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Telephone and Contractors' interests

Old Series, No. 234.  
New Series, No 152.

TORONTO, CANADA, OCTOBER, 1910.

For Subscription Rates,  
See page 847.

## Iron Castings, Defects and Remedies.

To many consumers an iron casting is an iron casting, and little thought or attention is given to its quality, apart from a general surface examination, to see whether it appears to be sound and if it is clean and of the desired dimensions.

In some cases, the casting must be machined prior to use, and the serious defect may develop that the iron is so hard as to turn the edge of the tool, or make the work of machining so slow that labor costs are high. If the casting cannot be machined, it must be rejected and delay occurs in getting replacement; and even when it can be slowly machined and finally gets into service, difficulty soon begins, for a casting of this type though having a high tensile strength, is unfortunately brittle and fragile under impact, and, as a consequence, failure is apt to occur after a short service.

The cause of such hardness is generally excess either of sulphur or of manganese, due to defective quality of the cupola charge, that is to say, of the pig iron, or scrap, or coke, one or all. In some cases also the silicon is too low for the character of the casting. Sometimes, too, the moulding sand has been improperly tempered and the iron has been chilled, or, again, perhaps a poor grade or an excessive proportion of scrap has been used in the charge.

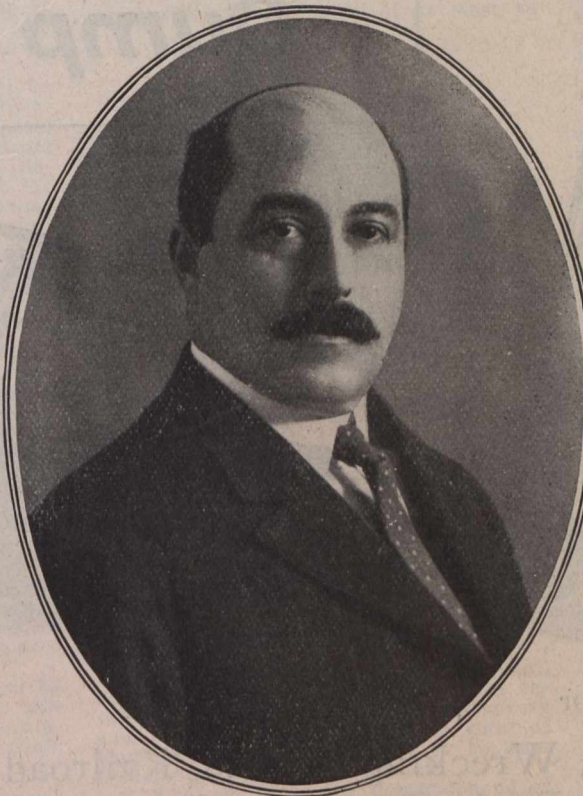
From this brief statement it will be evident that "hard iron" is not by any means a result of any one cause, but may be due to many widely differing conditions.

In order to find the proper remedy, the cause of the difficulty must, of course, be determined. Often an analysis of the iron will tell the story, or again, in some cases the physical condition of the casting will give the clue by presence and appearance of blow-holes, shrinkage-cracks and other characteristic defects.

If the hardness is caused by excess of sulphur or by otherwise incorrect composition, the inference is that proper care has not been used in the selection of the material, and purchase should be made under carefully arranged specifications, fixing the proportion of silicon, phosphorus, sulphur, and carbon to accord with the properties desired in the castings. For instance, if tough, strong, easily machined iron is desired, the silicon, sulphur, phosphorus, and manganese should be limited and the quality of the coke should be carefully investigated in order to hold down the proportions of sulphur and of ash, for obviously it is a sheer waste of time and money to pay great attention to the quality of the pig iron and then accept and use shipments of coke which may contain thirty times as much sulphur as is present in ever so poor a grade

of pig iron. Under such conditions nothing but hard castings may be expected.

Porous, spongy iron is another source of annoyance and loss to the consumer. Frequently a great deal of work will be put upon a casting in the machine shop, only to have a large cavity finally develop, rendering the casting unsafe for the service intended. In such case, replacement must be made by the foundry, but the labor is lost and the delay which occurs in replacement often causes great inconvenience. Frequently the surface of the casting shows no indication of this defective condition.



Howard G. Kelley  
Chief Engineer Grand Trunk Railway.

Porosity is frequently due to blow-holes in the iron, as for instance, when gas has been trapped in the casting owing to failure to provide proper vents. In some cases, the iron may not have been fluid enough when poured into the mold, and in consequence, the small bubbles of gas could not escape before solidification occurred, and an unsound, honeycombed castings is the result.

Every foundryman knows well the importance of "hot iron"—that is to say, iron which is at such a high temperature when poured into the ladle that it is almost as fluid as water. Such iron fills the molds thoroughly, and many of the foundry troubles which otherwise are

apt to result are avoided. To secure it, one must pay special attention to the cupola charge. A sufficient proportion of coke must be used, and its quality must be carefully regulated. The proportion of sulphur and of ash must be low, and dust and small pieces which would tend to check the draught and thus prevent free-burning must be absent. A sufficient air pressure must be maintained, and the cupola practice so regulated that a quick melt will be secured. Other things being equal, the shorter the time in the cupola, the better the chance to get good castings.

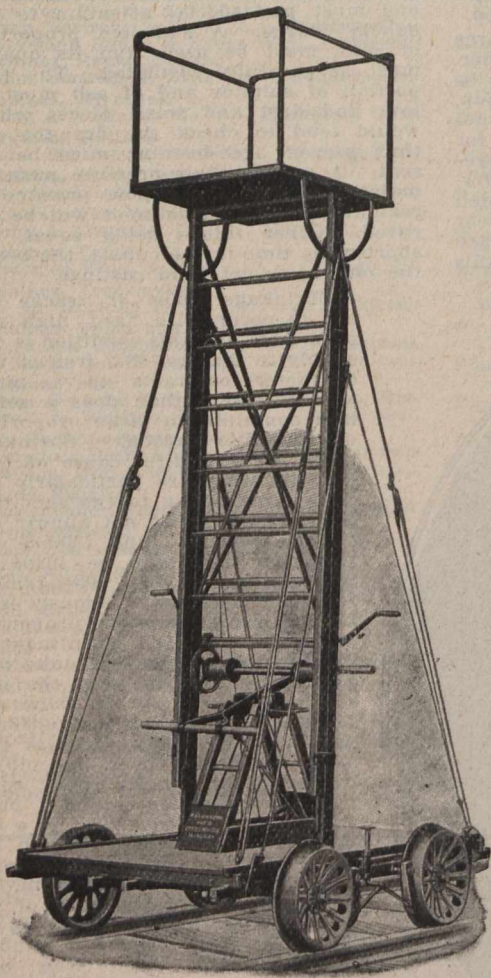
Shrinkage holes or cracks are apt to occur with hard, high sulphur iron, and this condition is due simply to the fact that iron of this character contracts to a much greater extent than does a softer iron containing a large proportion of graphitic carbon. Shrinkage holes are a fruitful cause of failure, and they are particularly objectionable owing to the fact that they frequently do not appear upon the surface, and hence the weakness may not be suspected until failure occurs. The remedy for such condition, obviously is to keep at a minimum the proportion of sulphur in each constituent of the foundry charge, and take proper precautions to keep the iron soft.

Defects of castings are, unfortunately, of so many varieties that any attempt to cover the subject even in a brief description, would weary your patience, and I have, therefore, confined myself to a few of the typical cases which are seen all too often in service. "Strong as iron" is an axiom, but frequently the appearance of the metal belies the truth. As an instance of this, I have in mind, a heavy, massive cast iron base weighing many tons which supported a large shop tool. After a short service cracks began to develop, necessitating the removal of the tool and the replacement of the base. A careful investigation was made to determine the cause of failure and it was found that the proportion of phosphorus and of silicon in the iron were excessive, causing the metal to be exceedingly

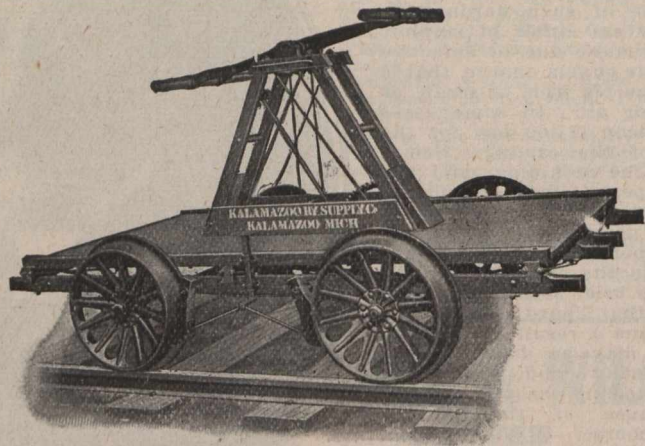
weak, and hence resulting in fracture. High phosphorus is particularly objectionable when the casting is subjected to impact, as for instance, in wheel-centres, cylinders, columns, etc., and unluckily for the consumer such iron can generally be obtained at a considerably lower cost than can a stronger, tougher, grade, and consequently, unless each shipment is systematically tested before use the better quality cannot be expected. Many cases have come under our observation in which wheel-centres and cylinders containing about one per cent. of phosphorus have cracked after a service of only a few weeks, or even days, while with the phosphorus reduced



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Protection of Wooden Trestles.

The Board of Railway Commissioners has passed the following order 11446:

In pursuance of the powers conferred upon it by secs. 30 and 269 of the Railway Act, and of all other powers possessed by the Board in that behalf; and upon hearing what was alleged at the sittings of the Board held in Ottawa on June 8, 1909, by counsel and representatives for the Canadian Northern, the Grand Trunk and the Canadian Pacific Railway Companies, and the Michigan Central R. Co.: it is ordered

1. That every railway company subject to the legislative authority of the Parliament of Canada, operating by steam power any railway or railways, any part or parts of which is or are constructed of, or upon, wooden trestles the whole of which cannot be seen from an approaching train for a distance of at least 1,000 ft., do, during May, June, July, August, September and October of each year, provide, place, and keep a watchman, track-walker, fire alarm signals, ballast flooring, zinc covering over caps and intersections, or approved fireproof paint, as hereinafter directed, for the purpose of protecting the said trestles from fire, each such company having the option of adopting any of the said foregoing methods of protection.

2. That every such company shall cause to be placed and maintained at every trestle less than 30 ft. in length, one barrel of a capacity of at least 45

walker shall see that water barrels are at all times kept filled to within 10 in. of the top, or forthwith report same to his superior officer. Every such watchman or track-walker, whenever any such trestle is injured by fire, shall, as soon as possible thereafter, report the same to his superior officer.

8. That the fire alarm signals be equal, in the opinion of an engineer of the Board, to the Montauk thermostat.

9. That if fireproof paint is used, one coat thereof, at least equal to the Clapp fireproof paint, be applied at least every five years.

10. That the ballast flooring be of gravel and be at least equal to the standard of the flooring adopted by the Great Northern Ry. Co., plans of which are on file with the Board. This flooring consists of a complete coating of gravel from beneath the head of the rail to the ties, extending laterally from outside guardrail to outside guardrail.

11. That if zinc or galvanized iron is used, the caps, stringers, and the outside of the batter posts of every such trestle, and, if the company desires, the ties, be covered with a zinc or galvanized iron covering.

12. That every railway company failing or neglecting to comply with any of the foregoing regulations, shall be subject to a penalty of \$30.

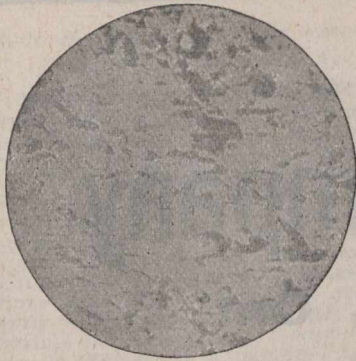
13. That every watchman or track-walker failing or neglecting to make inspection in accordance with the foregoing regulations, or failing or neglecting to make any of the reports herein required of him, or otherwise defaulting in any of the duties imposed upon him by this order, shall be subject to a penalty of \$15 for each such failure or neglect.

14. That every railway company shall cause every watchman or track-walker to be furnished with a copy of this order.

15. That order 5103, July 30, 1908, be rescinded.

A. E. Voysey, General Traffic Department, C.P.R., London, Eng., in renewing his subscription, writes: "I look forward with much interest to reading The Railway and Marine World every month."

The Board of Railway Commissioners has approved of the following passenger tariffs:—Supplement no. 1 to local standard passenger tariff no. 1 of the St. Maurice Valley Ry., fixing a fare of 3 cents a mile between Shawinigan Falls and Grand Mere, Que., same as is in force on the previously completed portion of the line from Three Rivers to Shawinigan Falls. Standard passenger tariff of the Algoma Central and Hudson Bay Ry.; and of the Manitoulin and North Shore Ry., at the rate of 4 cents a mile. Standard passenger tariff, C.R.C. no. 550 of the Great Northern Ry., for the following lines in Canada:—Crow's Nest Southern Ry., 4 cents a mile; International Navigation and Trading Co., 4 cents a mile; Manitoba Great Northern Ry., 3 cents a mile; New Westminster Southern Ry., 4 cents a mile.



Iron Castings. Fig. 1.

to about 1/2 of 1% and with the other elements properly proportioned the castings would give good service for years under the same conditions.

In cylinders, radiators, and other castings, a very close texture is essential in order to avoid leakage. Often there is little or no indication to the eye that holes exist in the iron, and yet under test the pressure gauge falls, showing that the iron is porous. Such character may be due to the presence of slag and oxide in the casting, or, in other words, the continuity of the iron may be broken up by fine particles of foreign matter. This condition may be caused by overblowing the iron in the cupola, or it may result from the impurities in the scrap, and in order to remove it thorough deoxidation is essential.

From what has been said, it will be readily understood that radical differences exist in the structure of the metal of castings, and within recent years great strides have been taken in the development and microscopic study of the characteristic forms, and it has become possible to identify many causes of difficulty by the appearance of polished or etched sections cut from the castings.

Fig. 1 shows a very open structure with large areas of graphite. A structure of this kind is relatively weak, and not well adapted to withstand impacts. In fig. 2 the iron is porous and contains considerable oxidized metal, a consequence of defective foundry practice. In fig. 3 the metal as a whole has a close texture, and is strong and well adapted for the service intended. The iron is largely free from slag and oxides and the graphite, although present in even larger proportions than in figure 1, is distributed in fine lines throughout the metal, greatly increasing the strength. The analysis of this iron showed that the constituents had been carefully selected, and its structure proves that correct methods of foundry practice have been used.

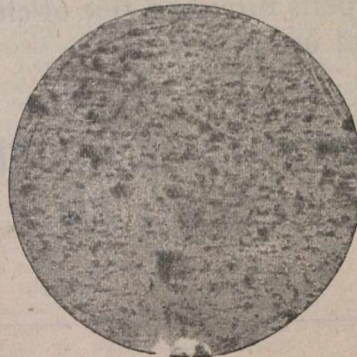
The foregoing paper was prepared by Robt. Job, Director of Laboratories, Mil-ton Hersey Co., Limited, for presentation before the Canadian Railway Club.

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

	Acres.
Canadian Northern Ry. ....	20.15
Canadian Pacific Ry. ....	972.46
Canadian Pacific Ry. roadbed and station grounds .....	156.62
Grand Trunk Pacific Ry. ....	836.51
Total .....	1,985.74

Sir Thos. G. Shaughnessy, President C.P.R., has given \$1,000 towards the National Apple Show at Vancouver, B.C.

A. Smith, cashier of the Canadian Northern Transfer Co., Winnipeg, Man., was placed under arrest Sept. 7, on a charge of embezzlement, the alleged shortage being \$2,500.



Iron Castings. Fig. 2.

gallons, and on trestles of over 30 ft. in length a like barrel upon or near each end, with intermediate barrels of the like capacity not more than 150 ft. apart; provided, however, that pile trestles over streams or other bodies of water need not be furnished with intermediate barrels.

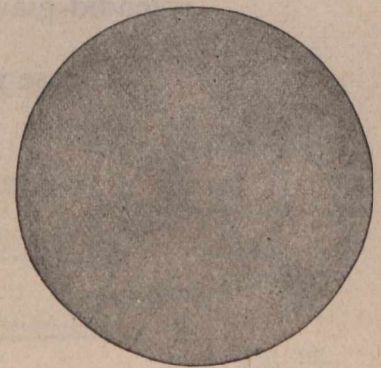
3. That every such company shall cause the said barrels to be kept filled with water.

4. That every such company shall cause all brush and dead grass to be removed from beneath and around every such trestle, and shall cause its right of way crossed by such trestle to be kept free from combustible matter.

5. That on or in the neighborhood of timber lands, or in localities distant from settlement, every such company shall cause to be provided pails for use at all trestles, and all watchmen and track-walkers shall carry such pails while upon duty at trestles.

6. That where the protection provided is by watchman or track-walker, all trestles on main lines shall be inspected at least twice each 24 hours, at intervals of not less than eight hours, and once every 24 hours on branch lines.

7. That in the event of any such barrel or pail not being in good and efficient condition for holding water, every such watchman or track-walker shall forthwith repair or replace the same, or if it cannot be done by him, he shall forthwith report such condition to his superior officer. Every such watchman or track-



Iron Castings. Fig. 3.



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By H. H. Vaughan, Assistant to the Vice President Canadian Pacific Ry.

(CONTINUED FROM SEPTEMBER ISSUE.)

**STAYBOLTS.**—In Canada and the U.S. are universally of wrought iron, generally 1 in. in diameter although sizes from  $\frac{7}{8}$  to  $1\frac{1}{8}$  ins. are used to a certain extent. The outer ends are usually drilled with a 3-16 in. hole  $\frac{1}{4}$  ins. deep, for the purpose of indicating by the escape of water any breakage that might occur. In place of the rigid bolt various types of flexible bolts are frequently substituted, and fig. 28, shows a flexible bolt which is in common use, while fig. 29, shows a patented type of flexible bolt called the Tate which is also used by a number of administrations replying. The latter possesses the advantage that deposits of scale cannot interfere with its flexibility. Flexible bolts of whatever type are usually applied to fire-boxes at the points where the amount of breakage of staybolts experienced is large. Fig. 30, shows a representative application in which the flexible bolts are disposed along the edges and corners of the fire-box sheets, which are the points where breakage most frequently occurs, and the number of flexible bolts is usually about 30 to 40 of the entire number of staybolts in the fire-box. On Wooten fire-boxes the breakage occurs in a dif-

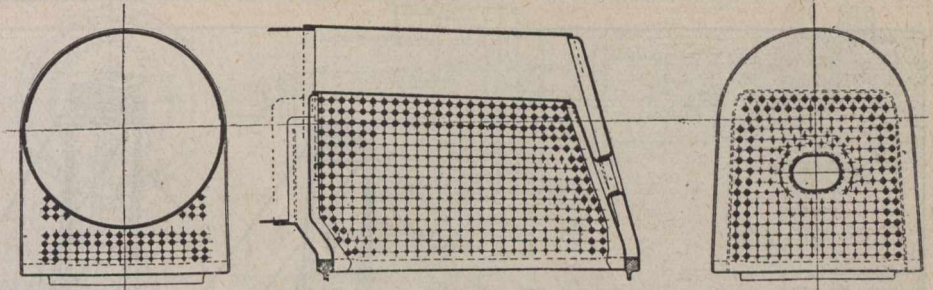


Fig. 30.

tubes have been found satisfactory for lengths of 18 to 20 ft. The tubes are usually 0.12 ins. in thickness but a number of administrations report using tubes 0.11 ins. in thickness with satisfactory results. The usual spacing center to center for a 2 in. tube is  $2\frac{3}{4}$  ins. and for  $2\frac{1}{2}$  in. tubes 3 ins. A number of administrations, especially those operating in districts where the water is not good, have increased the spacing to  $2\frac{7}{8}$  ins. for 2 in. and  $3\frac{1}{8}$  in. for  $2\frac{3}{4}$  ins., and report better circulation and improved results. In the front tube sheet the spacing is usually 2 11-16 to  $2\frac{3}{4}$  ins. for the 2 in. tubes, and a corresponding distance for  $2\frac{1}{2}$  in. tubes. No difficulty is experienced with smaller spacing in the front tube sheet, and the weight of the boiler can evidently be somewhat reduced. The tubes are usually disposed in rows that are vertical and incline at 30 deg. to the horizontal. Occasionally two vertical rows of tubes are used in the center, and one administration is using three vertical rows in the center, and three horizontal rows about the middle of the sheet. A few administrations use vertical and horizontal rows only and while these roads are comparatively few in number this arrangement is claimed to give better circulation and tend to keep the tubes cleaner.

Apart from the South American administrations which are using brass tubes the invariable practice is to cut out the tube when the end has been damaged by continual tightening, and subject it to what is termed rattling by rolling it with other tubes in a machine which removes the scale. A piece about 7 ins. long is then welded on the original tube to restore it to its proper length. This process is termed safe-ending and is illustrated in fig. 31. It will be seen that the body of the tube is expanded to taper from the inside outwards, while the safe end is tapered from the outside to the inner edge. The safe end is then welded to the body of the tube and the opposite end of the original tube cut off to length. The hole in the tube sheet is usually made of the same diameter as the tube, viz., 2 ins. for 2 in. tubes. The end of the tube is reduced in diameter to  $\frac{1}{8}$  ins.

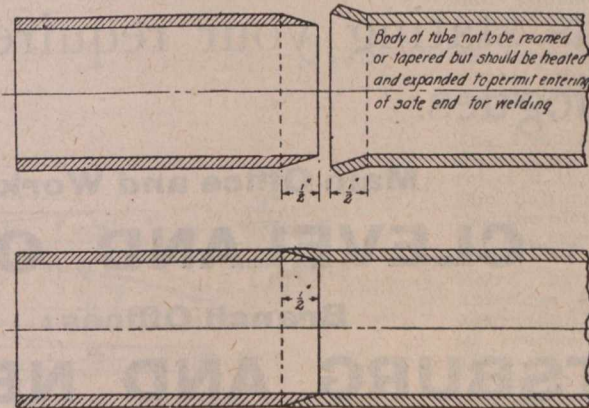


Fig. 31.

and a copper ferrule 1-16 in. or less in thickness and the same width as the thickness of the tube sheet is placed in the hole in the tube sheet with its edge about 1-16 in. below the back surface of the sheet. The ferrule is slightly rolled to hold it in place and the tube inserted until its end projects 3-16 ins. beyond the sheet within the fire-box. The tube is then rolled in place and its appearance at this stage is shown in fig. 32. The roller expander used is shown in fig. 33 of what is frequently termed the Dudgeon type. The tube end is next expanded with what is termed a Prosser expander, which expands the tube slightly on both sides of the tube sheet driving the projecting end outward and pinching the tube tightly against the sheet on both outside and inside. Its appearance when this operation is completed is shown in fig. 34. The tool which does this work is made in sections which are expanded by the driving in of a tapered pin and is called the Prosser expander after its inventor. It is shown in fig. 35. The end of the tube is next beaded over and its appearance when this is completed is shown in fig. 36, which also shows the action of the beading tool. This is shown in detail in fig. 37, and the gauge by which the tool is maintained in its proper shape is shown in fig. 38. The process illustrated while varying slightly in detail is practically in universal use throughout the U.S. The inside shape of the Prosser expander and of the beading tool vary somewhat with different administrations, but with each, the shape of these tools is maintained with the greatest care, as any variation in their form or dimensions, at the various points at which this work is done, will cause serious damage to the ends of the tubes through reducing their thickness unevenly and will materially affect the service they give. At the front end of the boiler no copper ferrules are used. The hole is usually  $\frac{1}{8}$  in. larger than the actual diameter of the tube, and the tube is slightly enlarged before being put in, and expanded into the sheet by a roller expander. Some administrations depend entirely upon rolling in the front sheet, others bead 20% of the flues in the front sheet while some bead

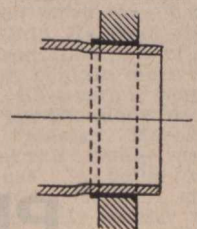
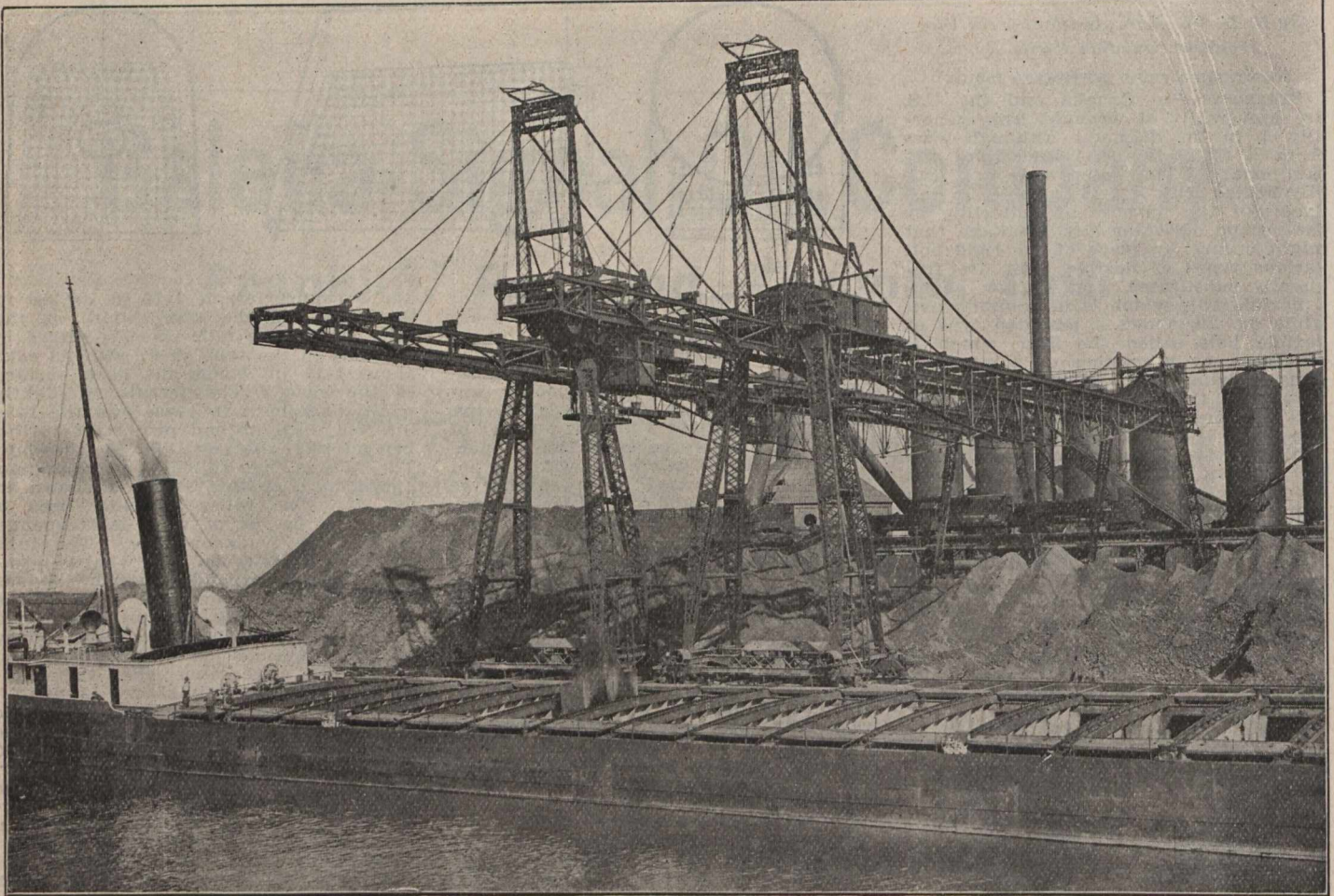


Fig. 32.

ferent location, viz., for about 2 ft. above the mud ring throughout the entire length of the side sheets, and roads on which this type of boiler is used apply flexible staybolts in that location. While not common practice certain administrations have largely extended the use of this type of bolt. It has given exceedingly good satisfaction so far as freedom from breakages is concerned but on account of its increased cost the question of determining to what extent it is economical to apply them is largely dependent on the service obtained from the ordinary type of bolt. This has been considerably improved by the increase that has taken place in the water space around the fire-box and recent indications would appear to show that while the use of a certain number of flexible staybolts is advisable that the number employed will not be largely increased. In South America where copper fire-boxes are used copper staybolts are alone employed and flexible bolts are consequently not used.

TUBES are usually 2 ins. in diameter although some administrations use  $2\frac{1}{2}$  in. tubes on large engines while others use  $2\frac{3}{4}$  ins. when tubes are over 15 to 18 ft. in length. Replies would indicate that the use of  $2\frac{1}{2}$  in. tubes is usual on long boilers, but that 2 in.





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all flues in the front sheet in addition. The usual practice is to bead a portion of the flues in the front sheet, especially when the boiler pressure is over 180 lbs. In some cases where horizontal and vertical rows of flues are used, these are beaded while those in the remaining rows are simply rolled. No trouble is reported in either case in the front flue sheet and there is no question that flues properly rolled into this sheet furnish ample strength to withstand the strains.

**WATER GAUGES.**—The use of both gauge cocks and glass water gauges is practically universal. The gauge cocks are located on the right hand side of the back of the boiler where they can be easily reached by the engineer. The glass water gauges are usually placed on the left side, the common arrangement being similar to that shown in fig. 39. The distance from fire-box crown sheet to the bottom of gauge cock, which is usually placed on a level with the bottom of the visible portion of the glass water gauge, varies considerably on different roads. The smallest figure reported is 2½ ins. and the greatest 7 ins. General practice would indicate that this figure should not be less than 3 ins. while many administrations prefer 3½ or 4 ins. The gauge cocks are usually three in number, the distance from center of bottom to top gauge cock being very generally 6 ins. The visible portion of the glass water gauge is very generally 8 to 9 ins. in length, the tendency being to reduce this and a length of 7 ins. is in common use. In place of glass tubes, various designs of reflex gauges are extensively used having an opening of 6½ to 8 ins. The water is visible in the gauge glass at from 3 to 4 ins. above the crown sheet while with the gauge glass full of water the depth of water is from 10 to 11 ins.

**BOILER AND FIRE-BOX MATERIAL.**—The plates of the shell of the boiler are almost universally obtained to specification, while those for the fire-box, in addition to conforming to specification, are frequently required to be furnished by certain makers. The specifications in use follow very closely those of the

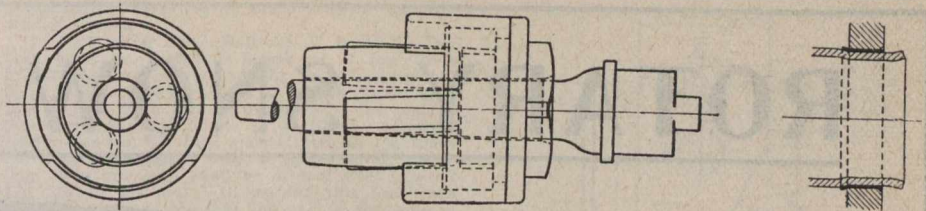


Fig. 33.

Fig. 34.

American Railway Master Mechanics Association, extracts from which are as follows:

1—Special requirements for shell sheets.—This grade of steel is known to the trade as flange or boiler steel. The desired tensile strength is 60,000 lbs. per square inch, with minimum and maximum limits 55,000 and 65,000 lbs. The elongation in 8 ins. shall not be less than 25% for sheets ¼ in. thick or under. For thicker sheets, deduct 1% from specified elongation for each one-eighth inch additional thickness.

2—Chemical requirements for shell sheets.  
Phosphorous shall not exceed (acid) . . . . . 0.06%  
Phosphorous shall not exceed (basic) . . . . . 0.04%  
Sulphur shall not exceed . . . . . 0.05%  
Manganese . . . . . 0.30 to 0.60%

3—Special requirements for fire-box steel.—The desired tensile strength is 57,000 lbs. per square inch, with minimum and maximum limits 52,000 and 62,000 lbs. The elongation in 8 ins. shall not be less than 26%.

4—Chemical requirements for fire-box sheets.  
Carbon . . . . . 0.15 to 0.25%  
Phosphorous shall not exceed (acid) . . . . . 0.04%  
Phosphorous shall not exceed (basic) . . . . . 0.03%  
Sulphur shall not exceed . . . . . 0.04%  
Manganese . . . . . 0.30 to 0.50%

5—Bending tests.—Test specimens for this purpose shall be 1½ ins. wide, and for material ¼ in. or less in thickness shall be of the same thickness as that of the finished sheet. For sheets more than ¼ in. thick the bending test specimens may be ¼ in. thick. The sheared edges of bending test specimen may be milled or planed. The cold bending test shall be made on material in the condition in which it is to be used. The specimen for quench bending test shall be heated to a light cherry red, as seen in the dark, and quenched in water having a temperature between 80 deg. and 90 deg. Fahr. Boiler steel and fire-box steel, before and after quenching, shall bend cold 180 deg. flat on itself without fracture on the outside of the bent portion. The bending test may be made by pressure or by blows. One cold bending specimen and one quenched bending specimen will be furnished

from each plate as it is rolled. The homogeneity test for fire-box steel shall be made on one of the broken tensile specimens.

