment has been arranged, including a visit to the T. A. Edison Co.'s works at Orange, N.J.

L. DeForest, at one time of the Dominion DeForest Wireless Telegraph Co.,

and now of the American DeForest Wireless Telegraph Co., and a number of his associates have been arrested in the U.S. on charges of misusing the mails by misrepresenting conditions in connection with his company.

In response to a question in the British House of Commons, Apr. 2, the Postmaster General stated that the Government was not in favor of a state owned cable across the Atlantic, nor of granting a subsidy for the laying of one. If, however, any company offered to lay a cable and carry messages at a lower rate than now charged, the proposal would be welcomed.

W. J. Camp, Assistant Manager, C.P.R. Telegraphs; W. W. Ashald, Superintendent of Telegraphs, G.T.R.; Montreal; E. D. Hubbard, General Foreman, G.T.R., Battle Creek, Mich.; T. Rodger, Inspector of Telegraphs, G.T.R.; and A. D. Smith, Northern Electric and Manufacturing Co., Montreal, were among those who attended the recent joint meeting of the eastern and western divisions of the Association of Railway Telegraph Superintendents at Chicago, Ill.

The following changes have been made on the C.P.R. Telegraphs, Western Lines

—C. K. Brown has been appointed Inspector of Telegraphs, District 1, Saskatchewan Division, Moose Jaw, vice C. Fraser, who has been transferred to District 2, Regina, succeeding S. M. Thurston, appointed Circuit Manager at Moose Jaw; L. A. Hutton has been appointed Inspector of Telegraphs, District 2, Alberta Division, Calgary, vice C. H. Powell, who has been transferred to District 1, Medicine Hat, succeeding J. J. Schetgen, appointed chief operator at Calgary.

The Western Union Telegraph Co., which controls the Great North Western Telegraph Co., has instituted a pension scheme for its employes, which provides, that after 20 years service, and up to and including the 25th year, the pension will be 1% of the average salary for the last preceding 10 years, multiplied by the number of years service; after 25 years, and up to and including the 35th year, 1½% addition for each year; from the 35th to 40th years, 2% additional for each year and after 40 years service 50% of the average salary for the last preceding 10 years. The minimum pension is to be \$25 a month, except when otherwise directed, and no pension is to exceed \$100 a month.

The Saskatchewan Elevator Co., Ltd., has been incorporated under the Dominion Companies Act, with \$250,000 capital, and office at Winnipeg, Man., to carry on a general grain and elevator business, and to take over as a going concern the Saskatchewan Elevator Co., Ltd., of Saskatchewan.

The Keewatin and Western Construction Co. has been incorporated under the Manitoba Companies Act, with office at Winnipeg and authorized capital of \$100,000, to carry on a railway and general contracting business. The provisional directors are:—F. G. Thompson, D. S. Johnston, J. C. Kyle, H. Henry, J. B. Henderson, Winnipeg.

Bell Telephone Co.—At the annual meeting in Montreal recently, C. F. Sise, President, stated that the net revenue for 1911 was \$1,425,835, out of which \$1,000,000 had been paid in dividends. The number of instruments earning rental was 153,959, and the system comprised 58,300 miles of wire, of which 4,167 miles were added during 1911. After all deductions there was a balance of \$120,415 to be carried forward. The following were re-elected for the current year:—President, C. F. Sise; Vice President, Hon. Robt. Mackay; other directors, T. N. Vail, R. Archer, W. R. Driver, H. Paton, C. Cassils, H. B. Thayer, L. B. McFarlane and Z. A. Lash, K.C.

Cantilever Framed Steamships for the St. Lawrence Coal Trade.

Furness, Withy & Co., of West Hartlepool, Eng., Montreal, etc., are having built at Middlesbrough, Eng., by Sir Raylton Dixon & Co., Ltd., two steamships, Lingan and Hochelaga, which have been specially designed to meet the requirements of the Dominion Coal Co.'s trade from Sydney, N.S., to Montreal, and are of the latest improved type of patent cantilever construction with top-side water ballast tanks with which most of the vessels in this trade are fitted.