6—Specimens for tensile test.—Two tensile test specimens will be furnished from each plate as it is rolled. The standard test specimen of 8 in. gauged length shall be used for the tensile test.

7—The Homogeneity test.—For fire-box steel is made as follows: A portion of the broken tensile test specimen is either nicked with a chisel or grooved on a machine, transversely about 1-16 in. deep, in three places about 2 ins. apart. The first groove should be made on one side, 2 ins. from the square end of the specimen; the second, 2 ins. from it on the opposite side, and the third, 2 ins. from the last and on the opposite side from it. The test specimen is then put in a vise, with the first groove about a quarter of an inch above the jaws, care being taken to hold it firmly. The projecting end of the test specimen is then broken off by means of a hammer, a number of light blows being used, and the bending being away from the groove. The specimen is broken at the other two grooves in the same way. The object of this treatment is to open and render visible to the eye any seams due to failure to weld up, or to foreign interposed matter, or cavities due to gas bubbles in the ingot. After rupture, one side of each fracture is examined, a pocket lens being used if necessary, and the length of the seams and cavities is determined. The broken specimen shall not show any single seam or cavity more than ¼ in. long in either of the three fractures.

A number of administrations specify that plates which are used for throat sheets, dome collars or which undergo severe flanging shall be furnished to fire-box steel specifications. The specifications for methods of inspection, variations in weight, etc., vary considerably but otherwise the more important variations from the above specifications are as follows: The Pennsylvania, Baltimore & Ohio and Southern Railways, specify that the elongation for boiler plates shall equal 14,000,000 divided by the tensile strength in pounds, and do not reject plates for high tensile strength if the elongation is over 28%. These roads also desire that the plates shall contain 0.03% copper. Several administrations in place of allowing a different amount of phosphorous in basic and acid steel simply specify that the amount of phosphorous shall not exceed 0.05%. The Pennsylvania Rd. specifies for fire-box steel a tensile strength of between 55,000 and 65,000 lbs. per square inch with an elongation equal to 14,500,000 divided by the tensile strength in pounds. The Baltimore & Ohio Railroad specify a tensile strength of between 48,000 and 58,000 lbs. per square inch with the same elongation. A number of administrations specify for fire-box sheets that the sulphur shall not exceed 0.035%. The Pennsylvania, Baltimore & Ohio and several other large administrations also specify that the manganese shall not exceed 0.45% or the silicon 0.03%. The Pennsylvania Rd. desires that the plates shall contain 0.03% of copper but reject if they contain more than 0.05%. The Baltimore & Ohio Railroad desire that the plate shall contain 0.02% of copper but reject if they contain more than 0.03%. In general, however, it may be stated that the specifications of the American Railway Master Mechanics Association represent the average material specified for use in boiler steel. There is a tendency to use steel either slightly softer, or slightly harder than that specified by the Association for fire-box plates and also to insist on the sulphur and phosphorous content being

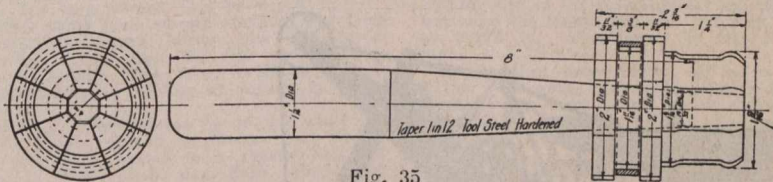


Fig. 35

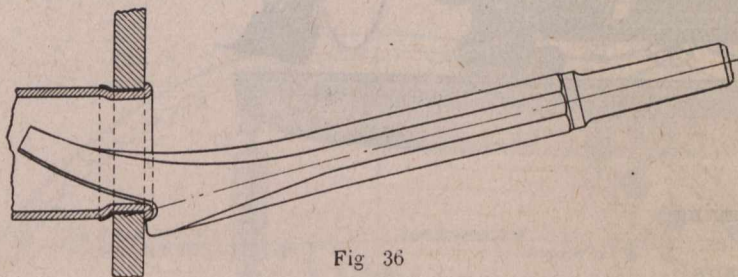


Fig. 36

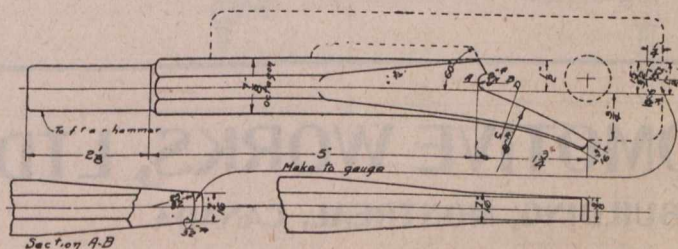
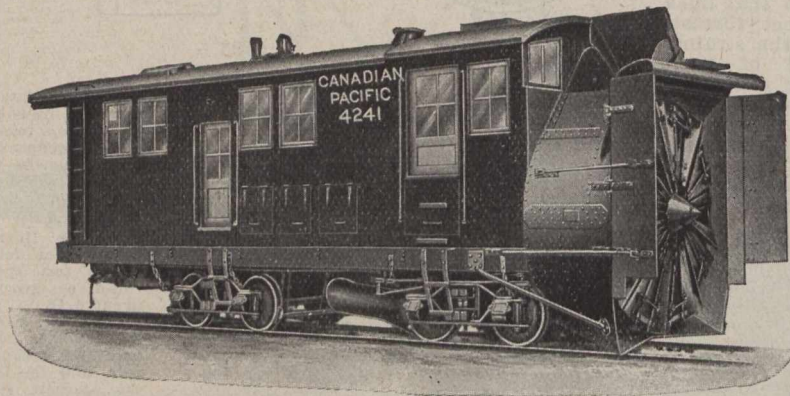


Fig. 37



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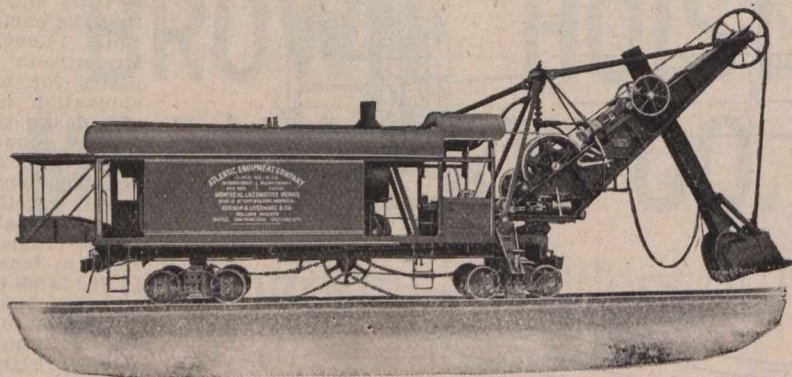
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somewhat below that mentioned. Many specifications specify that the steel desired for fire-box plates is the best that can be made by modern methods and the various specifications are evidently drawn with this end in view.

**TUBE MATERIAL.**—For many years charcoal iron has been considered the best material for boiler tubes. Seamless steel is now extensively used, and is considered by many preferable for that portion of the tube which is inserted into the tube sheet, as it is found to give longer life before renewal is required. A number of administrations replying express a preference for the lap welded charcoal iron tube, while others consider charcoal iron tubes resist pitting better than steel tubes but do not last as long in the tube sheet. Some administrations use a tube of charcoal iron but weld to it a seamless steel end, and where trouble is experienced by the water attacking the body of the tube this would apparently be the best practice. Usually the same material is used for the body of the tube and for the safe ends which are welded to it, after it has been removed from the boiler, in order to restore it to its original length. In some cases, however, the safe ends are made of greater thickness than the body of the tube, usually 0.135 in., and two large administrations apply steel safe ends to new wrought iron tubes before placing them in the boiler.

In order to determine the quality of the material some administrations depend entirely upon the brand, others entirely on the specification while a combination of the two is in general practice. Specifications employed are usually similar to those of the American Railway Master Mechanics Association which are as follows:

**SPECIFICATION FOR IRON LOCOMOTIVE BOILER TUBES.**

- 1—Tubes are to be made of knobbed, hammered charcoal iron, lapwelded.
- 2—Tubes must be of uniform thickness throughout, except at weld where an additional thickness of 0.015 will be allowed. They must be circular within 0.02 in., and the mean diameter must be within 0.015 in. of the size ordered. They must be within 0.01 in. of the thickness specified and not less than the length ordered, but may exceed this by 0.125 in.
- 4—Tubes must have smooth surface, free from all laminations, cracks, blister, pits and imperfect welds. They must be free from bends, kinks and buckles, and from evidence of unequal contraction in cooling or injury in manipulation.
- 5—Bending tests.—Strips ½ in. in width by 6 ins. in length, planed lengthwise from tubes, after having been heated to a cherry red and quenched in water at 80 deg. Fahr., shall bend in opposite directions at each end, without cracks or flaws and when nicked and broken

slight blows, these strips must show a fracture wholly fibrous.

6—Expanding test.—Sections of tubes 12 ins. long shall be heated a length of 5 ins. to a bright cherry red in daylight and then placed in a vertical position and a smooth taper steel pin at blue heat will be driven into the end of the tube by light blows of a 10 lb. hammer. Under this test the tube must stretch to 1½ times its original diameter without splitting or cracking. The pin used shall be of tool steel tapered 1½ ins. to the foot. In making this test, care must be taken to see that the end of the tube is smoothly trimmed.

7—One tube is to be tested, as required in pars. 5 and 6, in each lot of 250 tubes or less.

8—Crushing test.—A section of tube 2½ ins. long, when placed vertically on the anvil of a steam hammer and subjected to a series of light blows, must crush to a height of 1½ ins. without splitting in either direction and without cracking or bending at weld.

9—Hydraulic test.—Before shipping, each tube must be tested by manufacturer to 500 lbs. per square inch, and each tube must be plainly marked in the middle: "Knobbed charcoal, tested to 500 lbs. pressure."

10—In addition to the above tests, tubes which, when inserted into boilers, split or break while being expanded or beaded, and also individual tubes which fail to pass surface inspection will be rejected and returned to the makers at their expense.

11—Etching test.—In case of doubt as to the quality of the material, the following test shall be made to detect the presence of steel. A section of tube, turned or ground to a perfectly true surface on the end, will be polished free from dirt or cracks, and the end of the tube will be suspended in a bath of nine parts water, three parts sulphuric acid and one part hydrochloric acid. The bath will be prepared by placing water in a porcelain dish, adding the sulphuric and then the hydrochloric acid. The chemical action must be allowed to continue until the soft parts are sufficiently dissolved so that the iron tube will show a decided ridged surface, with the weld very distinct, while the steel tube will show a homogeneous surface.

**SPECIFICATIONS FOR SEAMLESS, COLD DRAWN STEEL LOCOMOTIVE BOILER TUBES.**

1—Tubes are to be cold drawn, seamless and made of open hearth steel.—It is desired that the steel from which the tubes are manufactured should have the following chemical composition:  
 Carbon ..... 0.15 to 0.20%  
 Manganese ..... 0.45 to 0.55%  
 Sulphur, below ..... 0.03%  
 Phosphorus, below ..... 0.03%  
 Tubes containing more than 0.03 phosphorus or sulphur will be rejected.

2—Tubes must be of uniform thickness throughout.—They must be circular within 0.02 of an inch and the mean diameter must be within 0.015 in. of the size ordered. They must be within 0.01 in. of the thickness specified and not less than the length ordered, but may exceed this by 0.125 in. They must be free from bends, kinks and buckles.

4—Bending test.—Strips ½ in. in width by 6 ins. in length, planed lengthwise from tubes, after having been heated to a cherry red and quenched in water at 80 deg. Fahr., shall bend in opposite directions at each end, without cracks or flaws.

5—Expanding test.—Sections of tubes 12 ins. long shall be heated a length of 5 ins. to a bright cherry red in daylight and then placed

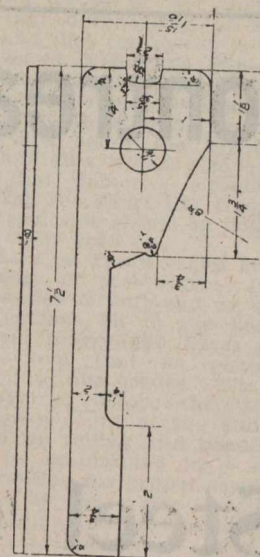


Fig. 38.

in a vertical position and a smooth taper steel pin at blue heat will be driven into the end of the tube by light blows of a 10 lb. hammer. Under this test the tube must stretch to 1½ times its original diameter without splitting or cracking. The pin used shall be of tool steel tapered 1½ ins. to the foot. In making this test care must be taken to see that the end of the tube is smoothly trimmed.

6—Crushing test.—A section of tube 2½ ins. long, when placed vertically on the anvil of a steam hammer, and subjected to a series of light blows, must crush to a height of 1½ ins. without splitting in either direction.

7—Flattening test.—A test piece of tube 6 ins. long, when flattened lengthwise cold until the sides are separated by a distance equal to the gauge of the tube, must not show any splits or cracks.

8—One tube is to be tested as required in pars. 4, 5, 6 and 7 in each lot of 250 tubes, or less.

9—Each tube must be subjected by the manufacturer to an internal pressure of 1,000 lbs. to the square inch and must be plainly stenciled Seamless Steel Tubes, tested to 1,000 lbs.

It is unusual to adopt these specifications in their entirety and the expanding test, in par. 6 of specification for iron locomotive boiler tubes, is frequently omitted. Several administrations also use a crushing test similar to par. 8 in specification for iron locomotive boiler tubes, but employ a section of tube 1¼ ins. long, which when flattened down solid must show but slight cracks for iron tubes, and no cracks whatever for steel. Direct tensile tests are seldom used, but one administration specifies a tensile strength lengthways of the tube of 48,000 lbs. per square inch, and an elongation of 20% in 2 ins. Another large administration uses a special test in which the tubes are forced cold over a steel tapered plug, and must expand to 1.3 times their original diameter without splitting, but in general there is a tendency to simplify specifications for wrought iron tubes, and with seamless steel tubes, on account of the uniformly high quality of the material required to withstand the drawing process, there is a tendency to accept tubes made by a reliable manufacturer without extensive specifications.

**STAYBOLT MATERIAL.**—The quality of the iron used is in most cases determined by the brand. On account of the continual bending strains which staybolts are subjected to, by the relative movement which occurs between the inner and outer fire-box sheets, the structure of the iron is at least equal in importance to its physical properties, and, with the exception of a few administrations, specifications are not used to determine whether any make of iron is acceptable or not, but are used in connection with the brand as a safe guard. One administration which depends upon specifications, expresses the opinion that the make of iron should also be taken into

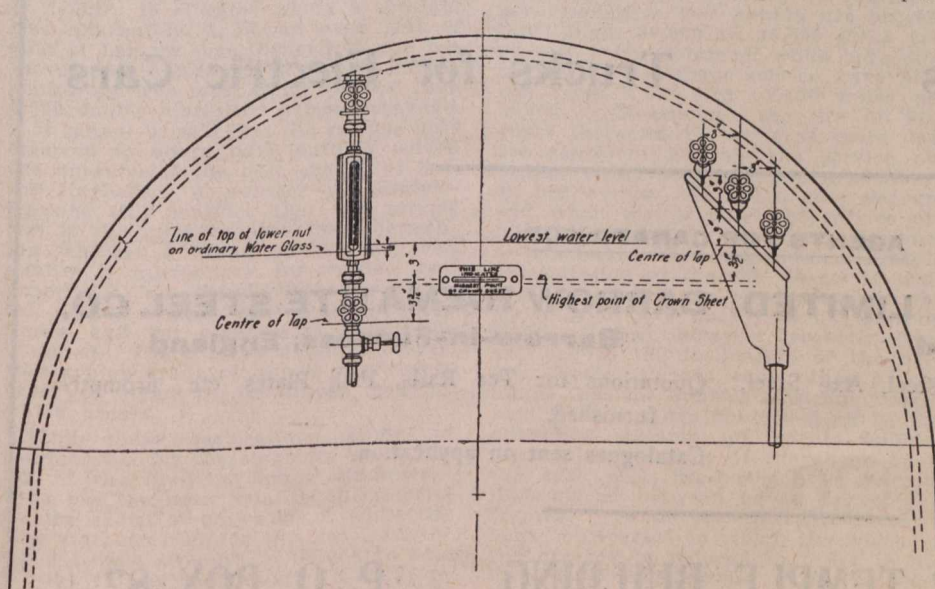


Fig. 39.



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consideration, thus confirming the opinion that the method of manufacture is an important factor in the life of the stays. Where specifications are used, the usual requirements are a tensile strength of from 48,000 to 52,000 lbs., with an elongation of 28% in 8 ins. In some cases the elongation required is specified to vary with the strength. Thus an iron is accepted with 46,000 lbs. provided the elongation is 30%, and with 51,000 lbs. provided the elongation is 27%. The reduction of area of the fracture is occasionally specified, and where dependence is placed on the specification, this requirement is more important than any other in determining the extent to which the iron has been worked and its relative quality. A practical test is frequently specified to ensure that the iron can be rivetted cold without splitting and bending tests are used in which the iron is specified to bend over 180 deg. without fracturing, either hot or cold, the additional requirement being occasionally inserted that it shall be tested in two directions at right angles to each other. A test is also in common use in which the threaded bar is bent for 180 deg. over a bar having a diameter equal to its own. These tests are all directed to ascertain the required physical qualities and requirements have during the past few years been specified which are intended to ensure the suitability of the structure of the material accepted by them for staybolt purposes. A threaded bar is held firmly at one end and vibrated at the other end in a straight line or in a circle. Under these conditions the iron must stand a certain number of vibrations without fracturing. The three leading specifications in use are as follows:

(a) The free end of the bolt, which is 6 ins. in length, is moved a circle of 1-16 in. radius, at a speed of 100 revolutions a minute, and at the same time subjected to tensile strain of 2,400 lbs. per square inch. To be accepted the iron must stand the following number of revolutions;  $\frac{3}{8}$  in. bar 3,000 revolutions, 1 in. bar 2,200 revolutions and 1-16 in. bar 1,500 revolutions;

(b) The free end of the bar, which is 5 ins. long, is vibrated in a straight line for 1-16 in. on each side of the axis of the bar, so that its free end is deflected over a total space of  $\frac{1}{4}$  in. The bar is at the same time subjected to a tensile strain of 2,800 lbs. per square inch. To be accepted the bar must stand not less than 2,400 double vibrations before breakage.

(c) The free end of bar, which is 5 ins. in length, is vibrated along a straight line alternately  $\frac{1}{8}$  in. on each side of axis of bar, so that the end of the bar moves over a space of  $\frac{1}{4}$  in. To be accepted the iron must stand not less than 2,000 double vibrations before breakage.

It cannot be said that the various tests referred to above have entirely solved the question of the best quality of iron for staybolts. A number of administrations still consider that the service test is the most reliable for determining whether a brand of iron of good quality is satisfactory for service, and experience has shown that the physical qualities may vary within wide limits, and yet satisfactory results be obtained. There is no doubt, however, that a high grade of iron is required in order to stand the continued bending which occurs.

While these specifications apply to the material for the staybolts below the top of the fire-box, many administrations use the same quality of material for the radial or crown stays, while the others accept iron for this service having a tensile strength of 48,000 to 52,000 lbs. and an elongation of from 26 to 28% in 8 ins. The latter practice is satisfactory on account of the greater

length of stays above the top of the fire-box, for which wrought iron of a reasonably high quality will meet requirements.

**LIFE OF FIRE-BOXES.**—The life obtained from steel fire-boxes varies considerably with the quality of the water used and with the type of fire-box. No reliable information is obtainable with reference to the influence of the quality of steel on the life of the fire-box with the exception that one administration reports steel having from 0.10 to 0.18% carbon has been found to give better results than steel having from 0.18 to 0.25% while several report that a special brand of acid steel having exceptionally low phosphorous and sulphur has been found preferable. Some administrations with locomotives of an older type in which the fire-box is deep and placed between the frames and where water is of good quality report the life of fire-boxes as high as 20 years and over, but the general experience with modern engines using 180 to 200 lbs. boiler pressure is that the life varies from two to four years in bad water districts, up to 10 years and over where water is good. The exact life of fire-boxes is difficult to determine from the fact that the various sheets composing it do not last the same length of time. Where the nature of the scale is such that the sheets become easily overheated and the service is severe, side sheets in engines of the wide fire-box type are occasionally replaced in from one to one and a half years, while crown sheets which do not deteriorate so quickly give considerably longer service. Thus one administration reports that side sheets are being renewed in from one to three years while crown and flue sheets average five years life.

It is difficult to present any correct figures on account of the great variation in the conditions. The figures given above are fairly representative of the replies received from a number of administrations. The Buenos Ayres and Rosario Ry. which uses both copper and steel fire-boxes states that with copper the life of the fire-box has been from 10 to 12 years and steel about four years. This would indicate a considerably longer life for copper fire-boxes than for one made of steel, but the copper fire-box has been found impracticable in American service on account of the rapid erosion caused by the sparks, due to the high rates of combustion at which engines are frequently worked. It should be borne in mind in connection with the life of fire-boxes, that in American practice the miles run per locomotive, per annum are exceedingly high, 30,000 to 35,000 miles frequently being obtained, while individual engines in passenger service have been run from 6,000 to 7,500 miles per month. Measuring the life of fire-boxes therefore in terms of years does not represent entirely the service obtained, unless the miles run per month or per annum are taken into account and when this is done the service obtained from steel fire-boxes becomes satisfactory. The reason for the rapid deterioration of the side sheets in wide fire-box engines in service where the water is of bad quality is not entirely clear. It has, however, recently been ascribed to the inclination of the fire-box sheets towards each other at the top so that the bubbles of steam formed next the sheet are not wiped off by the ascending streams of steam bubbles from other portions of the sheet, as is the case with fire-boxes of a narrow type placed between or on top of the frames. Some boilers have recently been constructed in which the width of the fire-box is reduced in order to allow of the inclination of the fire-box sheet being outwards towards the top so as to obtain this action. Whether

from this cause or not there is little doubt that overheating of side sheets occurs and that the reason is on account of insufficient circulation. Some recent experiments have indicated that an improvement may be obtained by arranging for a greater depth of water in the sides of the fire-box below the surface of the grates and this would also confirm the theory that defective circulation is a reason for the short life frequently obtained from side sheets on boilers of the wide fire-box type.

**THE LIFE OF TUBES** varies largely with the quality of the water. It is common practice to safe-end or weld additional portions on to the body of the tube from four to 10 times where the water is such that no pitting of the body of the tube occurs. The length of time required before the tube is removed on account of the end being so damaged by rolling and beading that it cannot be maintained in a sufficiently tight condition for proper service, varies, according to the water conditions, and type of engine, from five to six months up to three years and over. On one railway, tubes are removed for safe-ending after 40,000 to 60,000 miles in freight service and 75,000 to 110,000 miles in passenger service. On another they are removed in bad water districts after five to six months and in relatively good water districts after 10 to 12 months. The shortest life of the body of the tube reported is from two to three years while some administrations report tubes lasting as long as 15 years and over. Where no pitting occurs and the water is of an average quality, the life of the body of the tube will average from eight to 12 years before it is scrapped on account of insufficient strength. The Buenos Ayres and Rosario Ry. which uses both brass and iron tubes reports brass tubes as lasting from 10 to 12 years while iron tubes are scrapped after four years on account of pitting. This evidently is caused by the quality of the water and there would not appear to be a very great difference between the life of the brass and iron tubes where the water is not of such a quality that the body of the tube is attacked.

(To be continued in next issue.)

### Railway Commissioners' Enquiries.

The Board of Railway Commissioners has asked each railway under its jurisdiction to file by Oct. 1 a statement showing separately for each division, or each district, the number of level crossings on its lines, either with the company's own tracks or with other companies' tracks, electric or steam. The statement is also to show what form of protection is now provided at the crossings, whether the interlocker is full or half, and if derails are inserted on one or both of the companies' lines forming the level crossing.

Another statement has been asked to be filed by Oct. 1, showing the location and name of street or highway at which electric bells are located, giving sufficient particulars to enable the Board's inspectors to identify the crossings.

The American Railway Bridge and Building Association will meet at Denver, Colorado, October 18 to 20, instead of at Fort Worth, Texas, as originally intended.

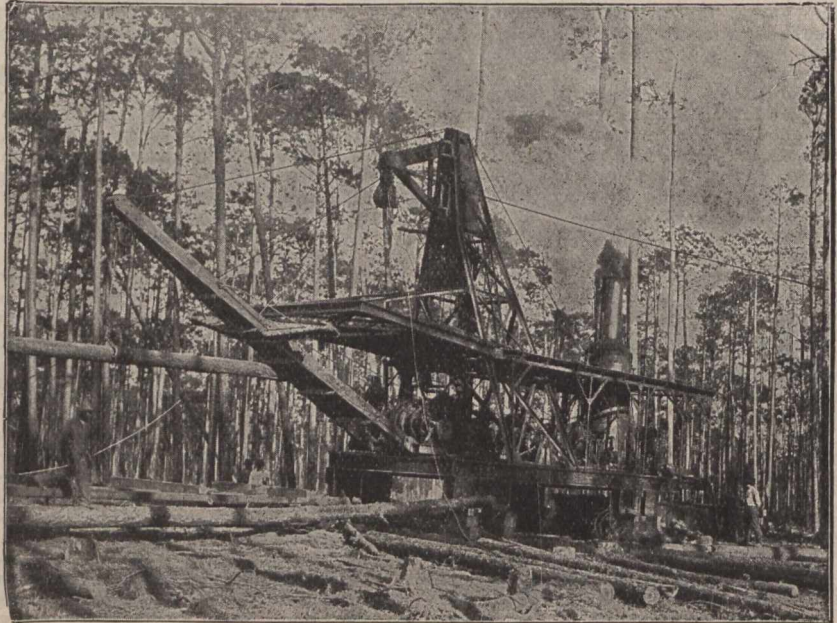
Orders-in-council have been passed at Ottawa, authorizing the sale to the C.P.R., at \$10 an acre, of the following areas in the Yoho Park, in the British Columbia railway belt. For sidings and ways at Leauchoil, 9.50 acres; for station grounds at Wapta, 3.84 acres; for a water pipe line at Porcupine Creek, 2.16 acres; for station grounds and sidings at Ottertail, 1.15 acres.



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The uppermost leg of the jib has a spring connection to the tower, reducing shocks. All strains due to skidding are absorbed by the guy lines. The swinging boom is operated by wire ropes passing through sheaves suspended from a steel frame projecting from the tower and leading to two drums on loading engine, controlled by one lever. Machine is raised or lowered by hydraulic or patented geared jacks.

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**C. P. R. Suburban Tank Locomotives.**

By G. I. Evans, Mechanical Engineer C. P. R.

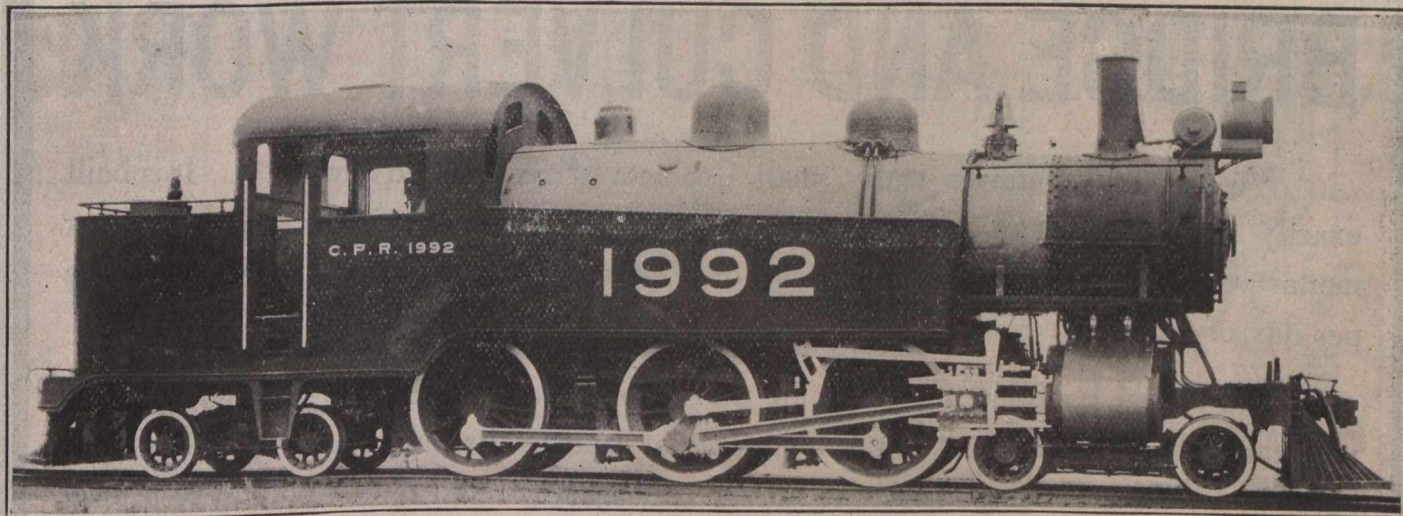
Two of these 4-6-4 locomotives have been designed and built under the supervision of H. H. Vaughan, Assistant to the Vice President, at the C.P.R. Angus shops, Montreal, for suburban service on the main line out of Montreal. They run from Windsor St. station to Point Fortune, Que., 47 miles. The average train consists of six passenger cars and one baggage car; there are seven regular and 13 flag stops westbound, and four regular and 12 flag stops eastbound; the schedule times are 120 and 105 minutes respectively. Water and coal are taken at Rigaud, 40 miles from Montreal. The driving wheels are 63 in. in diameter and there are front and back four-wheel trucks; the capacity of the tank for coal is four tons and for water 3,000 gallons, which, in combination with a superheater, is sufficient, otherwise they could not make the water tank at Rigaud. Although in service but three months, these locomotives have already made something of a coal record, the consumption per unit mile (1,000-ton miles) was 345 lbs., and per locomotive mile 79 lbs., for the period ended July 14, which on suburban service, are very satisfactory figures.

is shown by the line drawing and half-tone engraving. Considerable attention was paid to appearance, and the outlines of the tanks, coal bunker and cab were given considerable study before they were finally decided upon. The desired effect was to be such as to give the impression that the general appearance had been developed along definite lines and not merely allowed to grow carelessly into a combination of curves and rectangles like a child's block house, as detail after detail was worked up. There is, therefore, a harmony of outline and balance of the large flat surfaces of the tanks and cab which is seldom found on American tank locomotives.

As a tank locomotive for use in the service for which these were designed must be of such capacity as to bring its weight up to the limit of the bridges, every detail of the design was carefully figured so as to obtain sufficient strength with the least possible weight. This is illustrated by a number of features in which structural steel and steel plates have been used to build up brackets, braces and cross-ties which are usually made of cast steel; as, for example, the link bearing cross-tie which also forms a support for the tanks and a frame brace. Reference to the detail of this and the outline drawing shows that there is a

ly strong to take push pole thrusts, but between the frames, where the pilot coupler is attached, it is strongly braced by 1 in. plate. There is a 15 in. channel facing which extends out to the sides of the back tank and has  $\frac{3}{8}$  in. top and bottom cover plates which braces it strongly together. The front bumper, which will have to withstand cornering thrusts and also protect the cylinders, is of a much stronger construction than the rear. There is a 15 in. channel facing, but the top and bottom cover plates have been made  $\frac{1}{2}$  in. thick and strongly reinforced by  $3\frac{1}{2}$  x  $3\frac{1}{2}$  x  $\frac{3}{8}$  in. steel angles. There is a steel casting between the frames which backs up the drawhead and also has flanges to which the top and bottom cover plates are bolted.

TANKS AND CAB.—The front tanks, cab and rear tank are built up together in such a way as to be continuous from front to back. The front tank is secured to the boiler at a point just back of the cylinders, where there is no expansion, which means that it is rigid with the main frame, and, as the rear tank and cab construction is solidly braced to the frames the boiler does not, as with the usual construction, expand, carrying the cab back with it, but is free to move backward between the front tanks into the cab, although supporting at the same



Canadian Pacific Railway Suburban Tank Locomotive.

ures. The principal dimensions, etc., are as follows:

Tractive power .....	28,100 lbs.
Weight on drivers, working order ..	135,000 lbs.
Weight on front truck, working order ..	49,340 lbs.
Weight on back truck, working order ..	51,660 lbs.
Weight, total, in working order .....	236,000 lbs.
Wheel base, driving .....	14 ft. 10 in.
Wheel base, total engine .....	38 ft. 10 in.
Weight on drivers ÷ tractive effort .....	4.8
Tractive effort ÷ diameter drivers ÷ equivalent heating surface .....	753
Equivalent heating surface ÷ grate area .....	71
Weight on drivers ÷ equivalent heating surface ..	57.4
Cylinders, diameter and stroke .....	20 x 26 in.
Valves, diameter and kind ..	Piston, 12 in. diam.
Driving wheels, diameter .....	63 in.
Driving axles, size .....	9 x 12 in.
Boiler style, radial stayed, wagon top ..	200 lbs.
Working pressure .....	114 x 41 $\frac{1}{2}$ in.
Firebox, length and width inside ..	114 x 41 $\frac{1}{2}$ in.
Firebox, water spaces .4 in. front, 3 in. back, and 3 $\frac{1}{2}$ in. sides.	
Firebox, thickness of sheets. Top and sides $\frac{3}{8}$ in., tube sheet $\frac{1}{2}$ in., back $\frac{3}{8}$ in.	
Tubes, number and diameter—	22 5 in., 173 2 in., 165 $\frac{3}{4}$ in.
Length of tubes .....	1,645 sq. ft.
Heating surface, tubes, 5 in. and 2 in. ..	156 sq. ft.
Heating surface, firebox .....	1,801 sq. ft.
Heating surface, total .....	3,66 sq. ft.
Superheating surface .....	2,350 sq. ft.
Equivalent heating surface .....	33.1 sq. ft.
Grate area .....	Four-wheel, radius bar.
Engine truck, kind .....	31 in.
Wheels, diameter .....	6 x 10 in.
Axles .....	3,000 gallons.
Water capacity, total .....	4 tons.
Coal capacity .....	

The general outline of the locomotive

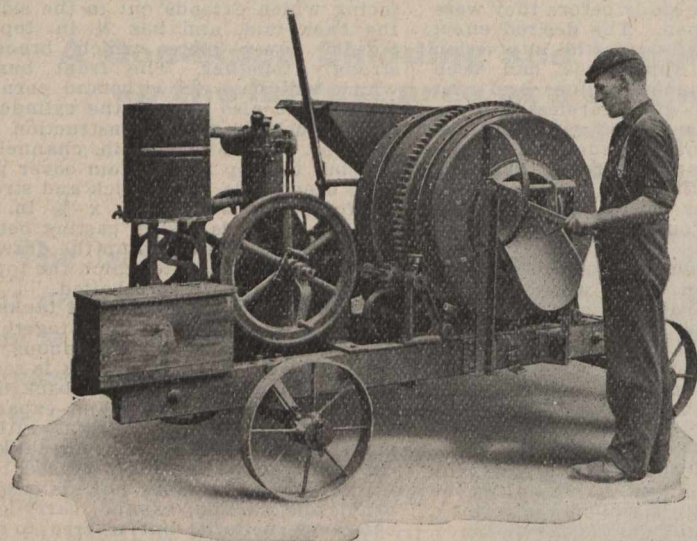
main vertical member of  $\frac{7}{8}$  in. steel plate riveted to a  $\frac{3}{8}$  in. horizontal plate by steel angles. The side tanks are supported from the vertical member by  $\frac{1}{4}$  in. expansion plates and braced longitudinally to the horizontal plate by  $\frac{1}{4}$  in. gussets. The link is carried by the vertical member backed up by the tank longitudinal gussets. The cross-tie is secured by the main frames by vertical bolts through its horizontal member, which has a 31  $\frac{1}{4}$  in. frame bearing and by two 3 x 2 x  $\frac{1}{2}$  in. steel angles bolted to the main frames on either side and afterwards riveted to the cross-tie. As the tanks are secured to the boiler at its front end and the whole construction of tanks and cross-tie riveted and bolted together both to boiler and frames, it forms an absolutely solid support for the link; in other words, the tank has been made to reinforce the cross-tie and resists the thrust of the link.

Other structural steel details are the rear engine truck cross-tie, front and back bumpers, expansion brackets, etc. The rear engine truck cross-tie is composed of a  $\frac{3}{4}$  in. plate, braced by two  $\frac{3}{8}$  in. plates riveted to it. A check for the frame fit on each side was obtained by machining down a 1 in. plate to form the horizontal member. The rear bumper outside the frame is made only sufficient-

time the weight of the rear end of the front tanks. This has been arranged by making the front plate of the cab  $\frac{1}{4}$  in. thick and reinforcing it by a 3 x 3 x  $\frac{3}{8}$  in. angle which rests on top of the boiler and extends outward on each side to bolt to a lug on the top of each side tank. This angle is not studded to the boiler, but rests on a smooth filling strip on its roof sheet to permit of free movement without putting any strain on the cab front or tanks. The tanks and cab are of the usual plate construction, strongly braced, the tanks have a system of splash plates so arranged as to effectively break up any surge of water from end to end. The top of the front tank is in line with the top of the rear tank on which the filling hole is located and two 7 inch equalizing pipes connect them together.

FRAMES.—The main and front frames are of steel, cast in one piece, and the back splices, which are wrought-iron, are let into a machined fit 1 in. deep and bolted on by 11 bolts  $1\frac{1}{2}$  in. in diameter. Through the use of Walschaert valve gear it was possible to liberally cross-brace the frames. At the front is the front bumper casting, followed by the cylinders, guide yoke and yoke sheet, link-bearing cross-tie and waist sheet, front expansion truck cross-tie and back bump-





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1910 Model  
"Ransome"  
Concrete Mixer  
is recommended for

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The No. 4 Ransome machines are all equipped with a Gasoline Engine, complete with tanks, batteries, etc., also fitted with special Fixed Charging Hopper. While the batch in the drum is being mixed the hopper is being filled and by the pulling of a lever the whole batch is fed instantly into the mixing drum. The discharge is accomplished by reversing the discharge chute, as shown in cut.

This little No. 4 Mixer is complete in itself and is ready for instant operation. For bridge, culvert or small work of any description there is no better machine to be obtained.

Write for price and further particulars.

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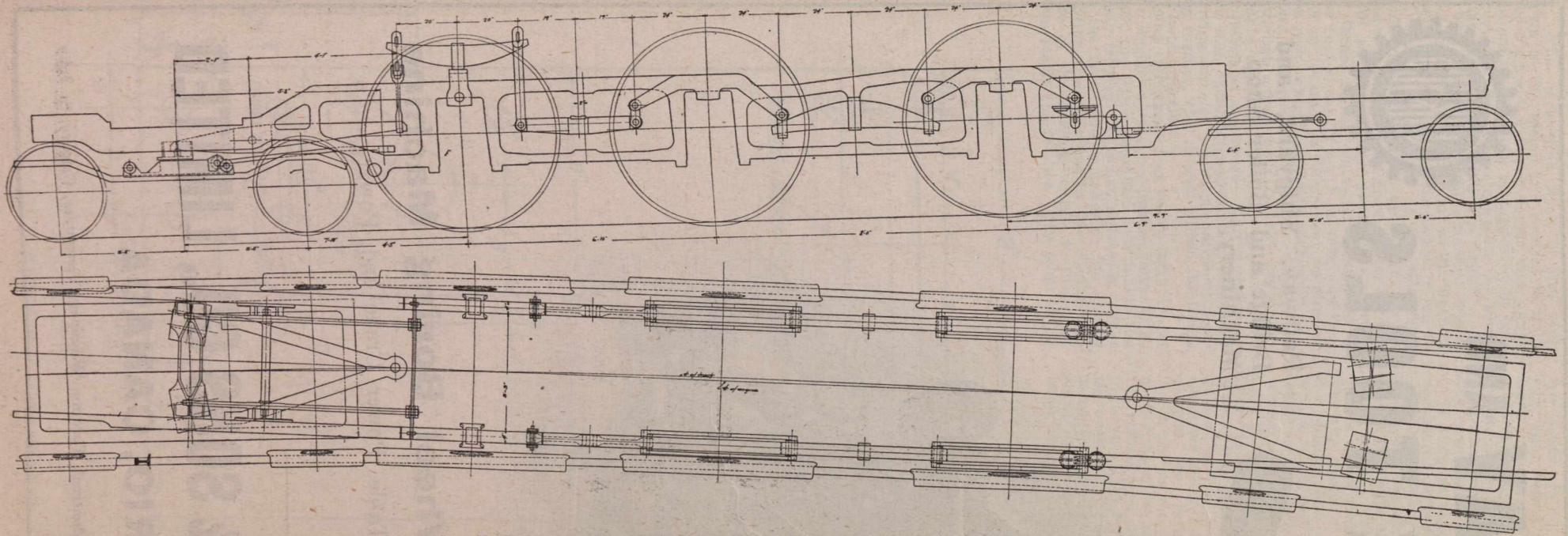
Railway, Contractors' and Mining Supplies  
**MONTREAL**

— Representatives —

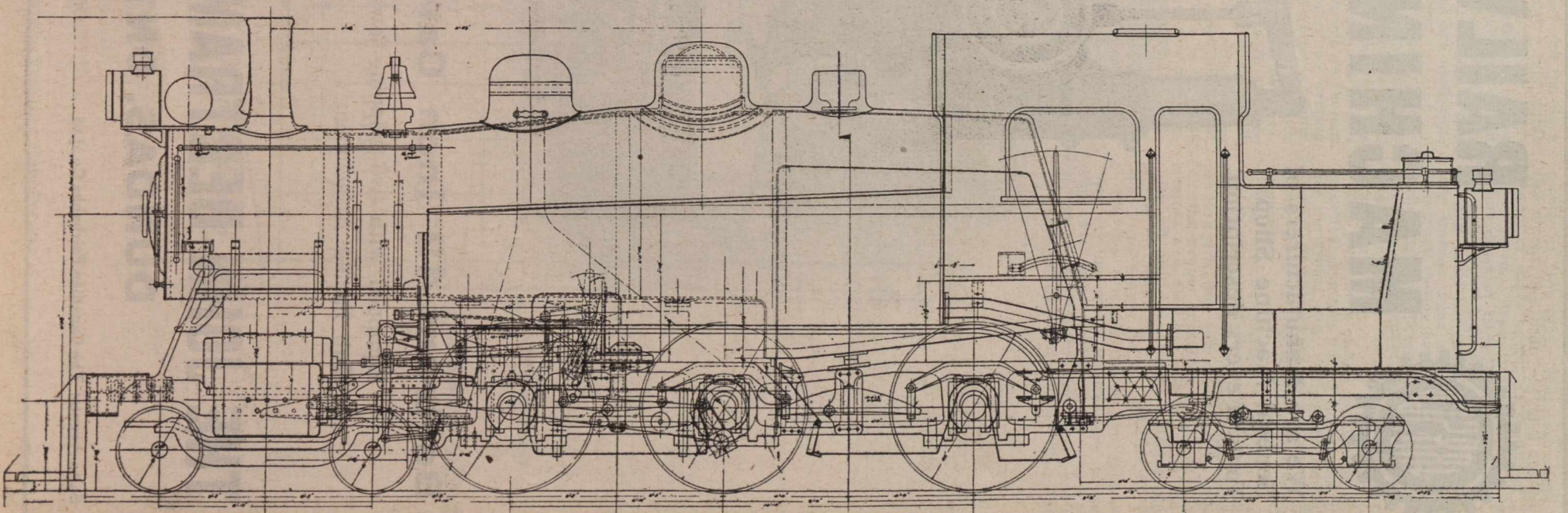
Ritchie Contractors Supply Co., Quebec and Vancouver.

Dunn Bros., Winnipeg, Man.





C.P.R. Suburban Tank Locomotive. Spring rigging arrangement. Wheel base of engine on 20 degree curve.



Canadian Pacific Railway Suburban Tank Locomotive.



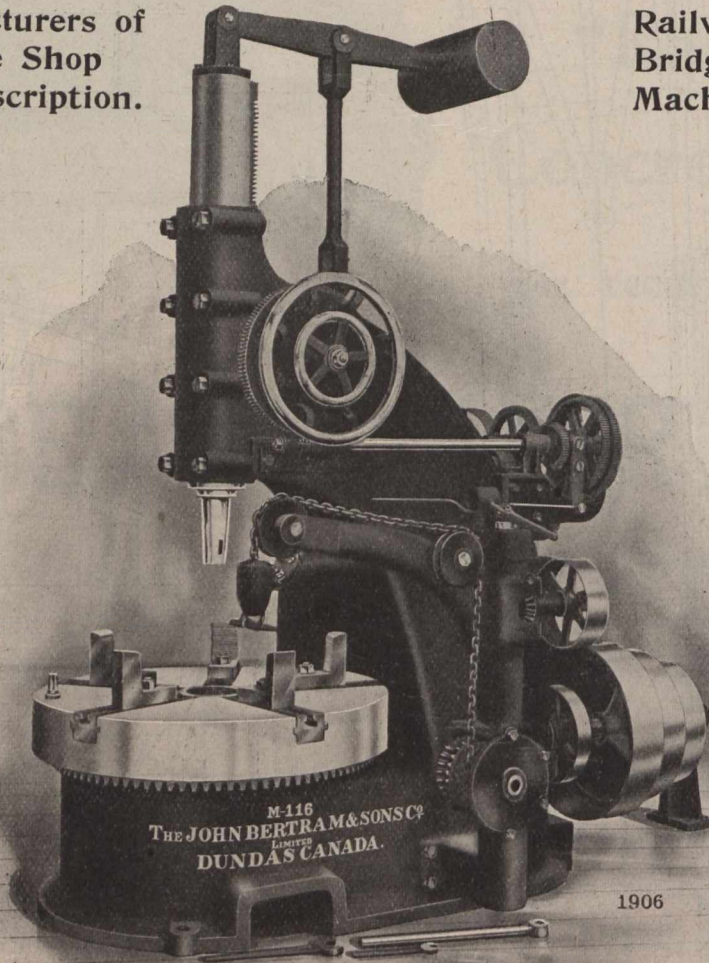


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er. The back tank itself is also built down to the frame and secured to it by two 3 x 3 x 3/8 in. steel angles, and, as the bottom of the tank is supported by two crossbars of 5-16 in. steel plate the whole construction is exceedingly rigid.

**THE BOILER** is of the extended wagon top type with medium width firebox. There are 173 2 in. flues and 22 5 in., 13 ft. 9 3/4 in. long. All of the side stays underneath the front tanks are flexible and a new system of cross braces for the roof sheet has been used. There are 8 of these, 1 1/2 in. diameter, connected to the roof sheet by 5 x 3 in. tees, and they are so located as to prevent bulging of the roof, which reaches a maximum at a point just above the crown. The boiler, although not of the wide firebox type, has ample capacity to supply steam to the cylinders at any speed. This is shown by the B.D. factor (tractive effort x diameter driving wheels), which is equivalent heating surface, 753, or well within the limits of good practice.

**THE CYLINDERS AND VALVE GEAR** are of the inside admission piston valve type, with the valve chambers cast inside the main frames. This necessitates a rocker at the front end to transfer the line of motion from the radius bar on the outside of the driving wheels to the valve stem inside the frames. The front cylin-

der heads are of cast steel and the back cast iron, lugged for alligator type guide bars. The valve gear is of the Walschaert type, and the details are of the C.P.R. Co.'s usual construction, except that they have been made lighter than any previously used on this road. Two 3 in. vacuum relief valves are used connecting to each steam chest.

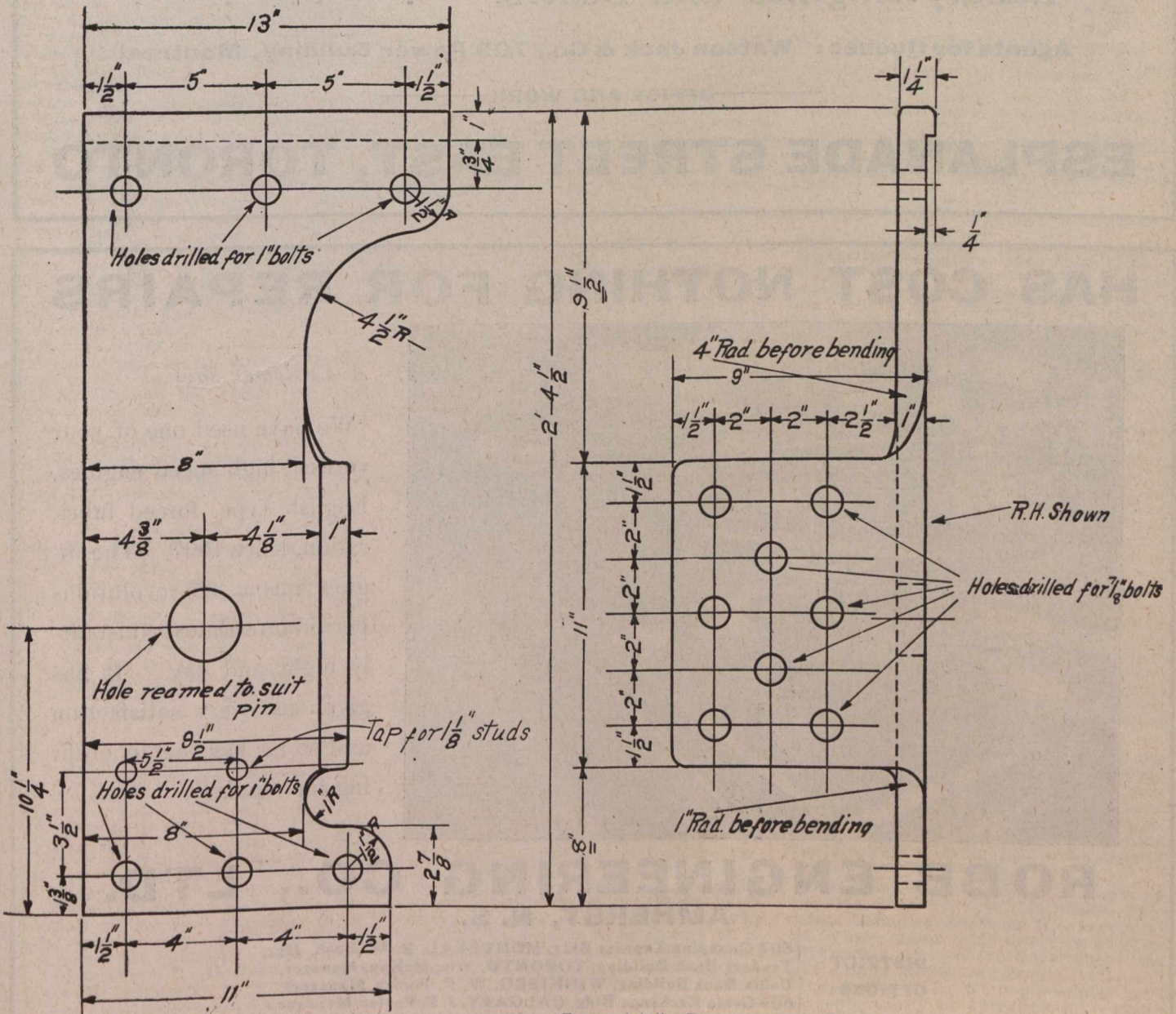
**SPRING RIGGING.**—The engine is equalized from the front truck to the back driver with equalizers on each side of the front truck. The back truck takes its weight direct from the frame and in this way the points of support are as though the engine had four pairs of driving wheels equalized together and a four-wheel centre pin leading truck. Both trucks, although of the four-wheel type, have radius bars, and the length of these bars has been determined with a view of making the rear wheels do some of the guiding and relieve the front wheels of excessive flange wear. This is best explained by referring to the diagram, which shows the wheel base of the locomotive, on a 15° curve, and the lengths of the radius bars are such that when taking a curve the front flange bears against the outside rail and the rear flange on the same side is also brought close to it instead of the outside leading and inside back flanges bearing as is usual with

trucks of this type. Side movement of the trucks has been provided for by a system of slides having an incline of 1 1/4 in. in 10 in. These inclines have a centering effect of 8,100 lbs. and work in an oil bath formed by flanges on the supporting cross-tie on the truck; in this way uneven wear should be prevented. The truck radius bar and driving equalization systems present a novel and interesting arrangement, but the results obtained in service more than justify the innovation.

**THE ASHPAN** is of the usual plate construction and has liberal aid spaces under the firebox ring. It is fully protected against fire throwing by an inside deflector plate extending down past the air openings.

The injector check is of the latest C.P.R. type located on top of the boiler 30 in. back of the flue sheet and is placed underneath the bell stand. The check casting proper combines the R. & L. injectors and also has a connection for a blow-off pipe. An inside deflector plate serves to distribute the water after entering the boiler.

**DRIVING WHEELS, RODS AND BOXES.**—The driving wheel centres are of cast steel with pear section spokes and arch section rims; cast iron hub liners are let into and studded to the hubs. These run



C.P.R. Suburban Tank Locomotive. Frame details, Expansion Plate Bracket.



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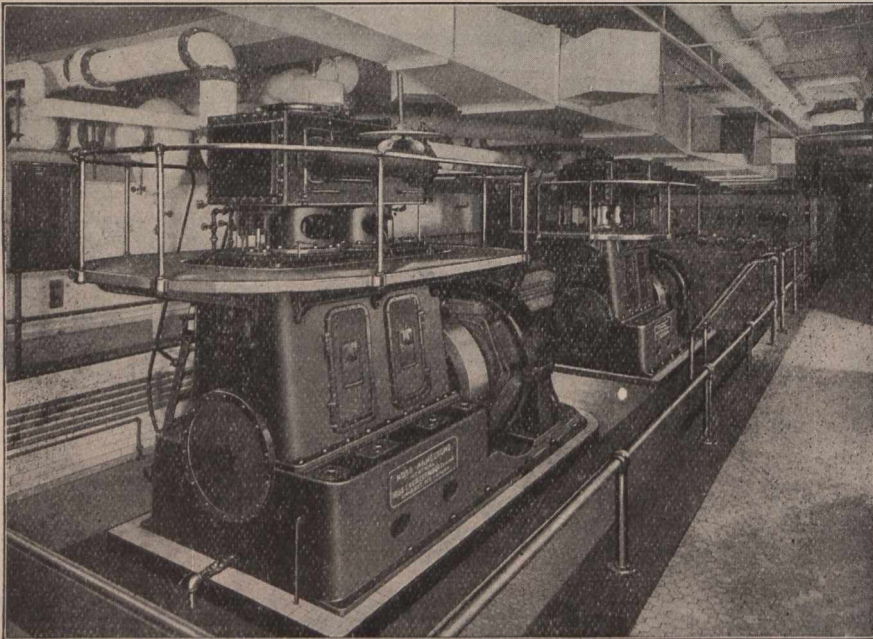
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609 Grain Exchange Bldg. CALGARY, J. F. Porter, Manager.



on babbitt faces on the driving boxes. Supplementary counterbalance weights are used in conjunction with the ordinary balances opposite the cranks and the wheels are balanced in accordance with the system worked out by H. H. Vaughan and fully described in the Railway and Marine World of November, 1909. The figures for one of these engines is reproduced in one of the illustrations.

The side and main rods are I section forged from mild steel with strap connections on the back end of the main rod and main crank pin. The driving boxes are 9 x 12 in. on all wheels. Faces in contact with shoes and wedges have brass liners studded and lugged to the boxes. Grease lubrication is used throughout.

**GUIDES.**—The guide bars are of mild steel arranged for a crosshead of the alligator type with yokes of universal mill plate 1½ in. thick made in three pieces. The cross plate suspends the legs, which are bolted to it with nine 1½ in. bolts. These in turn carry the guide bars by double cast steel knees. The crosshead is exceedingly light for a crosshead of this type; it weighs 350 lbs. complete.

Removable sectional liners are used and may be replaced when worn, without disconnecting the crosshead, by simply removing the side plates, which are held in place by six ¾ in. bolts. This is one of the most successful types of crosshead which has ever been used by this road, and the difficulty of slack between the crosshead and bars has entirely disappeared since the adoption of this type of renewable shoe.

**SUPERHEATER AND SMOKEBOX.**—The smokebox and superheater arrangement are illustrated by the line drawing. Single adjustable draft pipes are used with a 5½ in. exhaust nozzle and 14½ in. taper stack. Draft through the 5 in. tubes which contain the superheater is controlled by an automatically operated damper which cuts it off when steam is not being used. Considerable difficulty is experienced with operating cylinders in general and experiments are now being made as to what would be the action of the fire on the superheater pipes if the damper cylinder and automatic damper were omitted altogether.

The throttle is of an ordinary type, arranged to take steam at the top, and has no drifting valve.

**MISCELLANEOUS.**—The grates are of the semi-box type, arranged to rock in two sections.

Electric headlights are on both front and back ends. The dynamo is located at the front and a system of switches is arranged to cut in either headlight as required.

**The Travelling Engineers' Association** at its recent annual convention at Niagara Falls, Ont., decided to appoint a committee to formulate a series of standard questions and answers to be used in the education of firemen. Among the papers presented was one on superheat as applied to locomotives. The committee having this matter in charge comprised H. H. Ha'g, E. Shally, O. R. Rahmeyer and Max Toltz, formerly with the C.P.R. Other papers included one on new valve gears prepared by a committee of which J. McManamy was chairman; "How can the travelling engineer best educate the present day fireman to become the successful engineer of the future," by J. C. Petty; "The latest development in air brake equipment and their effect on train handling," by E. F. Wentworth. Chicago was selected as the place of meeting for the 1912 convention, and among the officers elected were the following:—Second Vice President W. H. Corbett, road foreman of engines Michigan Central Rd.; members of the executive committee: J. McManamy, road foreman of engineers, Pere Marquette Rd.; M. J. McAndrews, road foreman of engines, Michigan Central Rd.

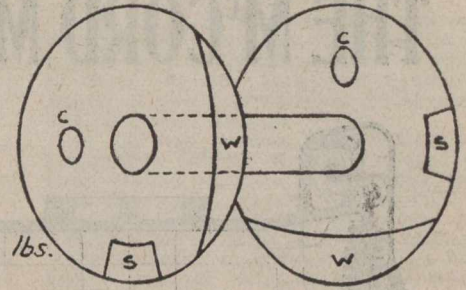
C. P. R. LOCOMOTIVE 1991. CLASS T2A. WEIGHT 289,000 LBS.

WEIGHT OF RECIPROCATING PARTS

Piston and Rod	465 lbs
Crosshead complete	350 lbs
Proportion of main rod (reciprocating)	215 lbs
{ Front end	65 lbs
{ ¼ back end	65 lbs
<b>Total for 1 side of engine</b>	<b>1,095 lbs</b>

WEIGHT OF ALL PARTS ROTATING AT CRANK PINS

Leading wheel. Front end of leading side rod	145 lbs
Main wheel. Back end of leading side rod, 240	800 lbs
Front " trailing " 245	
Proportion of main rod (rev'l'g) 315	
Trailing wheel. Back end of trailing side rod	145 lbs
<b>Total for one side of engine</b>	<b>1,090 lbs</b>



Note! In the succeeding data, all the rotating weights on wheel are reduced to the radius of the crank pin as follows:

Let W=Actual weight of any mass.  
" X=Distance of its c.g. from centre.  
" R=Radius of crank pin.

$$\text{Equivalent weight at crank pin} = \frac{WX}{R}$$

	Leading		Main		Trailing	
	Right	Left	Right	Left	Right	Left
Weight hung on pin to balance W	365	370	1070	1045	400	390
Rotating weight at crank pin	145	145	800	800	145	145
Direct overbalance	220	225	270	245	255	245
Supplementary balance weights	120	120	120	120	120	120
<b>Total overbalance, average of R and L</b>	342 lbs.		377 lbs.		370 lbs.	

Total reciprocating weights = 1095 lbs.

Sum of total overbalance = 1089 lbs.

Total horizontal unbalance = 6 lbs. or .0025% of weight of engine.

Maximum overbalance on any wheel =  $\sqrt{270^2 + 120^2} = 306$  lbs., or 1.22% of wheel load in r main.

Transverse unbalance = Total reciprocating weight - [Total overbalance - Total Supplementary] = 1095 - [1089 - 360] = 366 lbs or .15% of engine weight

Total horizontal unbalance is the unbalanced part of the reciprocating weights, which by its inertia, tends to move the engine as a whole forward or backward on the track.

Transverse unbalance is the unbalanced part of the reciprocating weight, which by its inertia causes a nosing motion.

Maximum overbalance is the unbalanced revolving weight, which by its centrifugal force increases or decreases the pressure of the wheel on the rail. The force due to this weight, if large, may exceed pressure of wheel on rail, and lift the former against the springs, with possible damage to track.

**A Railway to Hudson Bay.**

The Minister of Railways turned the first sod for the building of the sub-structure of the bridge over the Saskatchewan River at Pas Mission, Sask., Sept. 6. The place at which the start was made is on what is called the Mission Island, and the ceremony was performed in the presence of J. Armstrong, who is in charge of the surveys for the railway, and a number of officials of the Canadian Northern Ry., which has a line in operation to the Pas. In the course of a short speech the Minister stated that it was the Government's intention to make the river navigable to the Pas, so that freight could be handled on it from both directions. The question of the building of a railway to Hudson Bay had been under discussion for many years, and it was now generally admitted that the line should be built. The line would be of immense value to the Dominion as a whole.

The bridge proper will be 850 ft. long and there will be about 800 ft. of approaches. The roadbed will be 40 ft. above low and 12 ft. above high water. Mackenzie, Mann & Co., the contractors, have had a bridge building plant delivered, and a gang in charge of R. W. Graham is getting out the foundations for the piers, etc.

Letters from Fort Churchill, dated Aug. 3, and from York Factory, dated Aug. 10, reached Winnipeg Sept. 8. The Fort Churchill letters state that the survey parties told off to examine the harbors there and at Port Nelson had arrived and had established their headquarters at their respective bases. The Fort Churchill party is in charge of A. G. Bachard and C. Savery, and the Port Nelson party is in charge of H. S. Pariseau and J. Stanley. The objects which these parties have in view is the making of a complete survey of the water

approaches to the two ports, the discharge of the rivers, and other hydrographic work, in order to obtain the necessary data upon which to decide which port will be the terminus. The present information shows that from the navigator's point of view Fort Churchill is the more advantageous, as there is deep water right to the shore, and for some miles inland, while at Port Nelson, there is shoal water for some miles from the mouth of the river, and a channel would have to be kept dredged. On the other hand it is pointed out that the Nelson route is open for a longer period each year, and that the country through which the line will pass from Split Lake to Port Nelson, offers greater facilities for the development of a remunerative traffic than does the bare country round Fort Churchill, and the somewhat restricted areas opened up by the Churchill river and its tributaries. The parties expect to complete their work in Jan., and will return to Ottawa, overland via Winnipeg. The York Factory letters state that T. Turnbull had arrived there, and had gone on to the Nelson River to make a survey from its mouth to the Manton rapids, with a view of reporting upon its navigability, etc.

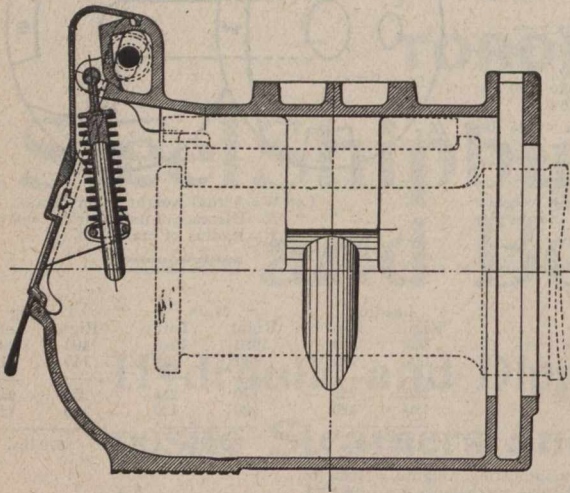
W. Ogilvie, of the Department of the Interior, is reported to be making a study of the waterways opened up by the projected line to Port Nelson, with a view of determining the possibility of developing the water powers on them, and using the electricity developed for the operation of the line.

Referring to the question of operating the line when built, W. Mackenzie, President Canadian Northern Ry., is reported to have stated in an interview at Winnipeg, Sept. 16.: "If the Government was not taking action we would build the Hudson Bay line. We hope we may have an opportunity of operating it." (Sept. pg. 745.)