Their principal dimensions are 388 ft. 3 ins. by 52 ft. by 29 ft. 9 ins. moulded, and have a deadweight carrying capacity of about 7,600 tons each on a light draft of water. They are being constructed to the highest class British Corporation, and are of the single deck type with poop, bridge and forecastle

Each vessel has 11 hatchways, four holds absolutely free from all obstructions, such as beams, pillars or web frames, and perfectly self-trimming owing to the sloping sides of the top-side tanks at each side of the ship, and of the total amount of about 2,400 tons of water-ballast which the vessel can carry, about half will be in the top-side tanks.

They each have 12 derrick posts and 20 derricks, 4 boats, hand and steam

Comparative Costs of Fuel on Ocean Steamships.

In view of the interest at present being taken in the use of fuel oil for steamship operation, the following figures, which have been quoted in London, Eng., for a trip between Liverpool and New York, with the s.s. Lusitania as a basis, are given:—

Coal, 5,500 tons, at 18s 6d	£5,087 10 0
312 firemen, at 25s a week	390 0 0
	£5,477 10 0
Oil, 3,300 tons, at 26s	£4,292 0 0
27 firemen, at 25s a week	33 15 0
	£4,325 15 0

Canada Shipping Act Amendments.

The Dominion Parliament has passed a bill providing for the repeal of sec. 100, chap. 113 of 1906, and sec. 7, chap. 65 of 1908, and for the insertion of a new section 100, as follows:—

"The foregoing provisions as to masters and mates shall not apply to pleasure yachts not carrying passengers or goods for hire, nor to steamships of not more than five tons gross tonnage, nor to barges nor other vessels having neither masts, sails nor rigging, and not being steamships, nor ships employed solely in fishing, nor to sailing ships of

The Steel Co. of Canada, Ltd. Annual Report.

Following are extracts from the report for the year 1911:—

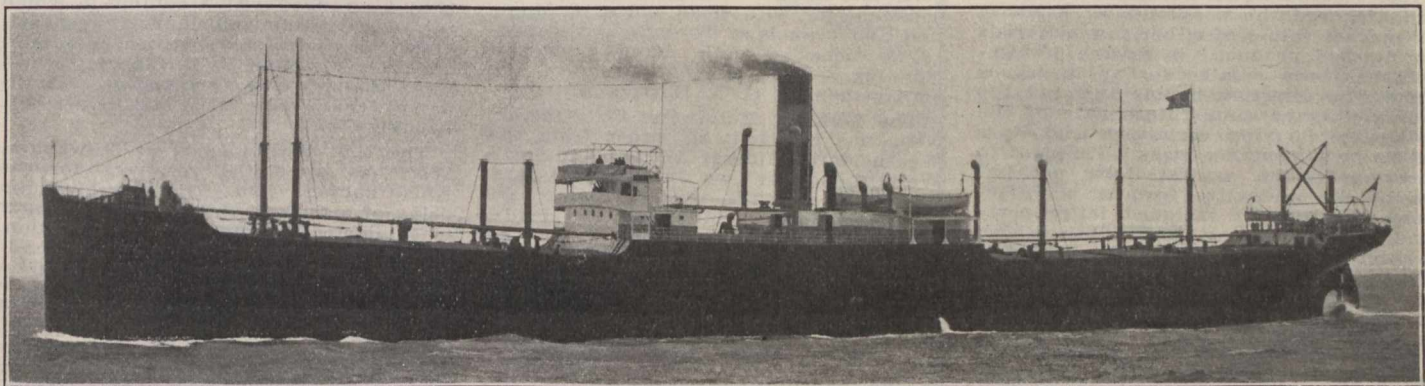
The net profits after expending \$404,453.11 for repairs, maintenance and improvement on plants and machinery were \$1,373,522.81. These profits have been dealt with as follows:—

Interest on bonds and mortgage and cost of underwriting and stamping bonds	\$ 484,100.40
Dividends on preferred stock	454,741.00
Credited to fund for depreciation, renewal and improvements of plants	100,000.00
Carried to credit of profit and loss account	337,681.41

\$1,373,522.81

The amount now at the credit of depreciation, renewal and improvement of plants fund is \$204,071.11, and at the credit of the profit and loss account, \$583,599.74.