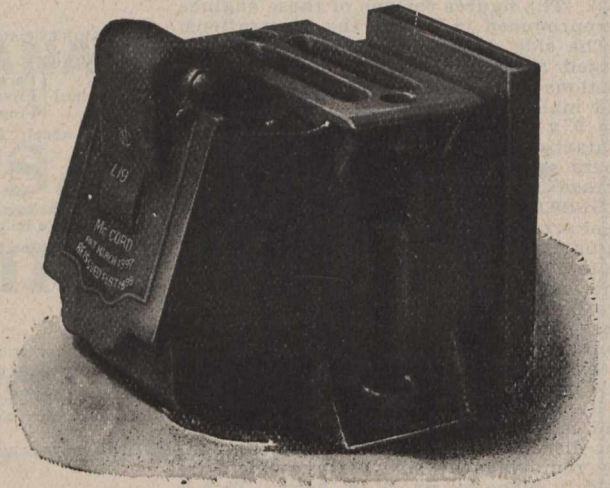


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heat. To get into position to handle these monsters, the engineer is obliged to climb over obstructions in the shape of different parts of the equipment and wedge himself in the narrow space between the side of the cab and the boiler. Should the engine run off the track and turn over, the engineer has not the slightest chance of escape and would likely be crushed and scalded to death. Further, we ask that you give this matter most earnest consideration, and endeavor to place some limit on the size of boiler and cab that will allow for ample room and breathing space. The appliances for operating the engines are not infrequently placed in such very awkward positions that the engineers are at a disadvantage in cases of great emergency. Water-glasses, steam-gauges, air-gauges and lubricators, which require almost constant attention, are often found so inconveniently located that the engineer's attention is too long diverted from the track and signals.

That owing to the unclean condition of the working parts, especially that portion under the boiler and between the frames, and the liability to accident by the engineer in attempting to crawl under the engine, between the wheels, to inspect his locomotive, we recommend that the engineer be held responsible only for such defects as may be reasonably detected from the outside, and in addition to the inspection by the engineer the

engines shall also be inspected by a competent inspector at all railway terminals, and the engineer not held responsible for any defects which the inspector may find.

We are of the opinion that as the safety of life and property depends upon the sight and judgment of the men who guide the traffic and having practical knowledge of the inability, under certain conditions, to obtain more than a partial view of the track and signals, such protection should be afforded as would enable the engineer to at all times have a clear and uninterrupted view ahead. Having examined a model of a storm guard or protector and heard the endorsement of one who had used it, we are unanimous in the proposal of recommending to the management of the several Canadian railways a trial of the "protector."

That owing to the fact that not infrequently an employe of a railway company is injured through no fault of his own, and the railway company's officials eventually refer him to their claims agent, who usually requests him to wait until he is completely recovered before making a settlement, thus requiring him in many cases to become indebted for the necessities of life for himself and family, we request that monthly payment of a sum at least equal to that which they would have earned, should be made to injured employes.

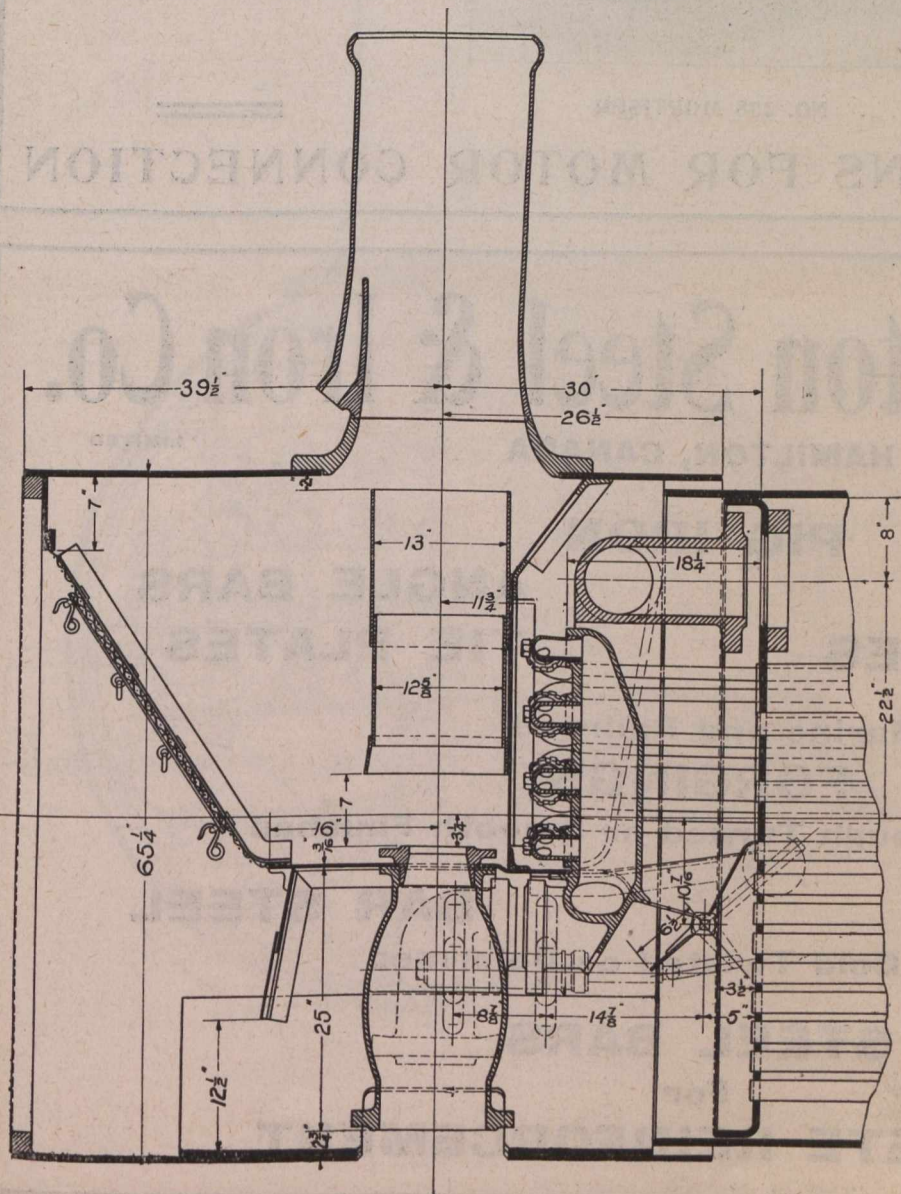
**Hudson's Bay and Pacific Railway.**

In our August issue we referred to a prospectus or circular issued for the purpose of selling Hudson's Bay and Pacific Railway Development Co.'s shares, particularly in regard to misstatements it contained as to guarantees by the Dominion Government, etc. Our September issue contained a letter from the Company's Secretary stating that the circular was entirely unauthorized, and was published without the Directors' knowledge or consent. In acknowledging receipt of that letter, we said in part: "There appears to be no doubt that the prospectus was dated as being issued from 56 Moorgate St., and that the names of your directors were printed thereon. Copies of the prospectus were received in Canada, and it would appear to us that at least after its issue, some of your directors must have seen or heard of it. If such was the case, we would be glad to learn whether they took immediate steps to repudiate the misstatements contained in the prospectus, or whether they waited until after we had exposed the inaccuracies, and after Sir Wilfrid Laurier had given a denial on behalf of the Dominion Government. We would be glad to be informed clearly on this point. We would also like to learn definitely who the prospectus was issued by. Its evident object was to promote the sale of your Company's securities. We desire to assist as much as possible any company having for its object the development of any portion of Canada by the building of necessary railways, but when we see statements made that we know to be untrue, we feel it our duty to contradict them."

We have since received a letter from J. G. F. Greville, Managing Director of the H.B. and P.R.D. Co., as follows. "We beg to say that the knowledge of the circular or prospectus came to us purely by accident, in the following manner: On July 23, we received through the returned letter office, Liverpool, an envelope addressed to our Secretary, and on opening it found an envelope addressed to A. Ford, 16 Berry Street, Liverpool, and marked by the postal authorities, "Gone away." In that envelope was the circular with a letter from a Mr. \_\_\_\_\_, of London, offering some shares for sale. We immediately wrote Mr. \_\_\_\_\_, informing him that such circular had been issued without the knowledge, authority or consent of this company, and threatening him with an action, and demanding to know by what authority he had issued it, who had printed it, etc., and to whom the shares he offered belonged, and that he had better destroy any he had got, and call in those he had sent out. This letter was written on July 25, and he 'phoned us up, informing us that he was very sorry, that he would destroy them, and call them in, but that he had received them from a Mr. \_\_\_\_\_, of \_\_\_\_\_ St., London, and we thereupon wrote a similar letter to Mr. \_\_\_\_\_ who informed us that he had obtained the information through one of our shareholders, when we at once called a board meeting and brought the matter fully before them, in consequence of which a disclaimer was published in all the English newspapers. We knew nothing of your statements, nor anything about what Sir Wilfrid Laurier had said. We think this gives you the information you desire, and in conclusion beg to say that this company never issued any prospectus of any description."

For obvious reasons we have omitted the names of the two persons mentioned by Mr. Greville.

Press reports from Prince Rupert, B.C., state that the assessors of that city have placed a value of \$20,000 an acre on the G.T. Pacific Ry. lands there.



C.P.R. Suburban Tank Locomotive. Smoke box arrangement. (See also pg. 825.)

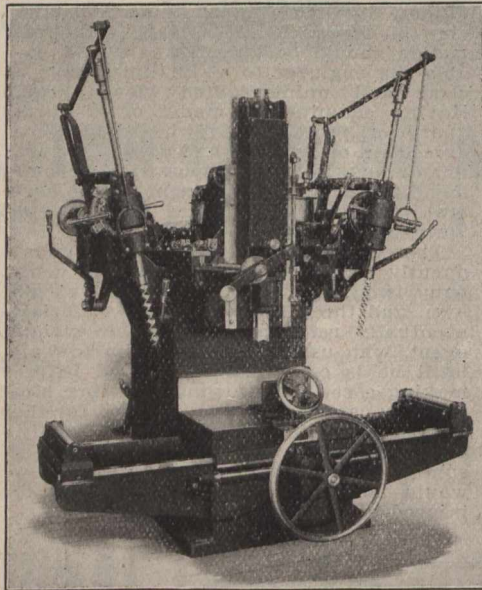


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**RAILWAY DEVELOPMENT.**

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

**Alberta and Great Waterways Ry.—**A conference between the officers of the company and former members of the Alberta Government, is reported to have taken place at Vancouver, B.C., Aug. 23, to consider future plans. Nothing has been given out as to what action was decided upon, and it is not likely that anything definite will be done until after the opening of the Legislature, when the new government will state its policy.

The Government decided Sept. 11, not to make the report of the Royal Commission, relative to the agreement with the railway, public before it was presented to the Legislature.

**Alberta Central Ry.—**We are advised that the building of this line projected from Red Deer to Rocky Mountain

House, Alta., has been started, in the vicinity of Red Deer. As it was found to be too late in the season to let any contracts, the construction is being done by daily force under the direct supervision of J. Grant MacGregor, Chief Engineer. It is expected to carry on the work as long as the weather will permit. (Sept., pg. 725).

**Algoma Central and Hudson Bay Ry.—**A contract has been let. We are informed, to Austin and Nicholson, Chapleau, Ont., for the delivery of 250,000 ties between the crossing of the Montreal River and the Michipicoten River, Ont. (Aug. pg. 627.)

**British Columbia and Alaska Ry.—**The B.C. Government received information Sept. 6, that the reconnaissance surveys had been completed as far as Fort George and Quesnel, and that the survey parties were working towards the coast. An Ashcroft dispatch of Sept. 9, states that a party of the company's engineers

arrived there from Quesnel, and went on to Vancouver, having been recalled. (Sept., pg. 725).

**Canada and Gulf Terminal Ry.—**The building of this line from St. Flavie, on the Intercolonial Ry., to Matane, Que., is being proceeded with. Press reports state that the bridge over the Metis River has been completed; that the grading has been finished as far as Sandy Bay, and that it is expected the grading will be laid into Metis by Oct. 31.

We have been advised that work was begun on the line early in May and has since been continued over the first section from St. Flavie to Matane. Track is now being laid to the Tartigon River, mileage 21, and it is expected that the section to Matane, about 35 miles, will be ready for traffic by Nov. 1. H. Doheny is the contractor. Surveys are being made eastward from Matane towards Gaspé Basin. Arrangements have been made with the Intercolonial Ry. for the interchange of traffic at St. Flavie, as soon as the line is opened.

**Graham Island.—**A Vancouver press report of Aug. 29, said a gang of men was at work on the proposed railway from Queen Charlotte City to the coal fields, 12 miles. Queen Charlotte City does not appear on any existing maps, but the dispatch states that it had been decided to move the Government offices from Jedway to the newly named city. There are several charters for building railways on Queen Charlotte Islands, but the only one in which there is any mention of a Queen Charlotte as a town site or a city is on the charter for the building of the Island Valley Ry. (Sept., pg. 725).

**Halifax and Eastern Ry.—**We are advised that the official information furnished us and published in our last issue, that a contract had been let to Griffiths & Co., London, Eng., for the building of the line was not correct, the London directors having made some change in this respect, of which the local officers of the company at Halifax had not been informed at the time the information was given out. The local officers and the Chief Engineer are taking steps to let contracts for clearing and grading short stretches of the right of way.

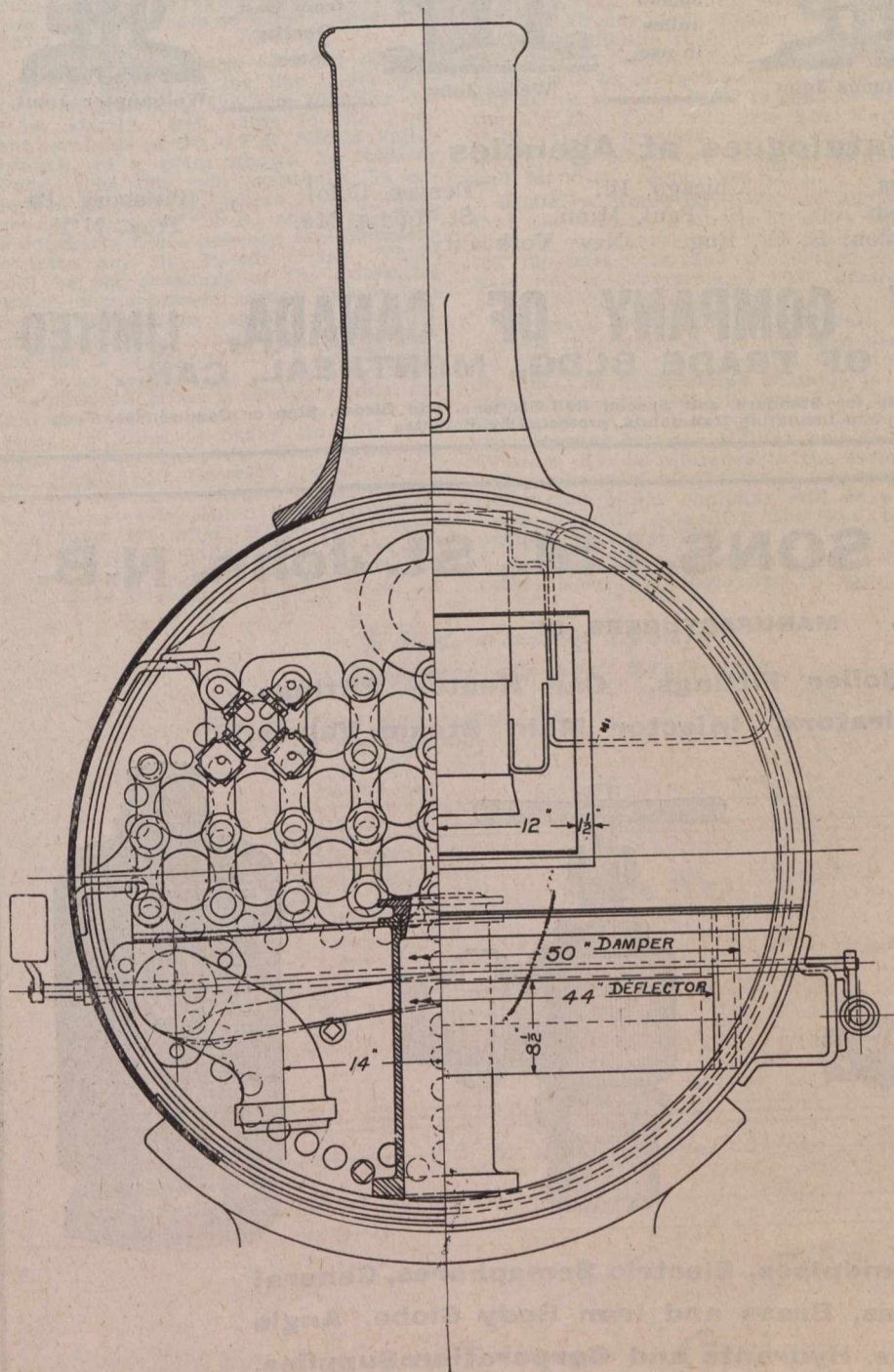
The voting on a bylaw approving an agreement with the company for the location of its terminals in Dartmouth, N.S., which was fixed for Aug. 22, was cancelled, on account of an omission having been made in the official copy of the agreement made public. An investigation showed that the omission of the words was due to a clerical error. It has been decided to bring the whole matter up again before the council.

Several survey parties are in the field working between Dartmouth and Cow Bay. (Sept., pg. 725).

**Intercolonial Ry.—**In an interview at Fredericton, N.B., Sept. 8, the Deputy Minister of Railways said the station and yards there were much in need of improvement, and the Managing Board would shortly give consideration to what was to be done. He could not say whether, when a new station was built, it would be for the I.C.R. only, or a joint one with the C.P.R.

The members of the Managing Board were at Campbellton Sept. 6, and gave considerable time to the consideration of plans for the laying out of the terminals there, to replace those destroyed in the fire. Press reports state that it was decided to take steps for the expropriation of additional property, in order to extend the yards. Ottawa dispatches of Sept. 12 stated that the Board had decided on the plans for the new buildings. A Campbellton press dispatch states that work has been started on the new roundhouse, the work being done under the charge of the local staff by day labor.

The Managing Board made an inspec-



C.P.R. Suburban Tank Locomotive. Smoke box details. (See also pg. 823.)

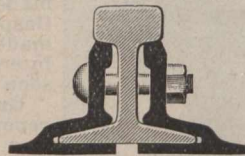


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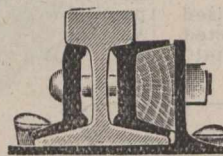
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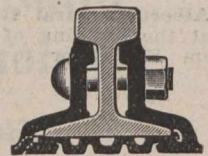
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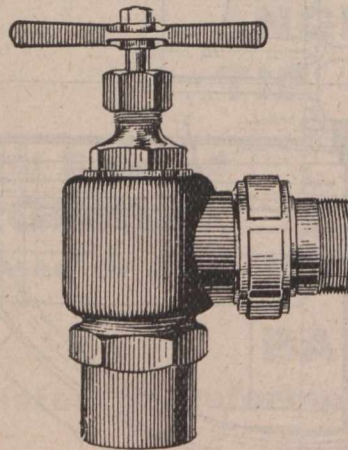
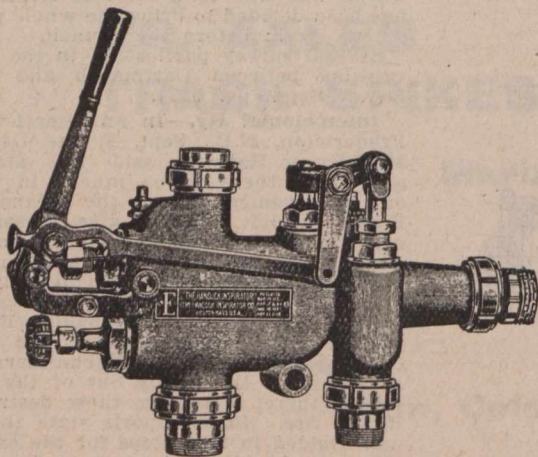
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tion of the Indiantown branch from Blackville to Derby Jct., including the new line from Derby, Sept. 8, and on the following day inspected the new line being built into Chatham. About three miles of the line has been graded between Nelson and Morrison Brook, and one mile of track is reported laid from the Nelson end.

A recent Ottawa dispatch referring to the agitation which is being promoted in Ontario with a view of having the Intercolonial extended from Montreal to Toronto or to the Georgian Bay, stated the question is one of those which will be considered by the Cabinet. A second dispatch points out that such an extension would cost \$20,000,000, and added that it was probable that engineers would be detailed to determine routes and to prepare plans. A third dispatch said it is stated in official circles there, that such an extension was not likely to come within the region of practical politics for some years to come (Sept. pg. 727.)

**Kettle Valley Lines.**—We are advised that the section of the line under contract at present is the first 30 miles out from Merritt, B.C., close to the present terminus of the C.P.R. Nicola Valley branch, to a point known as Railway Pass. The line will eventually be extended to Midway, where it will again connect with the C.P.R., and thus afford a southerly route between the Boundary country and the Pacific Coast. There will be six crossings of the Coldwater River on the present section, the bridges being Howe truss spans on concrete abutments. The maximum curvature of the line is 12 degrees, and a 1% gradient has been secured up to Railway Pass. The first 12 miles is comparatively flat and the work is mainly earth work; the other 18 miles is heavy sidehill work with considerable rock. The contractors are Macdonnell, Gzowski and Co., Vancouver, and sub-contracts have been let as follows:—MacMillan and Murcheson, Vancouver, 17 miles; Holby and Owens, Vancouver, four miles; J. B. Bright and Co., Vancouver, four miles; Macdonald and Lunge, Seattle, Wash., five miles.

Pentiction ratepayers have ratified the agreement with the company for its location in the town. Surveys have been started, and it is expected the construction will be begun at an early date.

The valuator appointed to fix a value for the old Midway and Vernon Ry. grade and right of way and for the adjustment of accounts outstanding by that company, met in Victoria, recently, to complete their report. The amount fixed by the valuator will be paid by the K.V. Ry., in which company the property acquired will be vested. The M. and V. right of way ends at Rock Creek, about 10 miles out from Midway, and a contract is reported to have been let to L. M. Rice & Co., Seattle, Wash., to grade from Rock Creek to Bull Creek, 35 miles, the work to be started at once.

Referring to the building of the line to Railway Pass, a press report says the line will continue along the Coldwater to July Creek, along July Creek to Boston Bar Creek, along Boston Bar Creek to the Coquihalla reaching the latter in the vicinity of St. Elmo where the Fraser will be bridged so as to bring the line across to Ruby creek to connect with the C.P.R. This will give the Kettle Valley three junction points with the C.P.R., the other two being at Midway and Merritt. (Sept., pg. 727.)

**Klondike Mines Ry.**—We are advised that the company's line is 31 miles long, that no extensions have been made during the past year, and no further construction is contemplated at present. (July, 1909, pg. 477.)

**Liverpool and Milton Ry.**—We are informed that while an act has been passed authorizing the company to extend its lines, no construction is likely to be done at present. Negotiations have been going on for the last two years between the company and the Halifax and South Western Ry, in reference to the former being absorbed by the latter. It is not likely that either company will do any work towards extending the line this season. (May, pg. 557.)

**Manitoulin and North Shore Ry.**—The contract let to O'Boyle Bros., Construc-

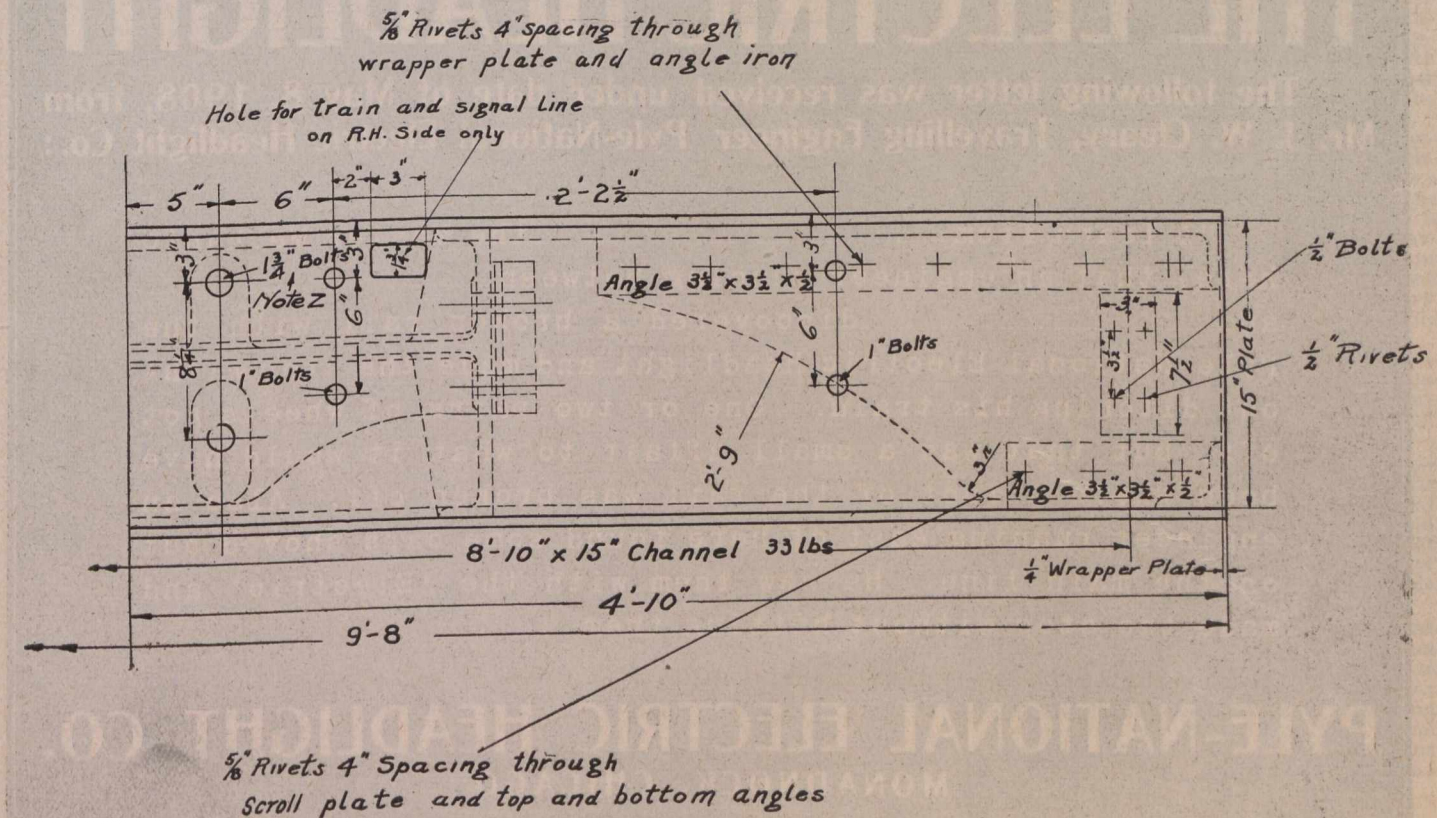
tion Co., (Ltd.) Sault Ste. Marie, Ont., is for the construction of about 18 miles of line from the north side of Goat Island channel near Little Current, north-erly to Whitefish River, Ont (Sept. pg. 727.)

**Michigan Central Rd.**—The St. Thomas, Ont., city council has granted the company a permit for the erection of a roundhouse there, estimated to cost \$50,000. (Sept., pg. 727.)

**New Brunswick Coal and Ry. Co.**—The roundhouse at Minto, N.B., was totally destroyed by fire Sept. 14, together with two locomotives and a flat car. (Dec., 1909, pg. 883.)

**Newfoundland Exploration Syndicate.**—Under the terms of an agreement made between the Government and the N.E.S., Dec., 1909, and ratified last session of the Legislature, the N.E.S. is given the exclusive right to prospect for coal within the colony, except on certain specially reserved areas. The sum of \$15,000 is to be expended during 1910, and a further \$10,000 during 1911, in the event of coal in workable quantities not being found during 1910. The company's rights may be renewed after 1911, on terms to be agreed upon. In the event of coal being found in workable quantities the N.E.S. is to be given grants of lands, not to exceed four in number, the area of each grant not to exceed seven square miles, and no two areas to be nearer to each other than seven miles. The company is also to receive grants of land in fee simple for the right of way for railways, tramways, shipping ports, and sites for stations, buildings, yards, etc., together with alternate five acre blocks of land on either side of such railway or tramways, (should such land be in the gift of the crown). The agreement is signed on behalf of the N.E.S., by F. E. Proctor, V. B. G. Cooper, directors; and A. H. Gurr, secretary.

**Northern New Brunswick and Seaboard Ry.**—When the Canada Iron Corporation acquired the iron ore fields at the junction of the Austin Brook with the Nipisiguit River, some 23 miles from Bathurst, N.B., the Dominion Government had under consideration the build-





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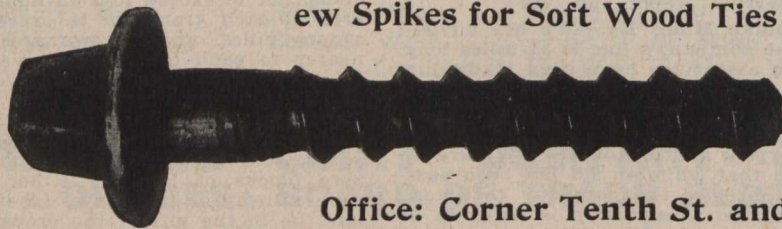
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# THE ELECTRIC HEADLIGHT

The following letter was received under date of May 8, 1908, from Mr. J. W. Cleary, Travelling Engineer Pyle-National Electric Headlight Co.:

"I learn from \_\_\_\_\_ the Master Mechanic here, that an engineer running between \_\_\_\_\_ and \_\_\_\_\_ discovered a broken rail with the Pyle-National Electric Headlight and made the stop without ditching his train. One or two pairs of wheels got off, but that was a small affair to what it would have been where a foot of the rail was broken off. Also an engineer running east of here found some cars shoved out on the main line. He saw them with the 'Electric' and made the stop without hitting them."

**PYLE-NATIONAL ELECTRIC HEADLIGHT CO.**

MONADNOCK, CHICAGO



ing of a branch line from the Intercolonial Ry, there. Two routes had been surveyed, one from Red Pine station, 14 miles, and the second from Black's Cut, 19 miles. Subsequently the company came to an understanding with the Dominion and the provincial Governments, and the line from Black's Cut to the mines was built by Wheaton Brothers, the contractors. The ore trains run from Black's Cut, over the I.C.R. for four miles to Bathurst, the harbor at which place it is to be dredged to allow of steam and other vessels being brought in to be

loaded. At present the ore is being shipped from Newcastle. (Sept. pg. 727.)

**The Northern Quebec Colonization Ry.** Co. was incorporated last session of the Dominion Parliament to build a railway from Tadoussac, at the mouth of the Saguenay River, westerly along the north shore to Lake St. John, thence north-westerly to between Lake Chibougamau and Lake Mistassini, Que.; thence north-westerly to Hannan Bay, Ont.; and from between Lake Chibougamau and Lake Mistassini southerly to Weymontachene,

Que., on the National Transcontinental Ry. The provisional directors are: N. Drouin, J. Picard, W. Ray, Quebec; P. Tourigny, Victoriaville, Que.; J. B. Phillips, Haileybury, Ont. (April, pg. 271).

**Ottawa Rideau Valley and Brockville Ry.**—A meeting for the organization of this company has been called to be held at the office of D. H. MacLean, Central Chambers, Elgin St., Ottawa, Oct. 4. The notice is signed by the following for the provisional directors:—A. McDermott, R. E. Elliott, F. A. Heney, E. W. Clark, G. E. Kidd, D. H. MacLean, W. C. Maclaren, J. H. Gilmour. (Aug., pg. 629).

**Pincher Creek, Cardston and Montana Ry.**—Under the terms of the company's act of incorporation, a meeting of shareholders for organization was called for Sept. 30. We were recently advised that the directors then already decided on were W. C. Teter, banker, 10 Wall St., New York City, and E. Van Etten, a director of the New York Central and Hudson River Rd. The three other directors had not been decided on at the time of our advice, but in accordance with the provisions of the act of incorporation they must be Canadians domiciled in Alberta. The company has power to build a railway of about 125 miles from the International boundary, via Cardston and Pincher Creek, to Pincher station on the C.P.R., with a branch line up the south fork of the Old Man River to the boundary of British Columbia. Surveys are being made for these lines under the charge of J. H. Fine, of Philadelphia, the company's Chief Engineer. No contract has yet been let, but we are advised it is expected to let one soon after the organization of the company has been completed, and to start building the line this fall. A contract has been let to A. J. McGuire for the supply of ties for the line.