Your directors feel that the statement is a very satisfactory one when it is taken into consideration that the past year was one of great depression in the U.S. iron and steel business. The demand in Canada for our various products was excellent, but an abnormal percentage was supplied from the U.S. at exceptionally low prices, owing to the depression referred to, particularly pig iron, bars and wire products. The prices on bars were



The s.s. Lingan, for the St. Lawrence Coal Trade.

steering gear and are equipped with 10 steam winches, steam windlass, etc., and all the latest and most modern appliances for the rapid handling of cargo.

They have triple expansion engines, having cylinders 26, 44, and 73 by 48 ins. stroke, supplied with steam by three large single-ended boilers working at 130 lbs. pressure.

The trials passed off most successfully, a speed of over 12 knots being attained.

Examinations for Inland Masters and Mates.

Following the suggestions made by the Dominion Marine Association to the Minister of Marine in February in reference to changes considered necessary in examinations for masters' and mates' certificates for inland waters, the whole question is under the Department's consideration with a view to afford better facilities to candidates and to organize a better system of examinations, which will, no doubt, be to some extent, in harmony with the Association's suggestions.

The Department has pro tem opened a school for the education of candidates at one of the ports and is willing to consider the question of assistance to the various technical schools, of which three have now been opened at large ports. These schools intend giving courses in navigation, etc., to those desiring to undergo examinations for marine certificates, both officers and engineers.

not more than 100 tons, registered tonnage, propelled by auxiliary power other than steam, employed partly in fishing and partly in the carriage of freight."

This exempts sailing ships fitted with auxiliary power from having to employ certificated masters or mates. Such vessels would be exempt under the previous law if employed solely in fishing. As they are engaged in carrying cargo, when not fishing, the law has been amended in this respect. Sec. 104 is also repeated and replaced by a new section, as follows:—

"Whenever any master or mate or second mate proves to the satisfaction of the Minister that he has, without fault on his part, lost or been deprived of any certificate required under this part, the Minister may, upon such terms and conditions as he deems fit, cause a copy or duplicate of the original certificate to be made out and certified as aforesaid, and to be delivered to such master, mate or second mate."

Under previous conditions, one half the full fee was charged for a duplicate certificate, which was considered excessive. Under the amendment the Minister can fix what he considers to be a reasonable fee.

The Dominion Government has included in the supplementary estimates \$50,000 for the improvement of Goderich harbor. It is stated that this will be spent on the continuation of the present north-west breakwater.

so low that only the largest plants in the U.S. could produce them at a cost which would give a meagre margin of profit. In pig iron prices were still worse. Few, if any, of the U.S. furnaces made money, as pig iron was being sold below the average furnace cost, and the prices for export to Canada were cut from 50 to 75c a ton below those for their home market. Not only have we had to contend with the low prices on pig iron, but the Government regulations as to rebates on iron entering into agricultural machinery are so framed, that it practically prohibits the makers of agricultural machinery from using Canadian pig iron even in the machines where the material which enters into them is not subject to rebates. To enable us to run our plants full and absorb our overhead charges, and thereby secure the greatest economy, we were forced to sell goods at a very small profit.

In the trust deed for the bond issue provision was made for an additional issue of \$650,000.00 of bonds, the proceeds of which were to be used for providing further working capital. These bonds were sold during the year, and the total bond issue is now \$7,500,000.00, as compared with \$6,850,000.00 as shown on the previous statement.

The matter of the growth of Canada, and the necessity of our being able to take care of the increased consumption of iron and steel commodities, has been one that has had the serious consideration of your directors and officers, and it was decided, to enable us to take care

of this increased demand, that considerable additions must be made in machinery equipment at our various plants, and that a blooming mill, billet mill, and rod and bar mill should be built at Hamilton, together with two more 50-ton open hearth furnaces. The mills and open hearth furnaces are under construction, and we hope to have them in operation next fall. The new machinery referred to is being installed. The mills will be of the most up-to-date design, and should enable us to produce bars at a lower price than we have heretofore. To help defray the cost of these extensions and improvements the sale of \$500,000.00 of bonds has been arranged for.