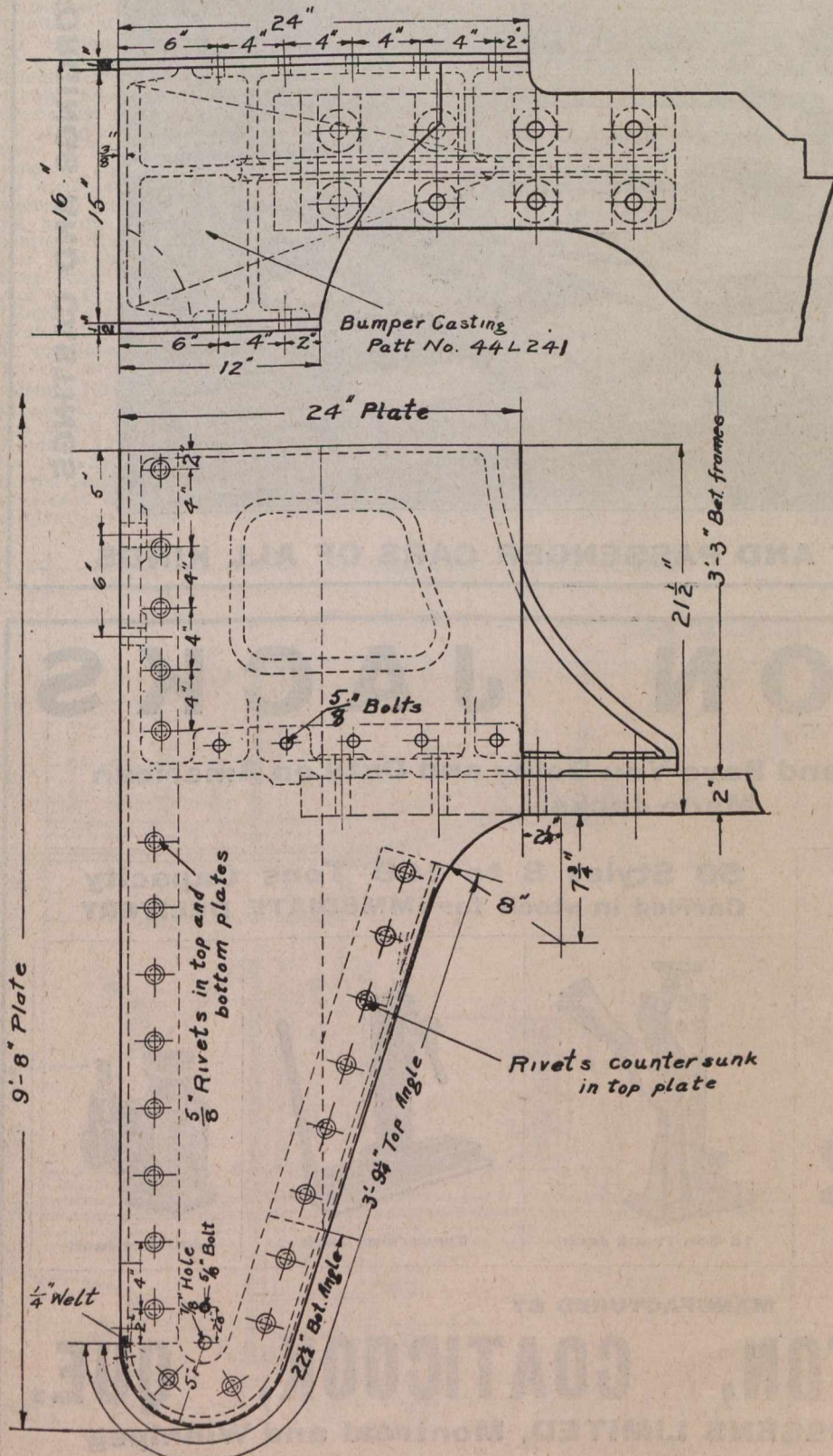
Some delay is reported to have been met with in the survey on account of bush fires, but the preliminary work was reported completed Aug. 26. The provisional plans for the line from the boundary were submitted to the Alberta Government Aug. 29, and were approved Sept. 10. The plans show a line from the boundary, (where connection is to be made with a line to be built southerly to a junction with the Great Northern Ry. 28 miles south of Coult's), north westerly through Cardston and Pincher Creek to the west side of sec. 34 at the south fork of Old Man River.

It is said that the company has acquired control of another charter authorizing the building of a line through almost the same territory, and that at the next session of the Alberta Legislature it will apply for an extension of the charter permitting it to run the main line through Alberta by way of Calgary and Edmonton to the Peace River country. It is said a line will also run south into the Kootenay coal fields.

The additional lines projected also include a branch to the Kootenay coal fields, where it is reported that the company has secured large areas of coal lands.

**Port Hood-Richmond Ry. Coal Co.**—We are advised that so far the company is merely engaged in coal mining, although its charter authorizes the building of a line from Port Hood to Port Malcom, N.S. J. H. Henderson, Port Hood, N.S., is the company's chief agent. (June, pg. 451.)

**Portland Canal Short Line Ry.**—There has been deposited with the Department of Public Works at Ottawa, plan and description of a proposed railway wharf and trestle approach thereto, to be constructed at the mouth of Bear River, Stewart, B.C., and notice is given that application is being made for the approval of the same.

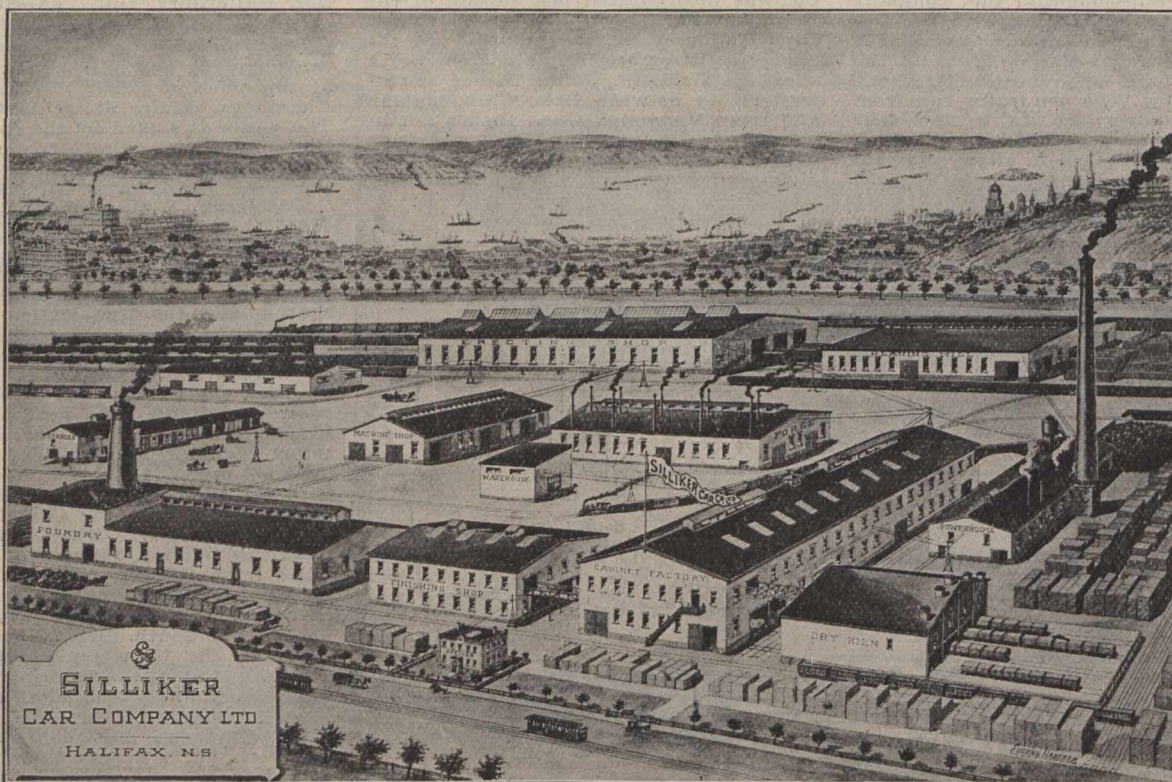


C.P.R. Suburban Tank Locomotive, Front end bumper. (See also pg. 827.)



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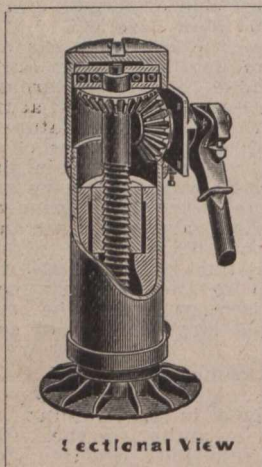
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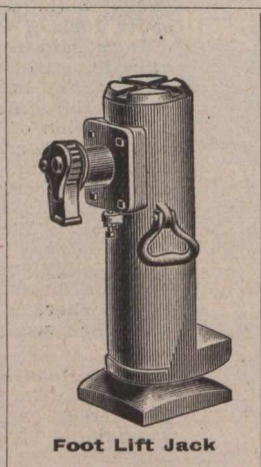
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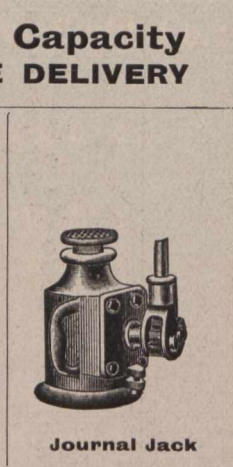
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T. Cameron, who has been in charge of a grading contract on the line was in Prince Rupert, Aug. 30, and stated that nine miles were ready for track laying. A vessel with a cargo of rails for the line was lying in the harbor waiting for the completion of the wharf so as to unload. The plans for the station have been approved and the building will be started immediately. (Sept., pg. 727).

**Port Simpson to Skeena River.**—The British Columbia Legislature is being asked to incorporate a company with this title to build a railway from Port Simpson or Work Channel, to the eastern boundary of B.C. The route provisionally outlined in the application is via the south side of Work Channel to the Skeena River; along the north bank of this river to Hazelton, thence to the junction of the Bulkley and Skeena rivers; along the right bank of the Bulkley River to the Suskewa River, along the banks of the latter river and across a low divide to the head of Babine Lake, thence to the north end of Stewart Lake, and by the McLeod Lake to the Misnichinca River, along the valley of that river and by Summit Lake to Pine River Pass; thence northwesterly to the head of Pine River, along its valley to Moberley Lake, and thence by the Peace River Valley to the eastern boundary of the province. Barnard and Robertson, Victoria, are solicitors for applicants.

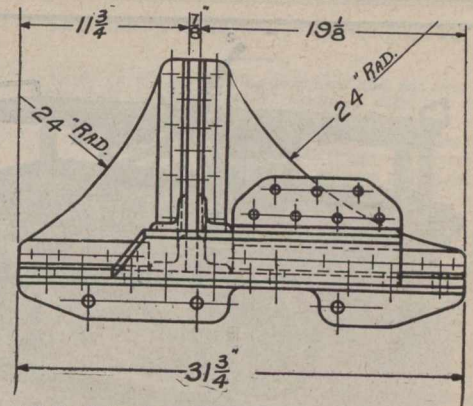
**Prince Edward Island Tunnel.**—Speaking at the annual meeting of the Maritime Board of Trade at Chatham, N.B., recently, Lieut.-Governor Tweedie of New Brunswick, said he was not in favor of constructing a tunnel under Northumberland Strait to connect the mainland railways with Prince Edward Is-

land. He said the solution of the matter lay rather in the building of warehouses on the mainland where the produce of the island could be stored. (Jan., pg. 23).

**Quebec Central Ry.**—The English officers of the company completed their annual inspection of the line Aug. 31. Press reports state that some new construction will be started in Bellechasse county at an early date. The only line which the company has under consideration which will pass through Bellechasse county is the extension from St. George, Beauce county to Cabano, on the Temiscouata Ry., and upon this line some work has already been done in Beauce county. Dorchester county lies between Beauce and Bellechasse counties. (Aug., pg. 631).

**Reid Newfoundland Co.**—We are advised that the company is erecting at St. John's, Nfld., a car building shop 228 by 50 ft. Orders have been placed for the machinery required, in addition to the present shop equipment. The company is at present building locomotives and cars for its lines, as it is required to do under the terms of the agreement approved last session of the Legislature. The company may in the future add a foundry to its shops at this point. The old car shops, President Reid said in a recent interview will be made an annex to the machine shop, where the company is at present cramped for space.

W. D. Reid, President, in speaking recently of the work on the Bonavista branch now under construction, said track was laid as far as mileage 43; the grading is finished almost down to salt water at Trinity, 52 miles. The clearing of the right of way is being kept well ahead of the graders, and on Aug.



C.P.R. Suburban Tank Locomotive. Frame details cross ties. (See also pg. 833.)

30, the right of way had been cleared to the 58th mile. The location survey of the branch was completed. All the masonry on the line had been completed as far as Seal Cove, and the erection of the new station at Shoal Harbor had been started. (Sept., pg. 729).

**Spokane International Rd.**—Under the charter of the Cœur D'Alene and Pend d'Oreille Rd., an extension is being built from the main line of the S.I. Rd., 25.5 miles from Spokane, Wash., to Cœur d'Alene, Idaho, and a branch is also being built from Corbin. The S.I. Rd. connects at the International boundary with a C.P.R. branch leaving the Crow's Nest line at Yahk. (July, pg. 551).

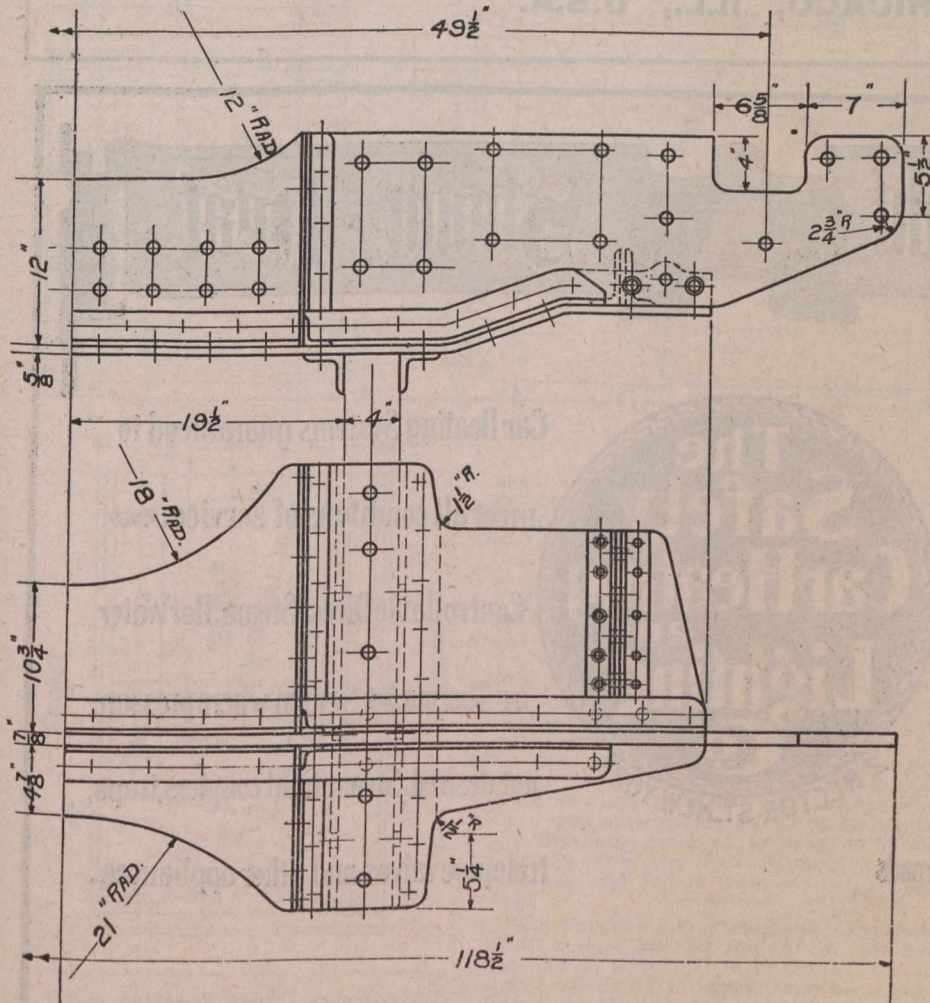
**Timiskaming and Northern Ontario Ry.**—On returning to Toronto from his recent trip of inspection over the line, J. L. Inglehart, Chairman of the Commissioners, said the foundations of the bridge over the Wabis River at mileage 119 3-4 are completed and it is expected to have the steel superstructure in position before the end of October. The bridge will be 400 ft. long.

Press reports state that engineers have been detailed to make a survey for a line from Cochrane to James Bay passing through the Mattagami country in which large iron ore deposits are reported to have been discovered. (Sept., pg. 729).

**Toronto.**—The city of Toronto, Sept. 9, started building an industrial spur along the east bank of the Don River into the Ashbridge's Bay district. The line, which will be connected with the G.T.R., C.P.R. and Canadian Northern Ontario Ry., is for freight only. The work is being done under the superintendence of E. L. Cousins of the City Engineer's staff, and is expected to be completed by the end of the year. (Feb., pg. 111).

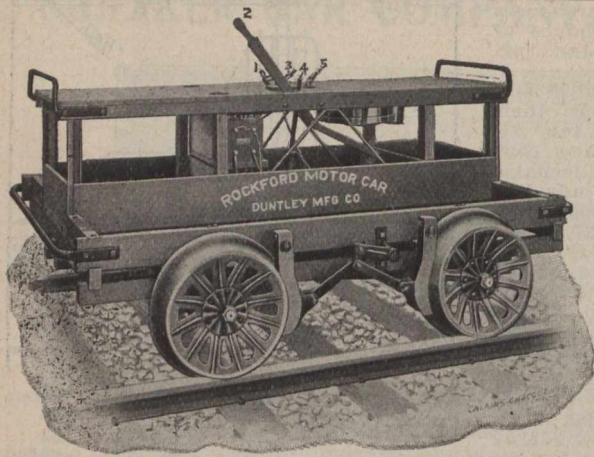
**Toronto, Hamilton and Buffalo Ry.**—Officers of the C.P.R. and of the T.H. & B. Ry., met in Hamilton, Sept. 13, and H. H. Adams, Superintendent, T.H. & B. Ry., subsequently made the following statement: "The officers of the companies looked into the terminal facilities, but no drastic changes were decided upon. There was no mention made of the Canadian Northern Ontario Ry. coming to Hamilton, nor was anything said about the C.P.R. securing another entrance into the city. The proposed building of the Hamilton and Guelph Ry. by the C.P.R. was mentioned, but nothing definite was said, as the company is nearly tied up with existing problems in its present road. It was announced that nothing would be done this year to double-track the line east of the city." (Sept. pg. 729).

**Vancouver Island.**—Referring to the reports as to the building of a logging railway from near Port Renfrew to Port San Juan, Vancouver Island we are officially informed that the Red Fir Co., Nanaimo, which was reported to be be-



C.P.R. Suburban Tank Locomotive. Frame details cross ties. (See also pg. 833.)





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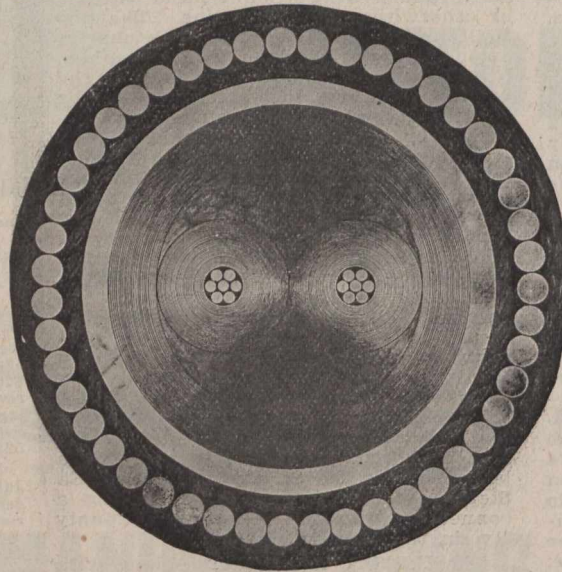
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**New England Southern Ry.**—E. H. Fitzhugh, Vice President G.T.R., was in Providence, R.I., Sept. 7, to confer with the Mayor as to the improvements which the newly appointed Harbor Commission proposes to carry out. Providence is the terminal point of the new line which the Central Vermont Ry., a G.T.R. subsidiary, proposes to build in order to secure an additional deepwater outlet.

**Montreal Track Elevation.**—R. S. Logan, Assistant to the President, in a recent interview upon the doing away with level crossings in Montreal, is reported to have said: "We have been considering this complicated question for fully 10 years, and we are to-day little farther advanced, but perhaps these latest plans may go through—who knows? Our engineers are at least going into the matter very thoroughly, and will have plans ready for the Board of Commissioners when the matter is to be taken up. Perhaps a definite announcement will then be made."

**Ottawa Station and Hotel.**—Work has been resumed upon the station annex, the walls of which were expected to be completed by Sept. 30. The work of tearing down the various old buildings on the site of part of the new building is being proceeded with, and the work generally on the station and hotel is being gone on with.

**Toronto Belt Line.**—The G.T.R. belt line has been reconstructed between the old Northern Ry. on Davenport St., and Yonge St., and was expected to be ready for freight operation by Sept. 30.

**Bathurst St.-Humber Improvement, Toronto.**—Actual work on the depression of the tracks between Bathurst St. and to the east of Sunnyside, and their elevation from Sunnyside to the Humber, was started Sept. 15. The engineering staff in charge of the work is located at No. 1 Cowan ave. The work at present being done is the preparation of the additional tracks necessary for the carrying on of traffic while the work is being gone on with on the new roadbed. Two steam shovels and one pile-driver are already at work. The operations are being directed by J. R. W. Ambrose, the company's grade separation engineer in Montreal, and S. D. McCooe is in charge of the work as superintendent.

**Guelph Station.**—A conference has been arranged between the citizens and the company for the purpose of discussing the question of the use of Jubilee Park, for the expropriation of which for station purposes the company has given notice.

**Stratford-Goderich Line.**—The ballast pit on the hill near Saltford bridge, Mitchell, Ont., has been reopened, and a siding laid into it for taking out ballast for the line between Stratford and Goderich, upon which heavier rails are being laid.

**Goderich Yards.**—Two additional sidings are being laid in the yards at Goderich, Ont., on a portion of the hillside recently taken in above the overhead bridge on the Stratford road. They will have accommodation for 75 cars. (Sept., pg. 751.)

**Dominion Grade Crossing Fund.**—The Dominion Parliament appropriated \$1,000,000, spread over 10 years in aid of the elimination of grade crossings. The Board of Railway Commissioners has laid down the principal that the fund is to be used to assist municipalities and railway companies to abolish level crossings where such abolition is for the benefit of the public. About \$25,000 of the fund was used in 1909, and about the same amount has been appropriated for the work this year.

**Railway Commissioners' Traffic Orders.**

Summaries of other traffic orders are given on another page under "Orders by Railway Commissioners":—

**EXCURSION AND OTHER SPECIAL PASSENGER TRAFFIC.**

11395. Aug. 15.—Whereas railway companies, subject to the provisions of the Railway Act, are occasionally offered excursion or other special passenger traffic which, if accepted, must be moved immediately, or with less than the three days notice required by the Act for filing the necessary special tariffs, and without affording the Board time for dealing with such matters by the customary procedure; and whereas by sec. 332, "the Board may, owing to the exigencies of competition or otherwise, notwithstanding anything in this section contained, determine the time or manner within and according to which publication of any such tariff is to be made;" and whereas the prompt acceptance and movement of the said traffic appears to the Board to be in the public interest; it is ordered that the Chief Traffic Officer of the Board be authorized to deal with such urgent cases on application of the companies by telephone or telegraph, and, in his judgment, and on behalf of the Board, to give the required permission, subject to such conditions as may seem to him to be necessary, including the immediate publication and filing of the requisite tariff; or to require the formal submission of the application to the Board.

**COAL RATES FROM SOUTHERN SASKATCHEWAN.**

11550. Sept. 1.—Re complaint of Eureka Coal & Brick Co. of Estevan, Sask., alleging discrimination in freight rates charged by the C.P.R. on coal from Estevan, as well as discrimination in switching charges on coal at Estevan in favor of shippers at Roche Percee and Bienfait; and re application of Roche Percee Mining Co., of Roche Percee, Sask., for order directing the C.P.R. to reduce the rate on coal from Roche Percee to all points east on its line, to the rate now charged on the same commodity from Bienfait to all points east on its railway; and for an order removing the switching charge of \$2 a car now exacted from the applicant company; and for an order directing a rebate of all overcharges paid by the applicant company. Upon hearing the applications at the sittings of the Board held at Regina and Winnipeg in Feb. and Nov. respectively, 1909, in the presence of counsel for the Western Dominion Collieries Company and the Eureka Coal & Brick Co., the evidence offered, and what was alleged at the hearing; and upon reading the reports of the Chief Traffic Officer—it is ordered that the applications be dismissed.

**SUPPLEMENT 3 TO CANADIAN CLASSIFICATION 14.**

11599. Sept. 2.—Re application of Canadian Freight Association, under sec. 321 of the Railway Act, for order approving a proposed Supplement 3 to Canadian Classification 14:—The Canadian Freight Association having published the proposed advanced ratings in The Canada Gazette, as required by sec. 321; and the Board having furnished copies of the proposed supplement to the Canadian Manufacturers Association and the Boards of Trade of Montreal, Toronto, Winnipeg and Vancouver, and afforded sufficient time for the reception of objections to the proposed changes: Upon consideration of the said objections; and upon the hearing of the application in the presence of representatives of the railway companies the Managers of Transportation to the Canadian Manufacturers Association and the Montreal Board of Trade, and representatives of the Canadian General Electric Co., the Canadian Westinghouse Co., the Northern Electric Co., and the Otis-Fensom

Elevator Co.; and upon the report and recommendation of the Chief Traffic Officer of the Board—it is ordered that the additions and changes embodied in the said proposed supplement 3 to Canadian Classification 14 be approved, subject to the following exceptions and additions:—

(1) The application for approval of the proposed increase in the carload rating of elevators and parts, in mixed carloads, from 6th to 5th class, is refused.

(2) The application with respect to the classification of churns is refused.

(3) The proposed ratings of electrical dynamos, generators, motors, transformers, and converters, small detached parts boxed, also of motors and pumps, combined, crated, small detached parts boxed, viz. l.c.l. 1st class, c.l. 5th class, to be changed to read l.c.l. 1st class c.l. 6th class; and the proposed ratings of dynamo bases (iron), detached from the dynamo, 1,000 lbs. per piece or over, viz. l.c.l. 3rd class, c.l. 5th class, to be changed to read "Same as castings."

(4) To the proposed rating of 2nd class, l.c.l., on rubber tiling, boxed, there be added a carload rating of 4th class.

And it is also ordered: (a) That the proposal of the Chairman of the Advisory Committee of the Canadian Freight Association, contained in his letter to the Board dated July 25, 1910, that, at the suggestion of the Deputy Minister of the Department of Naval Service, the classification of military stores and ordnance be applied also to naval stores and ordnance, be approved.

(b) That the proposed reduction in the rating of iron and steel fence gates, l.c.l., from 2nd to 3rd class, submitted to the Board in a letter from the Chairman of the Advisory Committee of the Canadian Freight Association dated Apr. 6, 1910, be approved.

(c) That the proposed rating of 2nd class on hockey sticks, l.c.l., finished or unfinished, in boxes, bundles, or crates, submitted to the Board in a letter from the Chairman of the Advisory Committee of the Canadian Freight Association, dated Aug. 19, 1910, be approved.

And it is further ordered: That the classification of churns, modified to read "hand churns," in straight carloads, be reduced from 5th to 6th class; and that the various ratings of churns so modified, be retained in the "hardware" and "woodenware" lists, and added to the "implement" list.

**RATINGS OF OLD RAILS.**

11562. Sept. 2.—Re application of Canadian Freight Association, dated July 3, 1909, under sec. 321 of the Railway Act, for approval of Supplement 2 to Canadian Classification 14: It having been arranged at the hearing at Ottawa, Sept. 22, 1909, for the proposed change in the ratings of old rails (iron or steel) to be held in suspension pending the furnishing by applicants of additional information relative thereto, order 8184, Sept. 25, 1909, approved the said supplement, subject, inter alia, to the condition that the proposed change with respect to old rails (iron or steel) be struck out, and the said additional information having since been filed with the Board, and upon consideration thereof—it is ordered that the application be dismissed.

**Kingston's Ambition.**—The city council of Kingston, Ont., has directed the City Clerk to write the Presidents of the G.T.R., the C.P.R., and the Canadian Northern Ry. asking them to state what inducements they would require to build a line through their city. The G.T.R. main line between Montreal and Toronto passes north of Kingston, the city being reached by a short branch. The C.P.R. has an entrance into the city over its Kingston and Pembroke Ry., which has its headquarters in Kingston.





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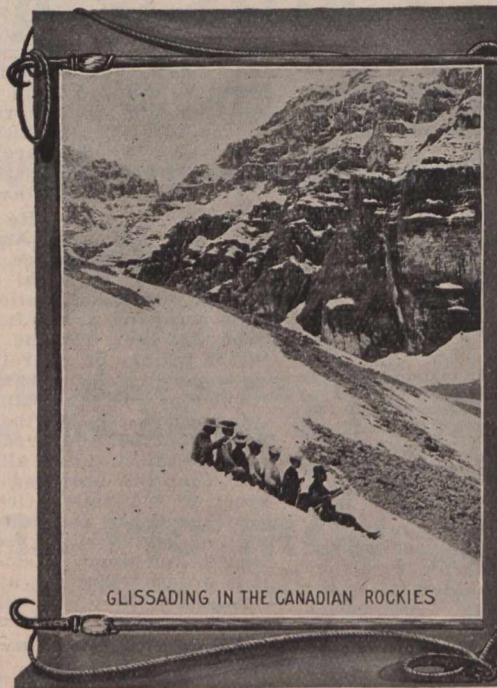
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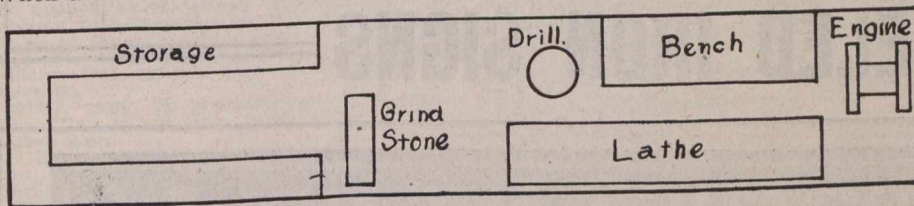
**G. T. P. R. Machine Repair Cars.**

The Grand Trunk Pacific Ry. has in use several machine cars for making repairs to locomotive and construction machinery at outlying points. They are ordinary box cars, arranged with windows for lighting purposes.

The equipment consists of a 12 inch lathe, a small drill, and grindstone; one of the cars also contains a shaper. The power used is a Fairbanks 6 h.p. gasoline engine, belted to a line shaft from which the power is transmitted to the machines.

As the work of construction has advanced farther west, and part of the road been put in operation, it has been found that one or two of the cars kept close to the front answer all requirements for light repairs. The cars, which would thus otherwise be thrown out of service, have been installed at divisional and round house points pending the providing of regular machine shops.

The advantage of having these cars close to the front on construction work can readily be seen. Without them, a foreman frequently has his ingenuity taxed to keep the equipment in working shape. A case in point is the breaking of a cast iron steam pipe on a steam shovel. This pipe broke off short next to the flange, about an hour before stopping time. By binding a piece of rope around the break and flange and running carefully it was possible to finish the day. The pipe was then removed and placed in the lathe, and the broken ends faced off, the inside of pipe and flange threaded and a two inch pipe nipple screwed in. When a new steam pipe arrived a week



later from the general stores the repaired pipe was still giving perfect service and was left in place.

Another case is the chipping off of a piece of the seat on a locomotive throttle. The engine became unsafe to handle without brakes partly set. The breaking of a brake hanger pin disabled the brakes. A new pin was made in the lathe and the throttle removed and faced while the engine was being washed out. The machine car in this case saved a trip of over 100 miles over partly ballasted track.

**International Traffic Control.**—In an interview at Vancouver, B.C., Sept. 6, J. P. Mabee, Chairman of the Board of Railway Commissioners, is reported to have said that a basis of agreement for the control of international commerce between Canada and the U.S. was reached at the recent conference he had with M. A. Knapp, Chairman of the Interstate Commerce Commission. The details were being worked out, and when everything was completed the agreement would be presented to the Dominion Parliament and to Congress for ratification. M. A. Knapp, in an interview at Washington, D.C., Sept. 13, is reported to have said that another conference would be held either in Oct. or early in Nov., when he and Mr. Mabee, would further consider the matter. Mr. Knapp added that he expected to have his report ready for presentation by Jan. 1.

The Armstrong Cartage Co., which handles the C.P.R. and the Toronto, Hamilton and Buffalo Ry. cartage business in Hamilton, Ont., is building a large storage warehouse at the head of Victoria Ave. The basement is to be fitted with a cold storage plant.

**October Birthdays.**

Many happy returns of the day to:—

R. A. Burford, cashier C.P.R. ticket office, New York City, born at Brooklyn, N.Y., Oct. 4, 1878.

G. E. Burns, Freight Claims Agent C.P.R. Eastern Lines, Montreal, born at St. Thomas, Ont., Oct. 6, 1863.

T. C. Burgess, Commercial Agent G.T.R., Minneapolis, Minn., born at New York City, Oct. 2, 1853.

F. F. Busted, C.E., General Superintendent British Columbia Division C.P.R., Vancouver, born at Battery Point, Que., Oct. 10, 1858.

J. M. S. Carroll, Montreal Sales Manager Canadian Rubber Co., born at Ballarat, Australia, Oct. 22, 1874.

C. E. Cartwright, ex-Division Engineer C.P.R., Vancouver, B.C., born at Toronto, Ont., Oct. 13, 1864.

L. V. Druce, Commercial Agent G.T.R. and G.T.P.R., Vancouver, B.C., born at London, Eng., Oct. 20, 1873.

J. Earls, ex-Secretary and Treasurer Canadian Freight Association at Toronto, Ont., born in Ireland, Oct. 30, 1838.

C. E. Friend, General Auditor Canadian Northern Ry., Winnipeg, born at Brighton, Eng., Oct. 12, 1871.

W. P. Fitzsimmons, Commissioner of Industries G.T.R., Montreal, born at Detroit, Mich., Oct. 27, 1868.

A. H. Harris, Special Traffic Representative C.P.R., Montreal, Que., born in Devonshire, Eng., Oct. 15, 1855.

J. H. Hughes, Assistant Superintendent C.P.R., North Bay, Ont., born at Charlottetown, P.E.I., Oct. 7, 1865.

J. W. N. Johnstone, General Passenger Agent Reid Newfoundland Co., St. John's, Nfld., born at Campobello, N.B., Oct. 4, 1878.

W. M. Kirkpatrick, General Freight Agent Ontario Division through traffic, C.P.R., Toronto, born at Kingston, Ont., Oct. 8, 1874.

W. B. Lanigan, Assistant Freight Traffic Manager C.P.R., Winnipeg, born at Three Rivers, Que., Oct. 12, 1861.

J. W. Leonard, General Manager C.P.R. Eastern Lines, Montreal, born at Epsom, Ont., Oct., 1858.

W. T. Marlow, Import Freight Agent C.P.R., Montreal, born at Limerick, Ireland, Oct. 25, 1872.

R. Marpole, General Executive Assistant C.P.R., Vancouver, B.C., born in Montgomeryshire, Wales, Oct. 9, 1850.

F. G. Martyn, Assistant Superintendent C.P.R., West Toronto, Ont., born at Bury, Que., Oct. 7, 1848.

H. Paton, President Shedden Forwarding Co., director Bell Telephone Co., Montreal, born at Johnstone, Renfrew, Scotland, Oct. 5, 1852.

D. Pottinger, Assistant Chairman Government Railways Managing Board, Moncton, N.B., born at Pictou, N.S., Oct. 7, 1843.

N. L. Rand, ex-Master Mechanic I.C.R., Moncton, N.B., born at Shediac, N.B., Oct. 28, 1843.

H. G. Reid, Master Mechanic C.P.R., North Bay, Ont., born at Pembroke, Ont., Oct. 27, 1863.

W. S. Rollo, joint agent G.T.R. and Central Vermont Ry., St. John's, Que., born at Dundee, Scotland, Oct. 8, 1852.

J. K. Savage, Chief Train Dispatcher C.P.R., Brandon, Man., born at Forreston, Ill., Oct. 5, 1876.

Sir Thomas G. Shaughnessy, K.C.V.O., President C.P.R., Montreal, born at Milwaukee, Wis., Oct. 6, 1853.

A. B. Spence, Chief Dispatcher Reid Newfoundland Co., St. John's, Nfld., born at Harbor Grace, Nfld., Oct. 21, 1882.

C. W. Spencer, ex-General Manager Mackenzie, Mann & Co.'s Railway Lines east of Port Arthur, Montreal, born at Kemptville, Ont., Oct. 31, 1857.

W. S. Taylor, ex-Treasurer C.P.R., born at Dornoch, Sutherlandshire, Scotland, Oct. 18, 1839.

E. N. Todd, Export Freight Agent C.P.R., Montreal, born at Huntington, Que., Oct. 17, 1879.

L. H. Wheaton, Division Engineer National Transcontinental Ry., Moncton, N.B., born at Sackville, N.B., Oct. 5, 1866.

G. B. Wyllie, Travelling Passenger Agent Illinois Central Rd., Buffalo, N.Y., born at Toronto, Ont., Oct. 15, 1851.

**The Bay of Quinte Railway.**

Following the purchase of the Central Ontario Ry., the Marmora Ry. and Mining Co.'s line, and the Irondale Bancroft and Ottawa Ry., the Mackenzie, Mann & Co., interests have secured the Bay of Quinte Ry. which has a total of 89.37 miles of line, distributed as follows:—Deseronto to Bannockburn, Ont., 76.00 miles; Deseronto westerly, 2.00 miles; and Yarker to Sydenham, 11.37 miles. These lines were built under different charters, and finally amalgamated under the title of the Bay of Quinte Ry. The company also operates over 19 miles of the G.T.R. In the official report the mileage is divided as follows:—main line, 78 miles; branches and spurs, 11.37 miles; operated under trackage rights, 19 miles; yard tracks and sidings, 15.30 miles. There are on the line 73 unprotected level crossings; 12 iron bridges of an aggregate length of 1,010 ft., the maximum length being 200 ft., and the minimum length 24 ft.; and one wooden bridge 60 ft. long. Its rolling stock, June 30, 1909, the latest report available, consisted of seven locomotives; 8 first class passenger cars; three baggage, express and postal cars; 18 box cars, 126 flat cars, 20 gravel cars, two cabooses and three other road cars. There was outstanding on June 30, 1909, \$1,395,000 of common stock, and \$880,000 of bonds. The subsidies paid on account of the building of the lines were: From the Dominion Government, \$350,455.25; from the Ontario Government, \$84,000, and from municipalities, \$197,990.43.

The B. of Q.R. head office is at Deseronto, the principal officials being President E. W. Rathbun; General Freight and Passenger Agent, J. F. Chapman; Superintendent, H. B. Sherwood. We have reason to believe that matters in connection with the operation of the line will not be changed at present, probably not until the Canadian Northern Ontario Ry. from Toronto to Ottawa is built to a connection with the B. of Q.R. near Napanee.

**Cuba Ry.**—The report for the year ended June 30, shows gross earnings of \$2,559,335, working expenses of \$1,452,036, and net earnings of \$1,107,299, against \$2,157,167 gross, and \$950,088 net for the year ended June 30, 1909. The proportion of working expenses to gross earnings was 56.73% against 55.95% in the previous year. There is under contract rolling stock to the value of \$476,753. In order to provide for the large increase of trade, and for the new lines nearing completion, the shareholders have authorized the creation of a mortgage to secure an issue of 5% improvement and equipment bonds, the amount to be issued not to exceed \$12,000 a mile of completed railway.



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**Orders by the Railway Commissioners.**

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

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

11387. Aug. 11.—Amending order 11276 approving C.N.O.R. location in Belleville and Thurlow tp.
11388. Aug. 11.—Authorizing building of drain in con. 7, Malahide tp., Ont.
11389. Aug. 11.—Approving revised location of Eye Hill Creek extension of C.P.R. Pheasant Hills Branch from sec. 3, tp. 39, r. 28, w. 3 m., at mileage 0 and at mileage 492.2 on Pheasant Hills Branch at Macklin, to sec. 12, tp. 33, r. 22, w. 3 m., on Moose Jaw North Westerly Branch, being mileage 55.7 on extension.
11390. Aug. 11.—Authorizing C.P.R. to build bridge 24.2, Port Burwell Branch, Ontario Division.
11391. Aug. 11.—Extending time within which Essex Terminal Ry. was authorized by order 8993 to operate along Gravel Rds., Sandwich West tp., Ont., to Sept. 15.
11392. Aug. 9.—Authorizing C.N.O.R. to build between lots 10 and 11, con. 4, Clarke tp. and rescinding order 9562, Feb. 15, authorizing the construction of subway.
11393. Aug. 15.—Ordering C.P.R. to maintain day and night watchman at crossing of Winnipeg Electric Ry. on Logan Ave., Winnipeg.
11394. Aug. 1.—Granting application of Express Traffic Association of Canada, asking that the Board accept filing of joint tariffs of international express tolls from the U.S. to Canada, by F. G. Airy, New York, as joint agent for express companies interested.
11395. Aug. 15.—Authorizing the Board's Chief Traffic Officer to deal with urgent cases on application of railway companies in connection with excursion tariffs. This order is given in full on another page.
11396. Aug. 15.—Authorizing Coldwater village, Ont., to lay pipe under C.P.R. at Grey St.
11397. Aug. 15.—Authorizing town of Taber, Alta., to lay pipes under C.P.R. at DeVeber Ave.
11398. Aug. 15.—Authorizing town of Galt, Ont., to lay pipe under G.T.R., Galt and Berlin Branch, at Blair road and George St.
11399. Aug. 15.—Authorizing A. Leofred, C.E., of Quebec, to lay mains under G.T.R. at Charny, Que.
11400. Aug. 15.—Authorizing St. Lawrence and Adirondack Ry. to extend side track east of main line at Athelstan, Que., northerly and across third concession highway, Elgin tp., to its main line.
11401. July 25.—Approving revised location of Niagara St. Catharines and Toronto Ry. across ponds 1, 2, and 3, opposite locks 12, 13, and 14, old Welland canal, Merrittton, Ont.
11402. Aug. 16.—Authorizing C.P.R. to build spur from near Agassiz, B.C., on its main line, in s. e. 27-3-29, w. 6 m., northerly to ballast pit in sec. 34-3-29, w. 6 m.
11403. June 27.—Authorizing city of Brantford, Ont., to build foot crossing over Brantford and Hamilton Electric Ry., connecting Mary and Greenwich Sts., and crossing Brantford canal level.
11404. Aug. 16.—Rescinding order 2029, Nov. 26, 1906, made upon application of the National Transcontinental Ry. Commissioners, and authorizing them to join their tracks with the C.P.R., west of Rennie station, Man.
11405. Aug. 19.—Authorizing National Transcontinental Ry. to cross, at grade, C.N.R. Dundee branch, at mileage 246.5, St. Boniface, Man., the question of the interlocking appliances to be reserved for future consideration and in the meantime applicants to install a double arm semaphore to be operated by the trainmen.
11406. Aug. 18.—Authorizing British Yukon Ry. to open for traffic the portion of its line from Best Chance mine to Pueblo mine.
11407. Aug. 18.—Authorizing C.P.R. to use bridges 29.8, 35.6, 39.3, 47.9, 65.1, 87.12, and 87.37, on Esquimalt and Nanaimo Ry.
11408. Aug. 18.—Authorizing Montreal Light, Heat and Power Co. to erect wires across Dominion Bridge Co.'s siding, Lower Lachine road, Lachine, Que.
11409. Aug. 19.—Authorizing United Fuel Supply Co. to lay pipe under P.M.R. between cons. 1 and 2, Chatham tp., Ont.
- 11410 to 11416. Aug. 18, 19.—Authorizing Ontario Hydro-Electric Commission to erect wires at seven points.
- 11417, 11418. Aug. 18.—Approving location of C.N.O.R. station grounds at Port Hope and Greenwood.
11419. Aug. 19.—Authorizing Quebec Ry., Light and Power Co. to build branch from near Riviere des Chiens station on its main line to Tobin Manufacturing Co.'s yard and to cross public road in Chateau Richer parish.
11420. Aug. 18.—Authorizing G.T.R. to substitute plan C 2-36, dated Toronto, July 6, 1910, for plan 38, deposited in the Registry Office for Waterloo Co., on Apr. 16.
11421. Aug. 19.—Ordering G.T.P. Ry. to provide farm crossing for W. J. Beggs, Colonsay, Sask.
- 11422, 11423. Aug. 11-12.—Authorizing Volcanic Oil and Gas Co., to lay pipe under Essex Terminal Ry. and under G.T.R. at Tecumseh road, between Sandwich East tp. and Windsor, Ont.
11424. Aug. 22.—Authorizing T. H. & B. R. to build branch in Hamilton, Ont., from its easterly belt line northeasterly across Brant St. and G.T.R. Hamilton and North Western Division to the northerly limit of G.T.R. lands; to cross at grade, Brant St. and G.T.R. Hamilton and North Western Division north of Brant St. and east of McKinstry St.
11425. Aug. 22.—Authorizing town of Wingham, Ont., to lay pipe under C.P.R. at Minnie St.
- 11426, 11427. Aug. 20-22.—Authorizing Coldwater village, Ont., to lay pipe under and across G.T.R. and under C.P.R., Main St.
11428. Aug. 11.—Authorizing Saskatchewan Department of Public Works to construct highway across C.P.R. in north half of sec. 14, tp. 4, r. 10, w. 2 m.
11429. Aug. 22.—Authorizing C.P.R. to build branch from its Muskoka section where it intersects the northerly boundary of G.T.R. right of way, to Roman Stone Co.'s premises, Weston, Ont.
11430. Aug. 22.—Authorizing C.P.R. to build spur for Canadian Mineral Rubber Co.
11431. Aug. 22.—Approving C.N.O.R. location and revised location through Sidney tp. and Trenton, mileage 136 to 145.1.
11432. Aug. 22.—Authorizing C.N.O.R. to build bridge over Dawes Road, York tp., at station 139.
11433. Aug. 22.—Approving location of portion of C.P.R. Weyburn-Lethbridge Branch from sec. 4, tp. 8, r. 29, w. 2 m., at mileage 106, to sec. 8, tp. 9, r. 14, w. 3 m., at mile 200.
11434. Aug. 22.—Authorizing New Brunswick Southern Ry. (C.P.R.) to build bridge 19.82 over the Digdeguash River.
11435. Aug. 22.—Authorizing G.T.R. to build siding from south end of branch built on National Carbon Mfg. Co.'s premises on lot 30, south of the Paton Road.
11436. Aug. 11.—Authorizing Hamilton Gas Light Co. to lay pipe on Lock St. bridge and over T.H. & B.R.
11437. Aug. 23.—Authorizing United Fuel Supply Co. to lay pipe under M.C.R. on Third St., Brigidon, Ont.
11438. Aug. 23.—Authorizing Port Rowan Natural Gas Co. to lay pipe under G.T.R. at Port Rowan station, Ont.
11439. Aug. 24.—Amending order 11405, authorizing National Transcontinental Railway Commissioners to cross at grade, C.N.R. Dundee Branch, at mile 246.5, St. Boniface, Man.
11440. Aug. 24.—Authorizing G.T.R. to build siding and spurs along and across Pinnacle St. and Wharf St. to Canada Bolt and Nut Co.'s premises, Belleville, Ont.
11441. Aug. 24.—Authorizing Saskatchewan Department of Public Works to build highway over C.P.R. in s. e. ¼ sec. 2, tp. 25, r. 3, w. 2 m.
11442. Aug. 24.—Authorizing C.P.R. to build additional track across Holland St., Dundalk, Ont.
11443. Aug. 25.—Declaring that G.T.R. crossing known as no. 4 side road, about two miles west of Glencoe, Ont., is protected to Board's satisfaction.
11444. Aug. 25.—Authorizing G.T.P. Branch Lines Co. to divert highway in n. w. ¼ sec. 2, tp. 41, r. 22, w. 4 m., North Alberta District.
11445. Aug. 16.—Extending time within which C.P.R. was authorized by orders 10524 and 11134 to install electric bell at crossings of William St., London, Ont., for 30 days from Aug. 11.
11446. Aug. 2.—Amending Board's requirements regarding protection of wooden trestles. This order is published in full on another page.
11447. Aug. 16.—Approving agreement of Apr. 28, between Bell Telephone Co. and P. K. Hunt, Quebec.
11448. Aug. 16.—Extending time within which C.P.R. was authorized by orders 9722 and 10753, to build spur for Standard White Lime Co., at Beachville, Ont., to Oct. 31.
11449. Aug. 15.—Authorizing G.T.P.R. to divert road in n. e. ¼ sec. 35, tp. 22, r. 7, w. 2 m., Yorkton, Sask.
11450. Aug. 16.—Authorizing C.P.R. to build spur from block 10, lot 13, Kildonan, Man., northeasterly, northerly, and north-westerly through block 10 and along blocks 11, 12, 13, 14 and 15.
11451. Aug. 16.—Extending for 30 days from date time within which C.P.R. was authorized by orders 10523 and 11135, to install electric bell at crossing of Colborne St., London, Ont.
11452. Aug. 16.—Extending time within which C.P.R. was authorized by orders 10321 and 10883, to install electric bell at crossing at mileage 81.28, Toronto section, Markham tp., Ont., until Sept. 15.
11453. Aug. 23.—Authorizing T.H. & B.R. to rebuild wooden bridge over London and Hamilton road, Brantford tp., Ont.
11454. Aug. 23.—Ordering Red Mountain Ry. to erect signboards at all highway crossings on its line in compliance with sec. 243 of the Railway Act, and that it limit the speed of trains and engines to not more than six miles an hour from Rossland station, B.C., to 100 yds. west of Second Ave. crossing.
11455. Aug. 27.—Authorizing C.N.O.R. to build between lots 32 and 33, con. A, Haldimand tp.
11456. Aug. 23.—Authorizing C.N.O.R. to take possession of Central Ontario Ry. in Trenton from its junction with the C.O.R. south of Wragg St. to the intersection of Joseph and Queen Sts.; and to join with the C.O.R. there.
11457. Aug. 27.—Approving Manitoulin and North Shore Ry. Standard Passenger Tariff C.R.C. 8 applying a rate of 4c. a mile, or fraction thereof, between all stations on its line.
- 11458 to 11462. Aug. 27.—Authorizing C.N.O.R. to build across roads at five points in Trenton.
11463. Aug. 3.—Amending rule 6 of Canadian Classification 14.
11464. Aug. 26.—Authorizing Saskatchewan Department of Public Works to build highway over Qu'Appelle, Long Lake & Saskatchewan Ry. in s. w. ¼ sec. 33, tp. 19, r. 21, w. 2 m.
11465. Aug. 26.—Amending order 11424, authorizing T.H. & B.R. to build branch to the Oliver Chilled Plow Works, by adding that it be completed within three months.
11466. Aug. 26.—Authorizing G.T.R. to build siding, with spur, from its Northern Division, south of Tennyson Ave., Toronto, northerly crossing Tennyson Ave. to Connell Anthracite Mining Co.'s premises.
- 11467 to 11471. Aug. 29.—Authorizing Water Commissioners of London, Ont., to erect wires across the London and Port Stanley Ry., C.P.R., and London and Lake Erie Ry.
11472. Aug. 27.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at Asylum side road, London.
11473. Aug. 27.—Authorizing Montreal Light, Heat and Power Co. to lay pipe under G.T.R. on Cote St. Paul Road.
11474. Aug. 27.—Authorizing C.P.R. to build two extensions to spurs already constructed for Calgary Brewing and Malting Co., on n. e. ¼ sec. 11, tp. 23, r. 1, w. 5 m.
11475. Aug. 27.—Extending time within which C.P.R. was authorized to build spur across lot 1, and block 31, parish lot 35, St. John's, Winnipeg, until Oct. 18.
11476. Aug. 29.—Authorizing C.N.R. to build across highways between secs. 15 and 16, 16 and 9, 9 and 8, tp. 5, r. 6, w. 2 m.
11477. Aug. 27.—Authorizing C.N.O.R. to build across Sidney St., Trenton.
11478. Aug. 25.—Authorizing C.P.R. to change location of its station at Keeler, Sask.
11479. Aug. 25.—Authorizing C.P.R. to build spur across 9th Ave., and on block 124, together with a branch through lots 26, 27, 28, 29 and 30, in block 124, Moose Jaw, Sask., for the city of Moose Jaw, Moose Grocery Co., and Rex Fruit Co.
11480. Aug. 25.—Authorizing C.P.R. as lessee of the New Brunswick Southern Ry. to change location of its station at Bristol.
11481. Aug. 25.—Amending order 9273, authorizing city of Winnipeg to build bridge over C.P.R. to connect Brown and Brant Sts., by approving revised plan 4886.
11482. Aug. 25.—Authorizing C.P.R. to build additional siding across road allowance between n. w. ¼ sec. 19, tp. 17, r. 2, w. 3 m., and s. w. ¼ sec. 30, tp. 17, r. 2, w. 3 m.; also across road allowance between s. w. ¼ sec. 30, tp. 17, r. 2, w. 3 m., and s. w. ¼ sec. 25, tp. 17, r. 3, w. 3 m., at Parkbeg, Sask.
11483. Aug. 25.—Authorizing Montreal Light, Heat and Power Co. to lay pipe under C.N.Q.R. on Pie IX. Ave., Maisonneuve.
11484. Aug. 25.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Woodstock, Thames Valley and Ingersoll Electric Ry. at Mill and Charles Sts., Ingersoll.
11485. Aug. 30.—Authorizing town of Wingham, Ont., to lay pipe under G.T.R.
11486. Aug. 30.—Authorizing Water Commissioners of London, Ont., to erect wires



# REMEMBER

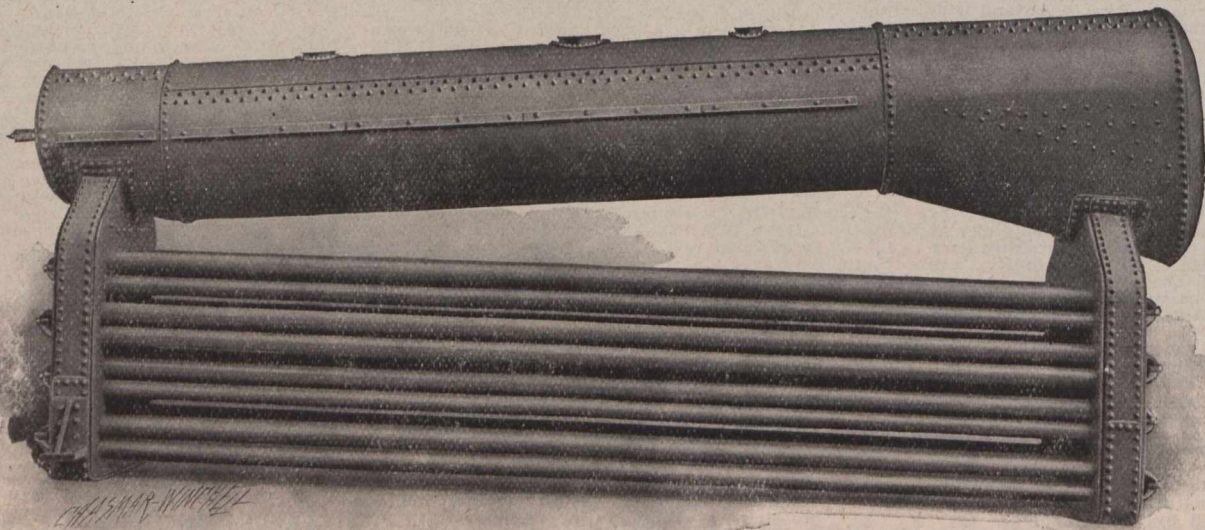
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across Bell Telephone Co.'s wires at William St. and Hamilton Road.

11487. Aug. 29.—Authorizing Simcoe Ry. and Power Co. to erect wires across C.P.R. between lots 10 and 11, con. 5, Tay tp., Ont.

11488. Aug. 29.—Authorizing Saraguay Electric and Water Co. to erect wires across C.N.Q.R. on Prefontaine St., Montreal.

11489, 11490. Aug. 27.—Authorizing city of Hamilton, Ont., to lay pipe under G.T.R. at Hillyard St. and at Wentworth St.

11491. Aug. 29.—Authorizing Nipissing Central Ry. to open for traffic the portion of its line from Cobalt to Haileybury, Ont., provided that trains operated be limited to 15 miles an hour.

11492. Aug. 30.—Authorizing Atlantic, Quebec and Western Ry. to build across road crossing 4, at mileage 51, Grand River, Que.

11493. Aug. 30.—Authorizing Saskatchewan Government, under sec. 237 of the Railway Act, to build highway across C.N.R. in sec. 35, tp. 29, r. 32, w. p. m.

11494. Aug. 30.—Authorizing C.P.R. to build additional track between sec. 36, tp. 7, r. 4, w. 5 m., and sec. 31, tp. 7, r. 3, w. 5 m., Frank, Alta.

11495. Aug. 30.—Authorizing C.P.R. to build two additional tracks between secs. 19 and 20, tp. 7, r. 23, w. p. m., De l'eau town-site, Man.

11496. Aug. 29.—Authorizing Shirra Milling Co., Caledonia, Ont., to lay pipe under G.T.R. at Caledonia station.

11497. Aug. 30.—Approving location of G.T.R. new passenger station and freight house at Bothwell, Ont.

11498. Aug. 30.—Relieving G.N.R. from providing further protection at crossing 2½ miles north of Colebrook, B.C.

11499. Aug. 31.—Approving Canadian Northern Alberta Ry. location through tp. 54, r. 27-28, and 1-3, w. 5 m., mileage 13.51 to 31.34.

11500. Aug. 31.—Approving location of new G.T.R. station at Hawksbury, Ont.

11501. Aug. 31.—Relieving C.N.R. from providing further protection at crossing in Roseburn section, immediately west of Hallboro station, Man.

11502. Aug. 26.—Amending order 11399, Aug. 15, authorizing A. Leofred, C.E., Quebec, to lay pipes under G.T.R. at Charny,

11503. Aug. 31.—Authorizing St. Maurice Valley Ry. to open for traffic the portion of its extension between Shawinigan Falls and Grand Mere, Que.

11504. Aug. 31.—Authorizing C.P.R. to build spur across block 34, across Xante St., and through Imperial Oil Co.'s premises on block 30, all on parish lot 11 D.G.S., St. John, Winnipeg.

11505. Aug. 31.—Authorizing the G.T.P.R. to cross, at grade, C.P.R. Pheasant Hills Branch, in n.e. ¼ sec. 36, tp. 36, r. 16, w. 3 m., Saskatoon District, Sask.

11506. Aug. 29.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at Simcoe and Waterloo Sts.

11507. Sept. 1.—Authorizing C.P.R. to build bridge 78.5 over Baptist Creek, on its Windsor sub-division, Ontario Division.

11508.—Sept. 1.—Approving location of G.T.P.R. Prince Rupert easterly, mileage 434.5, to 482.421, Fort George District, B.C.

11509. Sept. 1.—Authorizing G.T.P. Branch Lines Co. to build across highway on its Prince Albert Branch, between sec. 36, tp. 36, r. 27, w. 2 m., Saskatoon District, Sask.

11510. Sept. 1.—Relieving G.T.R. from providing further protection at Cataragui St crossing, about four miles west of Kingston Jct., Ont.

11511. Sept. 1.—Limiting publication of notice of application for approval of amalgamation agreement between C.N.R. and Edmonton and Slave Lake Ry.

11512, 11513. Aug. 29.—Authorizing town of Weyburn, Sask., to lay pipe under C.P.R. Souris Branch at s.e. ¼ sec. 20, tp. 8, r. 14, w. 2 m.; also under C.P.R. adjoining the town.

11514. Aug. 30.—Authorizing C.N.Q.R. to build a Y to connect its main line with its spur to St. Marc quarries, Groulx parish, and to take parts of lots 312, 314 and 315.

11515. Aug. 29.—Authorizing C.P.R. to build spur to T. W. McCohn's premises on block H, parish lot 53 D.G.S., St. James, Winnipeg.

11516. Aug. 30.—Authorizing G.T.P.R. to build spur across McDougall Ave., Edmonton, Alta.

11517. Aug. 30.—Approving location of C.N.R. through tps. 34-30 and r. 8-9, w. 3 m., from mileage 0 to 27.89.

11518. Aug. 30.—Authorizing C.N.R. to place its tracks across G.T.P.R. Tofield-Calgary branch in s.w. ¼ sec. 14, tp. 47, r. 20, w. 4 m., and to connect its Strathcona-Camrose Branch with its Vegreville-Calgary Branch in n.w. ¼ sec. 1, tp. 47, r. 20, w. 4 m.

11519. Aug. 29.—Authorizing C.P.R. to build bridge over Couchiching narrows, Orillia, Ont.

11520. Sept. 1.—Authorizing town of

Brockville, Ont., to lay pipe under C.P.R. at Louis St.

11521 to 11529. Sept. 1.—Authorizing Ontario Hydro-Electric Power Commission to erect wires at nine points.

11530. Aug. 30.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at Simcoe and Maitland Sts.

11531. Sept. 1.—Approving standard maximum passenger toll of 3c. a mile between points on Manitoba Great Northern Ry. and 4c. a mile on Crow's Nest Southern Ry. and on New Westminster Southern Ry., also between points served by International Navigation and Trading Co. in B.C., shown in G.N.R. Standard Passenger Tariff C.R.C. 550.

11532. Aug. 30.—Allowing G.T.R. and G.T.P.R. until Sept. 1, 1911, within which to comply with requirements of sub-sec. 5 of sec. 264 of the Railway Act.

11533. Aug. 25.—Approving G.T.R. plan showing amended diversion of highway between cons. 1 and 2, Thurlow tp., Ont.

11534. Aug. 29.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at Grey and Waterloo Sts.

11535. Sept. 1.—Authorizing G.T.R. to build extension of branch from west of St. Legar St., Berlin, to Anthes Furniture Co.'s premises.

11536. Sept. 1.—Authorizing C.P.R. to build two spurs across Cedar St. and J. Finlay & Sons' land, Norwood, Ont.

11537 to 11546. Aug. 29, 30.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at 10 points.

11547. Sept. 2.—Granting temporary leave to National Transcontinental Ry. Commissioners to operate trains over certain portions of C.N.R.

11548. Sept. 1.—Amending order of Railway Committee of Privy Council, Sept. 23, 1898, by providing that Kingston and Pembroke Ry. may cross Montreal St., Kingston, with its freight trains, not exceeding 10 miles, and passenger trains not exceeding 15 miles, an hour.

11549. Sept. 1.—Amending order 11319, July 29, by authorizing Boston and Maine Rd. to install its standard electric bell at main road crossing, Lennoxville, provided it change the light and use disc with "danger" on it; and extending time for installation for 60 days from date.

11550. Sept. 1.—Dismissing application of Western Dominion Collieries Co. and Roche Perce Coal Mining Co., heard at Regina and Winnipeg in Feb. and Nov., 1909, respectively.

11551. Aug. 27.—Authorizing C.P.R. to build highway crossing where Stanley Ave., produced in a straight line, intersects its right of way, Fort William, Ont.

11552. Aug. 27.—Authorizing city of Fort William, Ont., to cross with its street railway G.T.P.R. spur on level, near the intersection of spur and G.T.P.R. main line at railway bridge in West Fort William.

11553. Aug. 27.—Dismissing application of city of Fort William, Ont., re C.P.R. Neebing Ave. crossing.

11554. Aug. 27.—Dismissing application of city of Fort William, Ont., to require C.N.R. to construct highway crossing at Argyle St.

11555, 11556. Aug. 27.—Authorizing C.P.R. to construct highway crossings at Mountain and Crawford Aves., Fort William, Ont.

11557. Sept. 2.—Authorizing W. J. Aikens, Dunnville, Ont., to lay pipe under Brantford St. Ry. (Grand Valley Ry.) on the Brantford and Hamilton road.

11558. Sept. 2.—Authorizing Simcoe Ry. and Power Co. to erect wires across G.T.R. on Hazel St., Waubaushene, Ont.

11559. Sept. 1.—Ordering G.T.R. to install, within 90 days, an improved electric bell at crossing of King's Road, Otonabee tp., Ont.

11560. Sept. 2.—Authorizing town of Maisonneuve to lay electric wire for fire alarm on Bennett Ave. under C.N.Q.R.

11561. Sept. 2.—Approving plan showing drain to be built under M.C.R. near Essex, Ont.

11562. Sept. 2.—Dismissing application of Canadian Freight Association for approval of Supplement 2 to Canadian Classification 14 in so far as it relates to ratings on old rails.