Canadian Westinghouse Company Ltd.

Following are extracts from the annual report for the year 1911.—

The net profits were \$1,010,153.56, an increase of 45% over 1910, the year of previous maximum. From the year's profits regular quarterly dividends at the rate of 6% per annum, and bonus dividends aggregating 2%, (making a total for the year of 8%), have been paid, amounting to \$350,128. \$100,000 has been added to the general reserve for depreciation of property and plant, increasing that reserve to \$500,000. \$50,000 has been added to the reserve for inventory adjustment, which now totals \$100,000, and which should be adequate to safeguard the possibility of decrease in market values of either raw materials or finished product. A reserve of \$50,000 has been created for an insurance fund, the directors having in mind the advisability at some future date of the company carrying certain special lines of its own insurance risks. Pursuant to previous policy, against items not immediately productive from a manufacturing standpoint included in property and plant account, \$135,794.05 has been written off. The remaining balance, \$324,231.51, has been carried forward to the credit of profit and loss account, which shows as of Dec. 31, 1911, a total unapportioned surplus of \$1,050,844.73.

The year opened with a number of large contracts on hand well advanced through their design and into their manufacturing stages, which situation, taken along with a constant influx of new business in large quantities, produced a condition tending to bring about more than ordinarily satisfactory returns for the year. The volume of output increased approximately 40% over the previous year, and the high standard previously set up in design, engineering application, and quality has been fully maintained.

In accomplishment of the foregoing, the extensions to plant have been an important factor. The extensions to warehouse, foundry and pattern building were completed early in 1911, and the plant has been further increased this year by a new main machine shop aisle, which is now nearing the stage of completion looking toward the installation of the necessary machine tool equipment. Coincident with all these extensions the former boiler plant has been rebuilt with all modern labor-saving appliances in a manner to correspond with the added requirements of present plant additions and as well to permit installation of extra units should further factory extensions require. The construction of these buildings has been carried out on the same lines of solidity and permanency in general plan and in execution of detail as marked the original buildings, and the construction of all additions has been carried forward without interruption to manufacturing operations in the existing plant, due to the engineering skill embodied in the original layout of the building scheme.

In accordance with established conservative custom, the business of the

year has absorbed ample charges to cover maintenance and renewal accounts, expenditures for development work in both engineering and manufacturing lines, and amounts representing concurrent loss in value on those special manufacturing appliances where the decrease in values is at a more rapid rate than ordinary depreciation.

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.

H. D. Bayne, Special Agent, Canadian General Electric Co., has sent his friends a wall hanger, "Suggestions for 1912," containing as usual a number of excellent maxims.

The McKeen Motor Car Co., Omaha, Neb., has opened an office in the Hudson Terminal Bldg., 30 Church St., New York city, with S. D. Barnett as Eastern Representative.

Robert W. Hunt, and Co. Ltd., engineers, inspection, testing, analyses and consultation, with head office in Montreal and branch in Toronto, have opened an office at 415 Bank of Ottawa Building, Vancouver, B.C., under the management of G. E. Herrmann.

The McKeen Motor Car Co., Omaha, Neb., has received an order from the Weatherford Mineral Wells and North Western Rd. for two 70-ft. motor cars. There are now 122 McKeen motor cars in service in the United States, Mexico and Australia.

The Independent Pneumatic Tool Co., Chicago, Ill., has issued catalogue 9, describing Thor air tools. It contains 118 pages of matter copiously illustrated. Copies may be obtained of the Canadian agents, H. W. Petrie, Ltd., Toronto and Vancouver.

"American Vanadium Facts," for March, issued by the American Vanadium Co., Pittsburgh, Pa., refers especially to the useful strength of steel, the rail problem and the adoption by the American Locomotive Co. of chrome Vanadium for heat treated steel for locomotive crosshead keys.