11563. Sept. 6.—Authorizing Seymour Power and Electric Co. to erect wires across G.T.R. in lots 8 and 9, con. 2, Thurlow tp., Ont.

11564 to 11566. Sept. 6.—Authorizing Ontario Hydro-Electric Power Commission to erect wires at two points in Hamilton and one in Preston.

11567. Sept. 7.—Authorizing C.N.Q.R. to open for traffic the portion of its line between Dugas Jct. and Rawdon.

11568. Sept. 7.—Authorizing Atlantic, Quebec and Western Ry. to build across highway to Gaspe ferry, York, Gaspe Co., Que.

11569. Sept. 7.—Approving, temporarily, agreement between Megantic People's Telephone Co. and Bell Telephone Co., Aug. 4.

11570 to 11578. Sept. 6, 7.—Authorizing

C.N.R. to build across an irrigation ditch at nine points in Alberta.

11579. Sept. 7.—Approving Canadian Northern Express Co. by-law re filing tariffs of tolls.

11580. Sept. 7.—Approving Canadian Northern Telegraph Co. by-law re filing tariffs of tolls.

11581 to 11597. Sept. 6.—Authorizing C.N.R. to build across irrigation ditches at 17 points in Alberta.

11598. Sept. 6.—Authorizing C.P.R. to build spur for Edgewood Lumber Co. in lot 237, Kootenay district, B.C.

11599. Sept. 2.—Approving, in part, application of Canadian Freight Association for order approving proposed Supplement 3 to Canadian Classification 14.

11600. Aug. 31.—Approving plans and specifications of the Whitman drain under M.C.R.

11601. Sept. 7.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co. wires, East Flamboro tp.

11602. Sept. 7.—Authorizing Canada Southern Ry. to lay pipes for drainage under Wellington and Forest Sts. and Third Ave., St. Thomas, Ont.

11603. Sept. 7.—Approving, temporarily, agreement between Bell Telephone Co. and Highland Telephone Co., June 7.

11604. Sept. 6.—Approving drainage works across M.C.R. and P.M.R., according to G. A. McGubbin's reports of July 31, 1909, and May 14, 1910.

11605. Sept. 7.—Ordering that crossing of C.N.R. by National Transcontinental Ry. at mileage 246, near St. Boniface, Man., be protected by full interlocking plant, to be installed by National Transcontinental Ry. by July 1, 1911.

11606. Sept. 8.—Dispensing with publication of application for authority to build branch lines from east side of Pembina St., Winnipeg, to the Red River, and crossing Mulvey Ave. to connect with spur and authorizing C.N.R. to serve short notice on city of Winnipeg and property owners affected.

11607. Sept. 7.—Extending to Oct. 30, time within which three industrial spurs for Saskatchewan Flour Mills Co., Moose Jaw, be completed.

11608. Sept. 8.—Approving forms of freight and money receipts, MX 27 and MX 70, of Maritime Express Co.

11609, 11610. Sept. 8.—Approving, temporarily, until Dec. 1, contract forms of Pacific, Canadian, and Dominion Ex. Co.'s on file with Board under file 3518.

11611, 11612. Sept. 8.—Extending to Dec. 1 time within which North American Telegraph Co. and Bell Telephone Co. may charge telephone tolls which they were previously to July 13, 1906, authorized to charge.

11613. Sept. 7.—Authorizing C.P.R. to build spur from Western Road to Bell Telephone Co.'s premises.

11614. Sept. 7.—Authorizing C.P.R. to build extension of spur for G. N. Annable Co., Kootenay District, B.C.

11615. Sept. 8.—Approving, temporarily, until Dec. 1, contract forms, etc., of National and American Ex. Co.'s.

11632. Sept. 2.—Authorizing Ontario Hydro-Electric Power Commission to use its transmission wires erected across various railways and wires at 42 points.

11633. Sept. 7.—Authorizing H. A. Suggitt, of Coaldale, Alta., to lay a culvert under C.P.R.

11634, 11635. Sept. 6.—Authorizing Simcoe Ry. and Power Co. to erect wires across G.T.R. at Hazel St., Waubaushene, and in Tay tp., Ont.

11636. Sept. 13.—Authorizing C.P.R. to build bridge 40.3, on its London subdivision, Ontario Division.

11637. Sept. 13.—Authorizing C.P.R. to build additional siding, south of its main line, across Elk St., Elkhorn, Man.

11638. Sept. 13.—Authorizing C.P.R. to build bridge 80.09 over Potois Creek, on its North Bay subdivision, Lake Superior Division, Ont.

11639. Sept. 13.—Authorizing G.T.R. to build bridge between lots 89 and 90, con. 1, Tiny tp., Ont.

11640, 11641. Sept. 13.—Extending to Sept. 30 time within which C.P.R. was directed by orders 10707 and 10682 to install bells at Maple St. crossing, Hartland, N.B., and Foundry St. crossing, Woodstock, N.B.

11642. Sept. 13.—Authorizing G.T.R. to build bridge between lot 93, con. 1, and lot 93, con. 2, Tay tp., Ont.

11643. Sept. 7.—Ordering C.P.R. to reopen crossing at A. D. Hartley's farm, East Florenceville, N.B.

11644. Sept. 6.—Authorizing C.N.R. to build over and across irrigation ditch, n.w. ¼ sec. 11, tp. 25, r. 26, w. 4 m., Alta.

11645. Sept. 7.—Authorizing J. A. Thompson, of Moorefield, Ont., to lay pipe under G.T.R. in Maryborough tp.

11646. Sept. 7.—Authorizing G.T.R. to reconstruct bridge 50 over Conestage River, near Moorefield, Ont.



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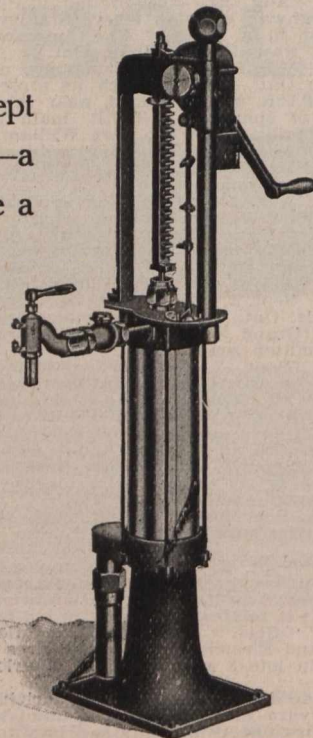
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11647. Sept. 13.—Extending to Oct. 15 time within which T. H. & B. R. was directed, by order 9026, to build highway bridge carrying Garth St., Hamilton, Ont.
11648. Sept. 13.—Authorizing city of Peterboro, Ont., to lay pipe under G.T.R. at Romaine St.
- 11649, 11650. Sept. 13.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at James St., Hamilton, and across Galt, Preston and Hespeler Electric St. Ry., at Galt.
11651. Sept. 13.—Authorizing Volcanic Oil and Gas Co. to lay pipe under C.P.R. at Belle River, Ont.
11652. Sept. 8.—Authorizing C.P.R. to build bridge over yard in Calgary, Alta.
11653. Sept. 14.—Approving location of G.T.P. Branch Lines Co.'s Young-Prince Albert Branch from sec. 31, tp. 40, r. 26, w. 2 m., to Prince Albert, Sask., mileage 55.148 to 111.536.
11654. Sept. 13.—Authorizing C.P.R. to build spur from near Roseberry St. to Tenth St., also four sub-spurs from blocks 70, 71 and 72, between Pacific and Rosser Aves., Brandon, Man.
11655. Sept. 14.—Authorizing C.N.O.R. to build between lots 6 and 7, con. A, Haldimand tp.
11656. Sept. 14.—Authorizing town of Grand Falls, N.B., to lay pipe under C.P.R. at Broadway.
11657. Sept. 14.—Authorizing Ontario Power Co. to erect wires across G.T.R. Welland Division in Crowland tp.
- 11658 to 11661. Sept. 14.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Hamilton Radial Electric Ry. in Saltfleet tp., and across Bell Telephone Co.'s wires in Waterloo tp., at three points.
11662. Sept. 15.—Approving C.N.O.R. plans for station at Brighton.
11663. Sept. 15.—Declaring that G.T.R. crossing at Main St., Glencoe, Ont., is protected to the Board's satisfaction and rescinding order 11443.
11664. Sept. 14.—Approving C.N.O.R. strain sheets for 100 ft. girder span across Factory creek on its Toronto-Ottawa line.
11665. Sept. 14.—Authorizing C.N.Q.R. to connect with National Transcontinental Ry. west of River Charest.
- 11666 to 11668. Sept. 15.—Approving G.T.P. Branch Lines Co.'s locations of stations at New Norway, Duhamel and Kingman, on its Toftield-Calgary branch, Alta.
11669. Sept. 14.—Authorizing C.P.R. to build two spurs for Globe Elevator Co., near Calgary Jct., Alta.
11670. Sept. 15.—Extending to Sept. 30 time within which C.P.R. was directed, by order 10707, to install electric bell at Maple St. crossing, Hartland, N.B.
11671. Sept. 15.—Relieving C.P.R. from providing further protection at crossing 1¼ miles west of Michel, B.C.
11672. Sept. 15.—Authorizing Light and Heat Commissioners of Guelph, Ont., to lay pipe under G.T.R.
11673. Sept. 14.—Authorizing Mount Stephen Mining Syndicate to lay pipe under C.P.R. three miles east of Field, B.C.
11674. Sept. 13.—Amending order 10344 by relieving Ops tp. from building approaches to bridge 2 miles west of Lindsay, Ont., and apportioning cost of building the bridge as follows: Ops tp., 20%; Railway Grade Crossing Fund, 20%, and remainder by G.T.R.
11675. Sept. 16.—Authorizing Montreal Light, Heat and Power Co. to lay a pipe under C.P.R. on St. Denis St.
- 11676 to 11680. Sept. 15.—Authorizing C.N.O.R. to build across side roads at five points in Sidney tp.
11681. Sept. 15.—Extending to Dec. 1 time within which city of Montreal may construct tunnel under C.P.R. at St. Lawrence Boulevard.
- 11682, 11683. Sept. 16.—Authorizing Esquimalt and Nanaimo Ry. to use bridges 29.8, 35.6, 39.3, 47.9, 65.1, 87.12, 87.37, 26.8, 28.2, 28.4, and 28.6, and rescinding orders 11407 and 6611.
11684. Sept. 16.—Authorizing C.N.O.R. to reconstruct eastern approach of bridge over Ottawa River near Hawkesbury by erecting 30 and 85 ft. place girder span.
11685. Sept. 16.—Authorizing G.T.R. to build sidings with spurs to Oliver Chilled Plow Works, Hamilton, Ont.
11686. Sept. 15.—Authorizing C.N.O.R. to build between lots 3 and 4, con. 1, Sidney tp.
11687. Sept. 17.—Approving location of C.P.R. new station at Strongfield, Sask.
11688. Sept. 16.—Extending to Sept. 30 time within which C.P.R. was directed, by order 11103, to install electric bell at highway crossing at Weston, Ont.
11689. Sept. 16.—Relieving C.P.R. from providing further protection at Eaton road crossing, Brighton, Que.
11690. Sept. 16.—Relieving G.T.R. from providing further protection at Ontario St. crossing, Cobourg, Ont.
- 11691 to 11695. Sept. 17.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at five points.
11696. Sept. 16.—Authorizing city of Toronto to lay pipe between Sunnyside and Roncesvalles Ave., under G.T.R.
11697. Sept. 15.—Authorizing W. P. Ferris to lay pipe under G.T.R. South Norfolk branch in South Walsingham tp., Ont.
11698. Sept. 16.—Authorizing Provincial Natural Gas and Fuel Co. to lay pipe under G.T.R. between Humberstone and Crowland tps., Ont.
11699. Sept. 17.—Authorizing town of Montreal East to lay pipe under Montreal Terminal Ry. at Laurendeau Ave.
11700. Sept. 17.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at Mutual St., Ingersoll.
- 11701, 11702. Sept. 17.—Authorizing Guelph, Ont., Waterworks Department to lay pipe under G.T.R. on Liverpool and Glasgow Sts.
- 11703 to 11706. Sept. 17.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. and Bell Telephone Co.'s wires at four points.
11707. Sept. 15.—Authorizing C.N.O.R. to build between lots 24 and 25, con. 1, Sidney tp.
11708. Sept. 19.—Authorizing C.N.O.R. to build across Division St., Cobourg, overhead.
11709. Sept. 17.—Authorizing C.P.R. to build spur for F. Fairey, lots 35 to 40, and at rear of lots 32 to 36, block 72, Calgary, Alta.
11710. Sept. 13.—Rescinding order 10509, Apr. 21, re subway at Division St., Cobourg, upon application of C.N.O.R.
11711. Sept. 13.—Approving C.N.O.R. revised location through Cobourg.
- 11712, 11713. Sept. 13.—Authorizing G.T.R. to build sidings from near Caledonia station, Ont., to Caledonia Gypsum Co.'s premises, Seneca St., and Alabastine Co.'s premises, Paris, Ont.
11714. Sept. 15.—Approving C.N.O.R. station building at Don Jct.
11715. Sept. 19.—Authorizing Essex Terminal Ry. to build branch through portions of Walkerville and Windsor, Ont.
11716. Sept. 20.—Authorizing town of Montreal East, Que., to lay pipe under Chateauguay and Northern Ry., at Laurendeau Ave.
11717. Sept. 20.—Authorizing C.P.R. to build bridge 71.53, North Bay subdivision, Lake Superior Division, Ont.
11718. Sept. 20.—Relieving G.T.R. from providing further protection at first level crossing east of Seguin Falls station, Ont.
- 11719 to 11722. Sept. 19.—Authorizing Water Commissioners of London, Ont., to erect wires across Bell Telephone Co.'s wires at four points.
11723. Sept. 13.—Authorizing C.N.O.R. to build across C.P.R. near Chaudiere Jct.
11724. Sept. 13.—Approving C.N.O.R. location through Gloucester tp., mileage 0 to 5.3.
11725. Sept. 20.—Authorizing G.T.P.R. to build spur track from its main line south of the C.P.R. Wetaskiwin Branch crossing, Railway and Alberta Aves., to Third St., Camrose, Alta.
11726. Sept. 19.—Approving location of G.T.R. proposed station and freight house and rearrangement of tracks at Hawkesbury, Ont.
11727. Sept. 9.—Dismissing application of St. Mungo Cannery Co., New Westminster, B.C., for order directing Vancouver, Victoria and Eastern Ry. and Navigation Co. to provide railway facilities from its premises.
11728. Sept. 9.—Ordering Vancouver, Victoria and Eastern Ry. and Navigation Co. to build wooden bridges over cutting at Lake-wood Drive, Woodland Drive and Broadway, Vancouver, B.C., within six months from date, to be constructed in compliance with plans to be approved by an engineer of the Board.
11729. Sept. 8.—Dismissing application of Sumas tp., B.C., for order directing C.P.R. and V.V. & E. Ry. and Nav. Co. to provide offices on Canadian side of International boundary in Huntingdon, B.C.
11730. Sept. 9.—Dismissing application of city of Vancouver, B.C., for approval of plans and mode of crossing C.P.R. at Clarke Drive.
11731. Sept. 6.—Granting application of F. and M. Allen, for order approving extension of C.P.R. from lot 7, block 54, subdivision 185, Vancouver, B.C., across lots 7 and 8, to wharves.
11732. Sept. —Approving Vancouver, Victoria and Eastern Ry. and Navigation Co.'s application for branch line from its main line in Huntingdon, B.C., to the International boundary.
11733. Sept. 9.—Authorizing Western Canada Power Co. to join its line with the C.J.R. near Ruskin, B.C.
11734. Sept. 6.—Ordering Vancouver, Victoria and Eastern Ry. and Navigation Co. to protect North Road crossing between New Westminster and Port Moody and Barnet, B.C.
11735. Sept. 20.—Amending order 11605 re interlocking plant at National Transcontinental Ry. and C.N.R. crossing near St. Boniface, Man.
11736. Sept. 20.—Amending order 9129 re C.P.R. branch line, lot 6, con. 4, Etobicoke tp., Ont., by authorizing C.P.R. to put in switches and semaphores to be operated by hand, and to put a day and night watchman and flag its trains on and off the joint section for three months from date.
11737. Sept. 20.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. between lots 157 and 158, Stamford tp.
11738. Sept. 9.—Dismissing application of city of New Westminster, B.C., for order directing Vancouver Power Co. to raise its wires over Fraser River bridge.
11739. Sept. 9.—Authorizing B.C. Public Works Department to build highway crossing over C.P.R. right of way east of Kault station.
11740. Sept. 20.—Authorizing Esquimalt and Nanaimo Ry. to build spur for Cowichan Creamery Co., Duncans, B.C.
11741. Sept. 13.—Authorizing C.P.R. to use jointly with G.T.R. the spur which G.T.R. was authorized by order 4816 to build from Mowat Ave. siding, Toronto, to H. Disston & Sons' premises.
11742. Sept. 20.—Authorizing Saskatchewan Government to build highway across C.P.R. in s.e. ¼ sec. 36, tp. 1, r. 7, w. 2 m.
11743. Sept. 21.—Extending to June 1, 1911, time within which C.P.R. was authorized by order 11402 to build branch from near Agassiz, B.C., to a ballast pit.
11744. Sept. 21.—Authorizing C.P.R. to rebuild bridge over road at mileage 70.5, Toronto subdivision, Ontario Division.
- 11745 to 11749. Sept. 21.—Authorizing Simcoe Ry. and Power Co. to erect wires across Bell Telephone Co.'s wires at five points in Tay tp., Ont.
- 11750 to 11753. Sept. 9.—Authorizing Vancouver, Fraser Valley and Southern Ry. to build over certain highways in Vancouver; to cross V.V. & E. Ry. at Burnaby; and certain highways in Hastings and Burnaby, B.C.
- 11754, 11755. Sept. 21.—Authorizing town of Brampton, Ont., to lay pipe under C.P.R. at Jessie and Railroad Sts.
- 11756 to 11760. Sept. 21.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.T.R. at two points, and across Bell Telephone Co.'s wires at three points.
11761. Sept. 21.—Authorizing town of Irvine, Alta., to build highway across C.P.R. right of way at Dunmore St.
11762. Sept. 8.—Authorizing British Columbia Government to open certain streets in Sumas tp. across C.P.R. right-of-way.

**Matheson to Mattagami.**—Press reports from Matheson, Sept. 6, state that Laird, is engaged in completing surveys for this proposed line, so that construction gangs can be set at work. The work will be comparatively light as far as Porcupine Lake, to which point it is expected have the track laid by Jan. 1. Between Porcupine Lake and the Montreal River the land becomes hilly, and there will be considerable cut and fill work, as well as some rock work. Steam will be used as a motive power at the beginning, but it is proposed to develop a water power at Sandy Falls, and use electricity. The plans for developing this water power have been completed, and it is expected that the construction will be begun at once. (See Temiskaming and Northern Ontario Ry., Sept., pg. 729).

**Railway Subsidy Contracts.**—The Dominion Government has entered into contracts, under the act granting aid to certain railways for the building of lines as follows:—With the Esquimalt and Nanaimo Ry. (C.P.R.), for 24 miles from Duncan's, on the main line, to Cowichan Lake; (Aug. 12). With the C.P.R., for an extension of 9.5 miles of the Winnipeg Beach line to Gimli, Man.; (Aug. 22). With the James Bay and Eastern Ry., for 100 miles westerly from Roberval, Que., in lieu of the subsidy granted in 1908.

The C.P.R. has added to its passenger service a new night train each way between Toronto and Montreal. The trains arrive and depart at the Toronto end from West Toronto, and use the line to the north of the city, calling at North Toronto, and connecting with the main line east at Leaside Jct.



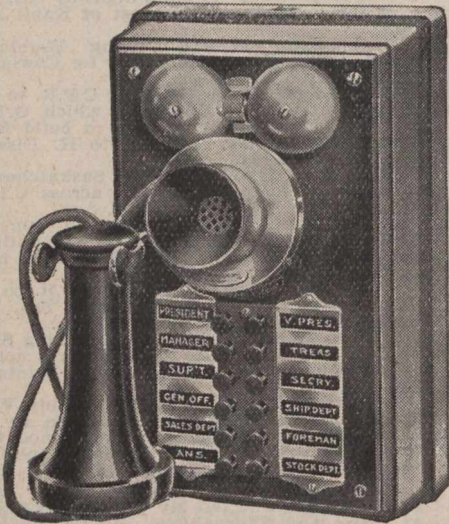


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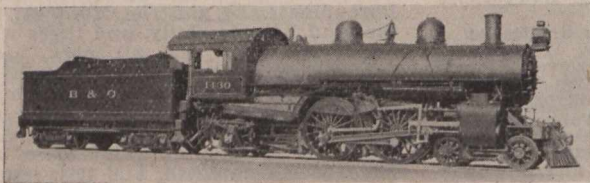
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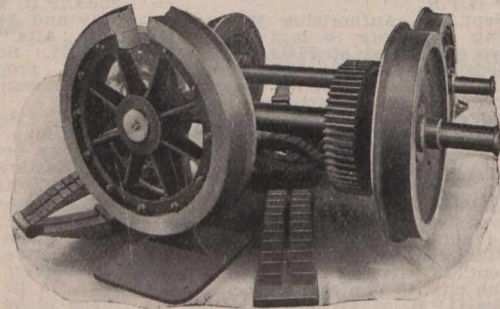
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**National Transcontinental Railway.**

In an interview Sept. 8, C. O. Foss, District Engineer for New Brunswick, is reported to have said that except for a stretch of four miles near Grand Falls, and the division yards at Edmonton, the N.T.R. in New Brunswick could be opened for traffic.

A defect was discovered Sept. 3, in the first caisson for the new main piers of the Quebec bridge, and it was condemned Sept. 6 by H. E. Vautelet, the only member of the Bridge Commission in Canada. It is said the caisson will have to be rebuilt.

An order-in-council has been passed authorizing the N.T.R. Commissioners to acquire the Champlain Market, Quebec, for terminal purposes, and they have paid the City Treasurer \$100,000, the price of the property.

There is a considerable mileage of track laid in the Province of Quebec to which the completing touches are being given. This includes the 250 miles between the St. Lawrence River and Weymontachene, upon which recent press reports stated a train service would be operated this fall. We have been advised that there have, as yet, been no arrangements made for its operation by the G.T. Pacific Ry. The centre of construction of the next section of the line is at present at Cochrane, the Temiskaming and Northern Ontario Ry.'s terminus. From this point Foley, Welch and Stewart, working easterly, have 30 miles of track laid to Low Bush, where there is a big muskeg which is delaying the work somewhat. Westerly from Cochrane over 30 miles of track have been laid on the grading completed by Fauquier Bros. Tenders are under consideration for the supply of 7,543 tons of 80 lb. steel rails with the necessary fastenings, for delivery at Cochrane.

A temporary agreement has been reached between the Commissioners and the G.T. Pacific Ry., for the operation of the section of the line between Lake Superior Jct., Ont., and Winnipeg, so as to enable the G.T.P.R. to carry grain from Edmonton and intermediate points to Fort William.

Tenders were received by the Commissioners Sept. 27 for building freight sheds and storehouses at Lake Superior Jct., Ont., Redditt and Springfield, Man., the freight sheds to be completed by Dec. 31, 1910, and the storehouses by May 1, 1911.

The Western Construction Co., is reported to have practically completed the laying of the 12 inch water main from the Red River to the shops at Springfield, near Winnipeg. Tenders are under consideration for pipe tunnel and wiring ducts, and for the wiring system at the shops.

The question of the entrance of the line into Winnipeg from the east was settled, temporarily at any rate, Sept. 2, when an order was made by the Board of Railway Commissioners, granting running rights over the Canadian Northern Ry. for one year. This will enable the N.T.R. to be connected with the G.T. Pacific Ry.

**GRAND TRUNK PACIFIC RAILWAY.**

The G.T.P.R. has purchased a block of land on Broadway, Winnipeg, immediately east of the Manitoba club, and we are officially advised that Ross and McFarlane, architects, Montreal, are preparing plans for an hotel to be erected thereon.

The Minister of Railways completed his first inspection of the line Sept. 5; and on Sept. 13, C. M. Hays, President, accompanied by A. Smithers, Chairman of the Board, arrived in Winnipeg, having made an inspection of the completed line, and the sections under construction. Mr. Smithers stated that at all places where construction was in pro-

gress the contractors complained of the shortage of men. Notwithstanding this the company would not appeal to the Dominion or Provincial governments to permit the use of foreign labor.

Construction is being proceeded with rapidly and it is expected that track will be laid to Prairie Creek, Oct. 1, to the banks of the Athabasca by Dec. 1, and to Tete Jaune Cache by Sept., 1911. Reports from Prince Rupert, state that track has been laid to mileage 56, about three mile west of Hole-in-the-wall, where a bridge is being built. It is expected that track will be laid to Newtown, within two miles of Kitselas, by Oct. 30. Work is going on along the 140 mile section from Kitselas to Aldermere. Nothing definite has been settled as to the letting of a contract for the stretch between Aldermere and Tete Jaune Cache.

**Grand Trunk Pacific Branch Lines.—**

An Ottawa press report Sept. 6 stated that a branch line would be built from Saskatoon through Melfort, to a connection with the Government railway to Hudson Bay at Pas Mission. We are, however, officially advised that if the G.T. Pacific Ry. line is connected at some future date with the Hudson Bay line, it will be done by extending the Yorkton-Canora branch northward. This branch line leaves the G.T.P. main line at Melville, Sask., from which point another branch is being built to Regina. An extension of this line southerly is projected and the question of the route is being discussed. On Sept. 15, the management stated that the route could not be changed so as to pass through Estevan.

A line has been located from Regina, westerly as far as Moose Jaw, and press reports Sept. 17, stated that a contract for grading of this line would soon be let. Speaking at Medicine Hat, Sept. 8, the Minister of Railways stated that the G.T.P. Ry. would build a branch line through that place, where the land for terminals has already been acquired.

While President Hays was in Wainwright, Sask., on his recent inspection trip he was reported to have stated that a branch line would be built from there into Battleford, and that engineers were at work on the surveys.

Foley, Welch and Stewart, have a contract for building a branch line from the G.T.P.R., about 16 miles west of Edson, Alta., southerly for about 70 miles. This branch connects with the Yellowhead Pass and the Pacific Pass coal companies' properties, in what is generally known as the Brazeau River coal fields.

We are advised that the company has secured a site adjacent to Parliament Square, Victoria, B.C., but nothing has as yet been determined as to the uses to which the property may be put. Newspaper reports stated it had been acquired for the erection of an hotel. (Sept., pg. 741).

**Inverness Railway and Coal Co.**

Owing to an error in composition in the extracts from the company's report for the year ended June 30, published in our Aug. issue, a slight inaccuracy occurred in the reproduction of the income account, which should have read as follows:—

Balance at June 30, 1908..	\$352,894.46
Interest on bonds, etc.—	
First mortgage bonds....	\$105,750.00
Bank advances .....	61,368.77
Sundry creditors .....	17,246.79
Interest accrued to June 30, 1909 .....	\$19,227.75
Less accrued at June 30, 1908, paid during current year.	19,227.75
	\$184,365.56
Hire of equipment .....	1,570.14
	185,935.70
	<u>\$538,830.16</u>

Colliery—Gross earnings..	\$490,394.61	
Operating expenses .....	486,070.12	4,324.49
Railway—Gross earnings..	\$187,230.22	
Operating expenses.....	115,128.63	72,101.59
Operation, boats, etc. ....		620.95
Miscellaneous .....		26.70
Debit Balance June 30, 1909 .....	\$461,756.43	

**Great Northern Ry. Lines in Canada.**

**Midland Ry. of Manitoba.**—In connection with the reports mentioned in our last issue, that a survey was being made for a line from the G.N.R. track in St. Vincent, Minn., to the Northern Pacific Rd. station at Pembina, N.D., over which the G.N.R. trains would be run to a more direct connection with the Canadian Northern Ry. than at present, we are officially advised that nothing is being done by the G.N.R.

**Kaslo and Slocan Ry.**—During the recent forest fires in British Columbia the line of the K. and S. Ry. was practically burned out. The line is being rebuilt as far as Sprouls, and it is reported that the work of rebuilding to the terminus at Sandon, will be completed in the spring of 1911.

**Vancouver, Victoria and Eastern Ry. and Navigation Co.**—The grading on the 15 mile stretch westerly of Princeton, B.C., was reported practically completed, and several gangs of men were reported to have been laid off at the end of Aug. About 100 men were reported at work early in Sept. finishing up the work. No further work is to be done on this section of the line at present.

J. H. Kennedy, Chief Engineer, arrived in Princeton, Sept. 1, from Hope, via Coquihalla Pass and the Otter Valley. He had been going over the line of the survey made by the company's engineers who had been engaged in trying to locate lower gradients than previously obtained over the Hope Mountains. He stated that along the Coquihalla River it was expected that a gradient of 2.50% would be obtained, but there was a possibility of its being reduced to 1%. The heaviest part of the work is on the western side of Hope Mountain. The highest point reached will be at Coquihalla summit, 3,600 ft. high. From the summit along Coldwater and Otter creeks as far as Tulameen a 1% gradient can be obtained. The survey is being made to reduce gradients, not for the purpose of laying out a new route. C. Shaw, is in charge of a party making a survey between Hope and Abbotsford, west of the mountains. Construction work on the line at Abbotsford has been suspended for the present. One reason for the suspension of the work is that satisfactory arrangements cannot be made for purchasing the right of way in Chilliwack township, and that the grading gangs are being laid off as their work at Abbotsford is completed.

The company proposes to start at an early date building a 120 ft. addition to its freight station in Vancouver.

The Mayor and a delegation of the Vancouver city council recently had a conference with the Provincial Government relative to the plans for work at False Creek, in connection with the carrying out of the agreement made with the company. (Sept., pg. 735).

Those interested in the development of the Canadian north-west estimate that three new towns a week will be placed on the map in the western provinces weekly for the next three years. About 150 new towns will be opened up on the G.T. Pacific lines; the Canadian Northern Ry. has already 35 new townsites under survey, and the C.P.R. has a large number of points arranged at which townsites will be laid out.



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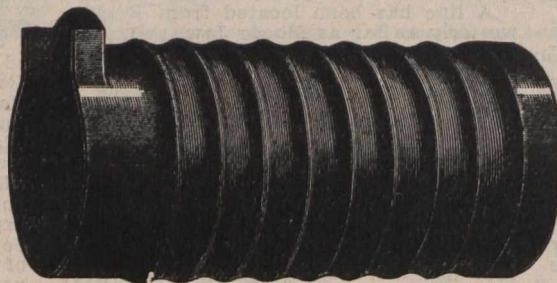
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TORONTO, CANADA, OCTOBER, 1910.