"Brownhoist Patent Suspended Bins," issued by the Brown Hoisting Machinery Co., Cleveland, Ohio, describes the bin fully and shows a number of installations of it and also of several Brownhoist machines which work in connection with the bin in power plant installations. It contains considerable interesting matter on handling coal and ashes in power plants, and illustrates a suspended coal bin installed for the Winnipeg Electric Ry.

The Brown Hoisting Machinery Co.'s catalogue D 1912 fully describes and illustrates its overhead, or tramrail, system of handling all kinds of material, which is being adopted by modern industrial plants and railways. It has proved that a great saving can be made by its adoption by both large and small installations. The list covers electric monorail man trolleys, patent steel-plate equalizing trolleys, and electric hoists, with all the necessary equipment, and instructions for ordering.

The name of the Advance Machine Works, Ltd., Walkerville, Ont., manufacturers of Northern cranes and hoists in Canada, has been changed to Northern Crane Works, Ltd. They will continue the manufacture of cranes, hoists, etc., as heretofore. They have

recently completed a new plant in Walkerville, and report a large number of contracts in progress covering electric travelling and hand power travelling cranes and electric hoist work, also an increasing demand for Northern patented type E electric travelling cranes.

The Dominion Marine Department has ordered 40 buoy lanterns from the Safety Car Heating and Lighting Co., of New York and Montreal. These lanterns have been developed by this company to meet the demands of Lighthouse Bureau requirements. They are supplied with improved flashing mechanism capable of giving a double characteristic; that is, one second light, one and one-half seconds dark, one second light and five seconds dark; the short and long dark periods alternating with one second light periods intervening. They are known as 200 mm., and will be used for coast, harbor and river lighting.

The American Boiler Manufacturers' Association at its recent convention at New Orleans, La., authorized the secretary of the Supplymen's Association to publish a list of boiler manufacturers in the United States and Canada. This list comprises 1,000 names of boiler manufacturers, which have been verified through mercantile agencies, and by direct correspondence, and will be of interest to manufacturers of tools used in boiler shops, material men, mechanical engineers, and boiler buyers. The book is also arranged with a column in which the credit rating and financial responsibility can be inserted. It can be obtained, price \$5, from F. B. Slocum, Secretary, Supplymen's Association, Continental Iron Works, West and Calyer Sts., Brooklyn, N.Y.

The U.S. district court at Milwaukee, Wis., has appointed receivers for the Allis-Chalmers Co., the receivership being of a friendly nature and necessary to complete the company's organization. Under the reorganization plan the bondholders and preferred and common stockholders agreed to give up their securities and to accept instead preferred and common stock in a new company. The elimination of the bonds, \$11,148,000, relieved the company from a heavy burden of fixed charges. New capital amounting to \$5,192,000 was raised by assessment on the outstanding preferred and common stock of the old company. The result is that the company will be placed in a far stronger position than it ever was before. Allis-Chalmers-Bullock, Limited, Montreal, is a Canadian company, and entirely distinct from the Allis-Chalmers Co., but it will doubtless benefit materially by its U.S. ally's reorganization.

The agency business formerly carried on by Eadie-Douglas, Limited, at 304 University St., Montreal, has been reorganized and the name changed to Douglas-Milligan, Limited, with H. P. Douglas, President; G. M. Milligan, Vice President, and E. M. Watson, Secretary-Treasurer. The Toronto branch in the Confederation Life Building is under the management of W. F. Gouinlock, and the company has agents in the other principal cities. Its agencies include B. F. Sturtevant Co., Boston; Keystone Fireproofing Co., New York city; Leeds Forestry Co., Leeds, Eng.; McFarlane-Douglas, Ottawa; Terrano Jointless Flooring; Alphonse Custodis Chimney Construction Co.; Edward Darby and Sons Co., In., Philadelphia; Avery Scale Co., North Milwaukee; Esco preservative steel paint; Preservo and Ceresit waterproofing; Reliance ball bearing door hangers; De La Vergne Machine Co.; Jewett Refrigerator Co.; Etcher Wyss and Co., Richardson-Phoenix Co.; Roberts Manufacturing Co.; Nelson valves; N.S. gauges; Sweet's separators; Metropolitan injectors, Blackburn-Smith feed water filters.