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Burrows—Acton Burrows, Limited .....	—
<b>C</b>	
Canada Iron Corporation, Ltd. ....	862
Canadian Bridge Co., Ltd. ....	878
Canadian Bronze Co., Ltd. ....	890
Canadian Car & Foundry Co. Ltd. ....	Cover 4
Canadian Casualty & Boiler Ins. Co. ....	Cover 1
Canadian Crockery-Wheeler Co., Ltd. ....	848
Canadian Fairbanks Co., Ltd. ....	836
Canadian Gold Car Htg. & Ltg. Co., Ltd. ....	858
Canadian Locomotive Co., Ltd. ....	860
Canadian Northern Railway .....	872
Canadian Office & School Furn. Co., Ltd. ....	890
Canadian Pacific Railway .....	836
Canadian Pacific Railway Land Department .....	874
Canadian Railway Accident Insur. Co., Ltd. ....	882
Canadian Railway Equipment Co. ....	842
Canadian Ramapo Iron Works, Ltd. ....	866
Canadian Rand Co. ....	864
Canadian Westinghouse Co., Ltd. ....	Cover 2
Cartwright, C. E. ....	847
*Chapman & Walker, Ltd. ....	834
Chicago Railway Equipment Co. ....	876
Cincinnati Punch & Shear Co. ....	854
Cleveland City Forge & Iron Co. ....	878
Cleveland Punch & Shear Works Co. ....	Cover 1
Coghlin, B. J. Co., Ltd. ....	884
Commercial Acetylene Co. ....	Cover 1

Consolidated Car Htg. Co. ....	888
Continental Iron Works .....	846
Crossen Car Mfg. Co. of Cobourg, Ltd. ....	820
<b>D</b>	
Date, John .....	882
Dearborn Drug & Chemical Works .....	854
Delaware & Hudson Co. ....	878
Dickinson, Paul, Inc. ....	890
Dominion Bridge Co., Ltd. ....	880
Dominion Equipment & Supply Co., Ltd. ....	852
Dominion Iron & Steel Co., Ltd. ....	850
Dominion Wire Rope Co. ....	822
Dougall Varnish Co., Ltd. ....	Cover 1
Drewery, E. L. ....	880
Drummond, McColl & Co., Ltd. ....	850
Duckworth-Boyer Eng. & Insp. Co. ....	847
Duner Co. ....	890
Duntley Mfg. Co. ....	832
<b>F</b>	
Falls Hollow Staybolt Co. ....	880
Flannery Bolt Co. ....	838
Franklin Mfg. Co. ....	878
Fuce, E. O. ....	847
<b>G</b>	
Galena Signal Oil Co. ....	804
Galt Malleable Iron Co., Ltd. ....	890
Gardner, J. T. ....	876
Gartshore, J. J. ....	884
Gartshore-Thompson Pipe & Fdry. Co., Ltd. ....	880
Goldschmidt Thermit Co. ....	876
Grand Trunk Railway .....	822
Greening, The B. Wire Co., Ltd. ....	886
Greenlee Bros. & Co. ....	824
<b>H</b>	
H. & E. Lifting Jack Co., Ltd. ....	850
Hamilton Steel & Iron Co., Ltd. ....	824
Hart, John A., & Co. ....	Cover 1
Hart-Otis Car Co., Ltd. ....	—
Hicks Locomotive & Car Works .....	860
Holden Co., Ltd., The .....	848
Hopkins, F. H. & Co. ....	814
Hudson's Bay Co. ....	856
Hunt, Robert W., & Co. ....	882
Hutton, James & Co. ....	890
<b>I</b>	
Illinois Central Railroad .....	882
Imperial Bank of Canada .....	890
Imperial Guar. & Accident Ins. Co. ....	886
Inglis, The John, Co., Ltd. ....	840
Intercolonial Railway .....	856
International Correspondence Schools .....	866
International Marine Signal Co., Ltd. ....	868
International Mercantile Marine Co. ....	874
<b>J</b>	
Jardine, A. B. & Co. ....	852
Johnston, R. F., Paint Co. ....	878
<b>K</b>	
Kenly, W. K., Co. ....	888
Kerr Engine Co., Ltd. ....	872
Kennedy, Wm., & Sons, Ltd. ....	884
Kingsmill, Saunders, Torrance & Kingsmill .....	847
<b>L</b>	
*Legg Bros. ....	—
Lewis, Rice & Son, Ltd. ....	846
London Guarantee & Accident Co., Ltd. ....	876
Long and Allstatler Co. ....	882
Lufkin Rule Co. ....	Cover 1
Lumen Bearing Co. ....	884
<b>M</b>	
McAvity, T. & Sons .....	826
McConway & Torley Co. ....	874
McCord & Co. ....	820
Males Co. ....	886
Marsh Co. ....	884
Matheson, I. & Co. ....	886
Meaford Wheelbarrow Co., Ltd. ....	874
Metcalf, John S., Co., Ltd. ....	890
Midland Towing & Wrecking Co., Ltd. ....	884
Missouri Lamp & Manufacturing Co. ....	884
Montreal Locomotive Works, Ltd. ....	808
Montreal Rolling Mills Co., Ltd. ....	870
Montreal Steel Works, Ltd. ....	810
Mussens Limited .....	Cover 1 and 802
<b>N</b>	
*Northern Electric & Mfg. Co., Ltd. ....	844
Northern Engineering Works .....	886
Norton, A. O. ....	830
Nova Scotia Steel & Coal Co., Ltd. ....	834
<b>O</b>	
Ontario Wind Engine & Pump Co., Ltd. ....	884
Orford Copper Co. ....	890
Ottawa Car Co., Ltd. ....	Cover 1
Owen Sound Wire Fence Co., Ltd. ....	890
<b>P</b>	
Parry Sound Lumber Co., Ltd. ....	Cover 1
Pay-As-You-Enter Car Corporation .....	854
Peteler Car Co. ....	878
Phillips, Eugene F., Electric Works, Ltd. ....	888
Piper, The Hiram L., Co., Ltd. ....	890
Piper, N. L., Railway Supply Co., Ltd. ....	862
Pittsburg Forge & Iron Co. ....	828
Polson Iron Works, Ltd. ....	818
Positive Lock Washer Co. ....	886
Pratt & Whitney Co. ....	Cover 1
Preston Car & Coach Co., Ltd. ....	Cover 1
Provincial Steel Co., Ltd. ....	886
Pyke, J. W. & Co. ....	862
Pyle National Electric Headlight Co. ....	828
<b>R</b>	
Rail Joint Co. of Canada, Ltd. ....	Cover 1 and 826
Railway Materials Co. ....	890
Robb Engineering Co., Ltd. ....	818
Russel Wheel & Foundry Co. ....	812
<b>S</b>	
Safety Car Heating & Lighting Co. ....	832
Saxby & Farmer, Ltd. ....	Cover 1
Schools of the Sisters of the Church .....	882
Scully Steel & Iron Co. ....	864
Shanly, J. M. ....	847
Silliker Car Co., Ltd. ....	830
*Smart, James, Manufacturing Co., Ltd. ....	—
Southern Press .....	890
Standard Coupler Co. ....	886
Standard Explosives, Ltd. ....	846
Standard Steel Works Co. ....	844
Symington, T. H. & Co. ....	848
<b>T</b>	
Tallman Brass & Metal Co. ....	Cover 1
Tate Accumulator Co. ....	856
Tate, Jones & Co., Inc. ....	890
Taylor & Arnold, Ltd. ....	860
<b>U</b>	
Utica Steam Gauge Co. ....	880
<b>V</b>	
*Vandeleur & Nichols .....	—
Vulcan Iron Works .....	888
<b>W</b>	
Waugh Draft Gear Co. ....	Cover 1
Williams & Wilson .....	840
Williams Mfg. Co., Ltd. ....	882
Wire & Cable Co. ....	Cover 1
Wood, Guilford S. ....	858

\*Advertisements marked with an asterisk appear in alternate issues.

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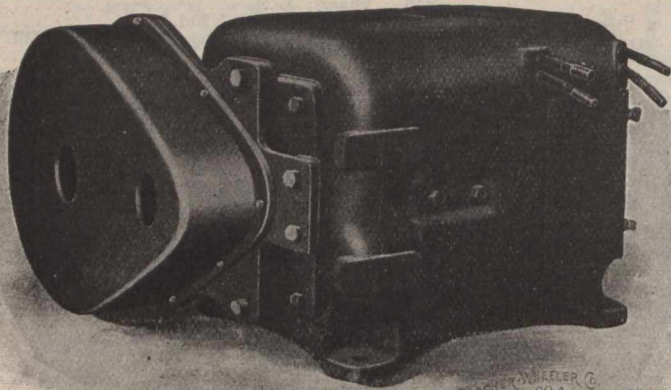
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Minneapolis, St. Paul and Sault Ste. Marie Ry.—Referring to reports from Duluth, Minn., that the company was contemplating the purchase of the Minneapolis and Rainy River Ry., E. Pennington, President, stated Sept. 14, that the company had no such intention, and its engineers had not made an inspection with that object in view. Some of the company's engineers had gone over the line recently to report to some people, not connected with any railway, in the east, but for what object he did not know.

The Canadian Northern Ry. has increased the wage rate of its pipe fitters, from 32½c. to 36½c. an hour.

In the action brought by McRae Chandler and McNeil, to recover \$72,000 from the Temiskaming and Northern Ontario Ry. Commission, for work done under contract, etc., the courts have ordered the plaintiffs to furnish further particulars.





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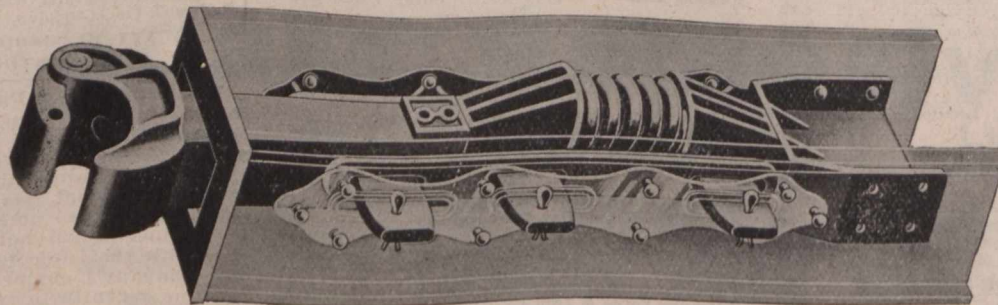
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## C. P. R. Annual Report.

Following is the 29th annual report addressed to the shareholders over the signature of the President, Sir Thos. G. Shaughnessy:

The accounts for the year ended June 30, 1910, show the following results:

Gross earnings ..... \$94,989,490.33  
Working expenses ..... 61,149,534.46

Net earnings ..... \$33,839,955.87  
Net earnings of steamships in excess of amount included in monthly reports 909,235.60  
Interest on deposits and loans \$904,742.19  
Interest and dividends on bonds and stocks held by the Co.:  
M., St. P. & S.S.M. Ry. bonds 159,720.00  
Mineral Range Rd. Co. bonds 50,160.00  
Montreal & Atlantic Ry. and other securities ..... 71,214.08  
St. John Bridge & Ry. Extension Co. stock ..... 50,000.00  
Alberta Ry. and Irrigation Co. stock ..... 86,531.02  
M., St. P. & S.S.M. Ry. preferred and ordinary stocks 1,104,110.00

2,426,477.29  
\$37,175,668.76  
Deduct fixed charges ..... 9,916,940.33

Surplus ..... \$27,258,728.43  
Deduct amount transferred to steamship replacement acct. \$900,000.00  
Contribution to pension fund 80,000.00

980,000.00  
From this there has been charged a half-yearly dividend on preference stock of 2%, paid April 1. .... \$1,102,599.98  
And a half-yearly dividend on ordinary stock of 3%, paid April 1. .... 4,500,000.00  
And interest on instalments on new stock subscriptions, paid July 1 ..... 417,179.32

6,019,779.30  
\$20,258,949.13  
From this there has been declared a second half-yearly dividend on preference stock of 2%, payable Oct. 1. \$1,112,333.33  
And a second half-yearly dividend on ordinary stock of 3½%, payable Oct. 1. .... 5,250,000.00

6,362,333.33  
Leaving net surplus for the year. \$13,896,615.80  
In addition to the above dividends on ordinary stock, 1% was paid from interest on land funds.

The working expenses were 64.38% of the gross earnings, and the net earnings 35.62%, compared with 69.92 and 30.08% respectively in 1909.

Four per cent. consolidated debenture stock to the amount of £1,598,935 was created and sold, and, of the proceeds, £1,068,965 was applied to the construction of authorized branch lines; £98,200 was used to acquire the same amount of 1st mortgage 5% bonds; and the balance, £431,770, was devoted to the acquisition of the bonds of other railway companies whose lines constitute a portion of your system, the interest on which had, with your sanction, been guaranteed by your company.

Four per cent. preference stock to the amount of £600,000 was created and sold, the proceeds being used to meet capital expenditures that had your previous sanction.

Your guarantee of interest was endorsed on 4% consolidated mortgage bonds of the M. St. P. & S.S.M. Ry. to the amount of \$2,200,000, issued and sold to meet the cost of constructing 110 miles of railway added to that system.

With the consent of your company the surplus earnings of the Duluth, South Shore and Atlantic Ry. in excess of interest on bonds held by the public and rentals, were used for necessary additions to its facilities and for the general betterment of the property.

The sales of agricultural land during the year aggregated 975,030 acres, for \$14,468,564.33, being an average of \$14.84 an acre. Included in this were 145,421 acres of irrigated land, which brought \$26.59 an acre, so that the average price of the balance was \$12.78 an acre. After further surveys and reports your direct-

ors have decided that water should be provided for the eastern section of the irrigation block, containing about 1,100,000 acres, before anything is done in the central section, and, as a consequence, they have authorized the work, which will cover about three years and involve an estimated expenditure of \$8,500,000, for which they will ask your approval. The average cost an acre of irrigating this block exceeds by a considerable amount the average in the western section, due to the greater difficulty in reaching the source of water, to the mileage of the ditches, namely, 3,500 miles as compared with 1,600, and to the improved character of the structures, but, in the light of past experience, your directors are confident that the financial and other results will be eminently satisfactory. The money required for this work will of course be provided from the accumulated land funds.

Your directors have entered into an agreement with the New Brunswick Southern Ry., which extends from West St. John to St. Stephen, N.B., 83 miles, for a lease of the railway for 999 years at an annual rental equivalent to 3% per annum on the outstanding bonds of the company to the amount of \$500,000. The lease will be submitted for your approval.

An arrangement has been completed for the transfer to your company on demand of practically all the capital stock of the Dominion Atlantic Ry., consisting of £270,000 of preference and £230,000 of ordinary stock, at 60% of its face value for the preferred and 20% of its face value for the common shares. Some time, probably six or eight months, must elapse before the arrangement can be made effective. The railway extends from Yarmouth to Truro, with branches to Kingsport and Torbrook Mines, 247 miles, and a connection is made with Halifax under a contract with the Dominion Government for the use of 45 miles of the Intercolonial Ry. Your directors are confident that important traffic advantages will result from the acquisition of this railway and it will give your company a foothold in Nova Scotia where you have heretofore had no interests.

You will be asked to authorize the issue and sale of a sufficient amount of 4% consolidated debenture stock to provide for the construction of the following branch lines, all of which are in the agricultural districts of Manitoba, Saskatchewan and Alberta, namely: Moose Jaw-Outlook branch, 118 miles; Weyburn-Lethbridge branch, 50 miles; Teulon extension, 56 miles; Lauder-Griffin branch, 33 miles; Craven-Bulyea branch, 21 miles; Kipp-Aldersyde branch, 58 miles; Langdon branch, 40 miles; Regina-Colonay branch, 134 miles; Snowflake branch extension, 7 miles; Virden-McAuley branch, 36 miles.

A railway between a point near Galloway, B.C., on your Crow's Nest line, and Golden, on the main line, would be of service to settlers in the Columbia and Kootenay River valleys, and would, no doubt, encourage further settlement. The distance between the termini is about 175 miles, but it is not desirable that the railway should be constructed over the whole distance immediately, but rather in stretches of 40 or 50 miles as circumstances may seem to warrant. A charter and the ordinary subsidy for this line were given by the Dominion Parliament to a company known as the Kootenay Central Ry. Co., and your directors have, subject to your approval, made an agreement with that company for the construction of the railway in sections of such length and within such period of time as your company may designate, each section when completed to be leased to your company for 999 years at a rental equivalent to the interest at 4% per annum on the bonds of the Kootenay Central Ry., issued with the consent

of your company. The transaction will be submitted for your approval.

The growth of industries at Shawinigan Falls, Que., where a large water power has been developed, and the desirability of getting a better connection with the mills at Grand-Mere led to an arrangement with the St. Maurice Valley Ry. by which it agreed to construct its line between Three Rivers and Grand-Mere, 27.7 miles, and on completion to lease it to your company for 999 years at a rental equivalent to 4% per annum on its bonds, not exceeding \$35,000 a mile, issued with the consent of your company. A resolution embodying the transaction will be submitted for your approval.

The death in Feb. last of Hon. Sir Geo. A. Drummond, who joined the Board in 1903, was a source of sincere sorrow to your directors who felt that they had lost in him a most capable colleague and esteemed friend. Earlier in the year Archer Baker, the company's European Manager, who had been attached to the staff since 1881, died suddenly in London, Eng. He was a most devoted and valued officer. A. R. Creelman, K.C., the company's General Counsel, was elected a director to fill the vacancy caused by the death of Sir Geo. A. Drummond.

The undermentioned directors will retire from office at the approaching annual meeting, they are eligible for re-election: Lord Strathcona, Sir Thos. G. Shaughnessy, and T. Skinner.

## CONDENSED BALANCE SHEET.

## ASSETS.

Railway and equipment ..... \$317,226,265.81  
Ocean, lake and river steamships .. 18,460,161.38  
Acquired securities (cost) ..... 69,076,971.12  
Properties held in trust for the Co. 6,473,844.95  
Deferred payments on land and town site sales ..... 27,942,113.05  
Advances to lines under construction 3,485,435.67  
Advances and investments ..... 9,432,084.40  
Material and supplies on hand .... 10,948,467.05  
Current assets:  
Agents' and conductors' balances ..... \$2,129,074.72  
Net traffic balances ..... 130,470.29  
Miscellaneous accounts receivable ..... 4,690,849.13

6,950,394.14  
Temporarily invested in Government securities ..... 10,088,734.86  
Cash in hand ..... 46,165,817.05

\$526,250,289.48

Note.—In addition to above assets, the company owns 7,539,722 acres of land in Manitoba, Saskatchewan and Alberta (average sales past year \$14.84 an acre), and 4,474,094 acres in British Columbia.

## LIABILITIES.

Capital stock ..... \$150,000,000.00  
Payments on subscription to new issue capital stock (\$30,000,000.00) ..... 23,530,085.00  
4% preference stock ..... 55,616,665.71  
4% consolidated debenture stock. .... 136,711,616.18  
Mortgage bonds:  
First mortgage, 5% .. \$34,998,633.33  
Canada Central Ry. 6% 973,333.33  
Algoma Br., 1st mortgage 3,650,000.00

39,621,966.66  
Current liabilities:  
Audited vouchers ..... \$5,928,773.50  
Pay rolls ..... 4,067,151.03  
Miscellaneous accounts payable ..... 4,553,272.12

14,549,196.65  
Interest on funded debt and rental of leased lines:  
Coupons due July 1, and including coupons overdue not presented .. \$1,208,928.67  
Accrued fixed charges .. 195,824.38

1,404,753.05  
Equipment obligations ..... 1,360,000.00  
Equipment replacement fund ..... 2,678,038.93  
Steamship replacement fund ..... 4,040,666.67  
Appropriation for additions and improvements ..... 6,295,420.93  
Reserve fund for contingencies ..... 3,809,839.10  
Land grant:  
Sales of land and town sites ..... 43,762,194.70  
Surplus ..... 42,869,845.90

\$526,250,289.48

## FIXED CHARGES FOR YEAR ENDED JUNE 30.

1st mortgage bonds 5% due July 1, 1915 \$1,749,931.66  
Canada Central Ry. 2nd mortgage 6% bonds, due Nov. 1 ..... 58,400.00  
St. Lawrence & Ottawa Ry. 4% 1st mortgage bonds ..... 38,933.34  
Man. So. West. Colzn. Ry. 1st mortgage 5% bonds, due June 1, 1934 ..... 127,200.00  
Toronto, Grey & Bruce Ry. rental .. 140,000.00



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HEAD OFFICES  
AND WORKS

## SYDNEY, CAPE BRETON, CANADA



Ontario & Quebec Ry. debenture stock 5% .....	975,129.56
Ontario & Quebec Ry. ordinary stock 6% .....	120,000.00
Atlantic & North West Ry., 1st mortgage bonds, due Jan. 1, 1937 .....	323,633.34
Algoma Branch 5% 1st mortgage bonds, due July 1, 1937 .....	182,500.00
Rental, Calgary & Edmonton Ry. ....	138,357.60
Rental, Farnham to Brigham Jct. ....	1,400.00
Rental, Mattawamkeag to Vanceboro. .	23,800.00
Rental, New Brunswick Ry. system ..	372,829.74
Rental, terminals at Toronto .....	27,049.86
Rental, terminals at Hamilton .....	33,812.80
Rental, Hamilton Jct. to Toronto .....	42,062.33
Rental, St. Stephen & Milltown Ry. .	2,050.00
Rental, Lindsay, Bobcaygeon & Pontypool Ry. ....	578.79
Rental, St. Marys & West. Ontario Ry. .	3,987.73
Rental, Joliette & Brandon Ry. ....	5,000.00
Rental, Lachine Canal Branch .....	973.16
Interest on Montreal & Western Ry. .	16,643.68
Interest on equipment obligations ..	83,130.21
4% CONSOLIDATED DEBENTURE STOCK.	
Interest from July 1, 1909 .....	\$5,448,749.76
Interest from Jan. 1, 1910 .....	8,786.77
	\$5,457,536.53

Less received from subsidy Northern Colonization Ry. ....	8,000.00	5,449,536.53
		\$9,916,940.33

RECEIPTS.

Cash in hand, June 30, 1909 .....	\$21,078,812.94
Temporarily invested in Government securities .....	4,861,901.53
Surplus revenue .....	26,278,728.43
Land Department—	
Lands and townsites:	
Net proceeds of sales .....	\$17,694,927.26
Less amounts remaining in deferred payments .....	16,403,347.36
	1,291,579.90
Collection of deferred payments of previous years' sales .....	4,814,908.25
	6,106,488.15

Bonuses—	
Dominion Government subsidy on Moosejaw Branch .....	303,360.00
on Stonewall Branch (Toulon extension) ..	30,800.00
	334,160.00

Capital stock—	
Subscription to \$30,000,000 additional ordinary stock—Payments on instalments .....	23,530,085.00
4% preference stock—Amount realized from issue (£600,000) .....	2,946,611.49
Consolidated debenture stock—Amount realized from issue (£1,598,935) ..	7,890,123.91
	\$93,026,911.45

Deduct—	
Advances to lines under construction .....	\$3,485,435.67
Advances and investments .....	9,432,084.40
Current assets .....	6,950,394.14
	19,867,914.21
Less amt. at June 30, 1909 .....	16,130,755.20
	\$3,737,159.01
	\$89,289,752.44

EXPENDITURES.

Dividends on preference stock—	
2% paid Oct. 1, 1909 .....	\$1,053,933.32
2% paid April 1, 1910 .....	1,102,599.98
	\$2,156,533.30

Dividends on ordinary stock—	
3 1/2% paid Oct. 1, 1909 .....	5,250,000.00
3 1/2% paid April 1, 1910 .....	5,250,000.00
	10,500,000.00

Interest on instalments on subscriptions to new ordinary stock .....	417,179.32
Properties held in trust for the company.	907,212.23
Construction of acquired and branch lines .....	5,346,243.88
Additions and improvements, main line and branches .....	6,856,307.62
Additions and improvements, leased and acquired lines .....	3,412,234.54
Rolling stock, shops and machinery ..	4,119,332.65
Ocean, lake and river steamships—	
Fitting Atlantic steamships for passenger service, and providing facilities at Liverpool and Montreal ..	\$16,110.10
Additional steamships and appurtenances for Pacific coast service .....	301,241.19
Additional river steamers and barges .....	15,826.01
Extension to s.s. Athabasca .....	41,097.70
	374,275.00

SECURITIES ACQUIRED—	
C.P.R. 1st mortgage bonds .....	\$477,906.66
Calgary & Edmonton Ry. 1st mortgage bonds .....	700,000.00
Georgian Bay & Seaboard Ry. 1st mortgage bonds .....	399,000.00
Kingston & Pembroke Ry. 1st mortgage bonds .....	291,420.00
Orford Mountain Ry. 1st mortgage bonds .....	702,000.00

Tillsonburg, Lake Erie & Pacific Ry. 1st mortgage bonds .....	125,000.00
Vancouver & Lulu Island Ry. 1st mortgage bonds .....	175,000.00
Kingston & Pembroke Ry. stock .....	300.00
Minneapolis, St. Paul and Sault Ste. Marie Ry. Balance of subscription to ordinary and preferred stock ..	1,831,660.80
	4,702,287.46
Payment of equipment obligations .....	270,000.00
Increase in material and supplies on hand .....	279,026.72
	39,340,632.72
DEDUCT—	
Increase in current liabilities .....	6,305,432.19
	33,035,200.53
Temporarily invested in Government securities .....	10,088,734.86
Cash in hand .....	46,165,817.05
	\$89,289,752.44

EXPENDITURES ON CONSTRUCTION, ACQUIRED AND BRANCH LINES.

Pheasant Hills branch .....	\$1,510,533.05
Wolsley-Reston branch .....	14,220.23
Lachine Canal branch .....	136,610.21
Moose Jaw-Outlook branch .....	449,649.52
Bulyea branch .....	479,591.73
Virden-McAuley branch .....	112,238.13
Stonewall branch extension .....	205,507.45
Lauder-Griffin branch .....	24,270.91
Weyburn-Lethbridge branch .....	498,774.51
Snowflake branch extension .....	16,729.43
Langdon branch .....	456,621.03
Kipp-Aldersyde branch .....	454,232.32
Kininvie branch .....	55,850.78
Craven-Colonsay branch .....	514,281.33
Toronto-Sudbury line .....	264,813.54
Surveys of projected lines .....	152,319.71
	\$5,346,243.88

EXPENDITURES ON ADDITIONS AND IMPROVEMENTS, FROM JULY 1, 1909, TO JUNE 30, 1910.

QUEBEC TO BONFIELD:	
Additional sidings, buildings, stations and yards .....	\$180,619.49
Permanent bridges and improvements of line .....	162,047.67
Less sale of property .....	42,500.00
	\$300,167.16

MONTREAL TERMINALS .....	495,409.61
Windsor St. station extension .....	235,294.50
	730,704.11

BONFIELD TO PORT ARTHUR:	
Additional sidings, buildings, stations and yards .....	213,163.86
Permanent bridges and improvements of line .....	380,099.22
Wharves, docks and warehouses .....	901.15
Telephone dispatching equipment .....	23,946.79
	618,111.02

PORT ARTHUR TO LAGGAN:	
Additional sidings, buildings, stations and yards .....	886,126.15
Permanent bridges and improvements of line .....	359,713.93
Winnipeg station and hotel .....	1,451.25
Winnipeg terminals .....	208,518.10
Wharves, docks and warehouses .....	23,181.83
Double tracking .....	795,477.26
Telephone dispatching equipment .....	42,250.08
Right of way .....	31,853.08
	2,348,571.68

LAGGAN TO VANCOUVER:	
Additional sidings, buildings, stations and yards .....	488,860.01
Permanent bridges and improvements of line .....	308,339.32
Field Hill revision of line .....	367,009.87
Wharves, docks and warehouses .....	54,925.74
Right of way .....	41,320.58
	1,260,515.52
Total main line .....	\$2,588,069.49

BRANCH LINES.

South Western branch .....	\$8,194.80
Stonewall branch .....	1,229.28
Selkirk branch .....	22,053.03
Emerson branch .....	2,067.70
Nakusp & Slocan branch .....	17,849.21
Revelstoke & Arrow Lake branch ..	7,401.32
Snowflake branch .....	146.75
Waskada branch .....	2,840.09
Buckingham branch .....	300.70
St. Lin branch .....	1,424.26
St. Eustace branch .....	1,107.97
Lake Temiskaming branch .....	3,383.73
McGregor branch .....	5,536.67
Mission branch .....	51,103.71
Arcoia-Regina branch .....	16,363.90
North Star branch .....	3,872.63
Lac du Bonnet branch .....	51.41

SOURIS BRANCH:	
Additional sidings, buildings,	

stations and yards .....	87,825.00
Permanent bridges and improvements of line .....	167,397.05
Right of way .....	1,052.05
ALGOMA BRANCH:	
Additional sidings, buildings, stations and yards .....	22,098.60
Permanent bridges and improvements of line .....	51,378.24
CROW'S NEST PASS BRANCH:	
Additional sidings, buildings, stations and yards .....	134,002.24
Permanent bridges and improvements of line .....	62,563.60
Right of way .....	670.97
	197,236.81

CROW'S NEST PASS BRANCH:	
McLeod-Lethbridge deviation .....	419,570.77
BRITISH COLUMBIA SOUTHERN RY.:	
Additional sidings, buildings, stations and yards .....	68,470.50
Permanent bridges and improvements of line .....	121,493.40
Telephone dispatching equipment .....	4,630.08
Balfour extension .....	8,222.51
Yahk branch .....	13,342.18
	216,158.67

Telegraph extensions and additions ..	1,307,644.35
Rented and temporary sidings .....	162,369.37
	128,224.41

Total main line and branches .....

EXPENDITURE ON LEASED AND ACQUIRED LINES, FROM JULY 1, 1909, TO JUNE 30, 1910.

Ontario & Quebec Ry. ....	\$1,601,821.58
Atlantic & North West Ry. ....	231,032.00
New Brunswick Ry. ....	347,537.80
Montreal & Western Ry. ....	79,397.96
Manitoba South-western Colonization Ry. .	114,305.50
Columbia & Kootenay Ry. ....	39,437.14
Manitoba & North-western Ry. ....	35,347.31
Great North-west Central Ry. ....	8,862.74
Calgary & Edmonton Ry. ....	518,269.62
Columbia & Western Ry. ....	334,853.05
Montreal & Ottawa Ry. ....	49,339.27
Nicola, Kamloops & Similkameen Ry. .	16,849.37
Lindsay, Bobcaygeon & Pontypool Ry. .	1,163.85
Joliette & Brandon Ry. ....	5,864.93
St. Mary's & Western Ontario Ry. ....	28,152.42
	\$3,412,234.54

EARNINGS FOR YEAR ENDED JUNE 30, 1910.	
Passengers .....	\$24,812,020.86
Freight .....	60,158,887.03
Mails .....	791,745.45
Sleeping cars, express, elevators and miscellaneous .....	9,226,836.99
Total .....	\$94,989,490.33

WORKING EXPENSES FOR YEAR ENDED JUNE 30, 1910.

Transportation expenses .....	\$27,425,237.61
Maintenance of way and structures ..	13,653,938.04
Maintenance of equipment .....	12,567,493.86
Traffic expenses .....	2,486,651.26
Parlor and sleeping car expenses .....	600,796.11
Expenses of lake and river steamers ..	858,834.34
General expenses .....	2,548,799.89
Commercial telegraph .....	1,057,783.35
Total .....	\$61,149,534.46

EQUIPMENT AT JUNE 30, 1910.

Locomotives .....	1,534
First and second class passenger cars, baggage cars, and colonist sleeping cars ..	1,515
First class sleeping, dining and cafe cars ..	294
Parlor cars, official and paymasters' cars ..	61
Freight and cattle cars (all kinds) .....	48,850
Conductors' vans .....	867
Boarding, tool and auxiliary cars and steam shovels .....	3,437

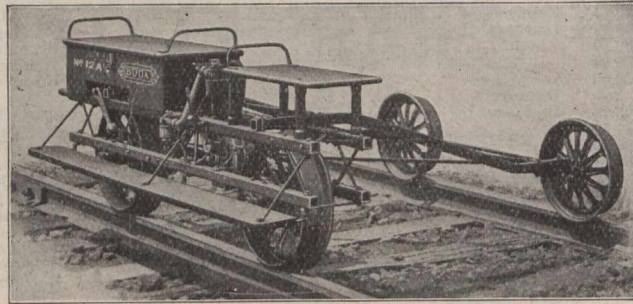
OCEAN, LAKE AND RIVER STEAMERS.

Atlantic Service.—Empress of Britain, Empress of Ireland, Lake Manitoba, Lake Champlain, Lake Michigan, Mount Temple, Montcalm, Montfort, Lake Erie, Montrose, Montreal, Milwaukee, Mount Royal, Montezuma, Monmouth, Cruiser. Pacific Service.—Empress of India, Empress of Japan, Empress of China, Monteagle. Pacific Coast Service.—Amur, Beaver, Charmer, City of Naniamo, Czar, Joan, Nanoose, Otter, Princess Beatrice, Princess Charlotte, Princess Elna, Princess May, Princess Royal, Princess Victoria, Tees, Transfer No. 1, Transfer No. 2, Queen City. Upper Lake Service.—Manitoba, Athabasca, Alberta, Keewatin, Assiniboia. British Columbia Lake and River Service.—Aberdeen, Hosmer, Kokanee, Minto, Moyle, Nelson, Rossland, Kuskanook, Columbia, Okanagan, Proctor, Sandon, Slocan, York, Kootenay, Valhalla, Ymir, Whatshan. Ferry Service.—Michigan, Ontario.



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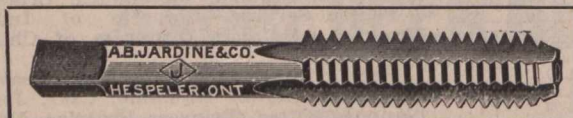
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**Hespeler, Ont.**



DESCRIPTION OF FREIGHT FORWARDED.		
	1909-10.	1908-9.
Flour, barrels	7,489,812	6,683,354
Grain, bushels	112,795,345	97,236,150
Live stock, head	1,381,183	1,371,873
Lumber, feet	2,292,821,963	1,726,944,584
Firewood, cords	280,878	249,628
Manufactured articles, tons	5,468,548	4,425,241
All other articles, tons	7,567,052	5,916,248

FREIGHT TRAFFIC.		
	1909-10.	1908-9.
No. of tons carried	20,551,368	16,549,616
No. of tons carried 1 mile	7,772,012,635	6,372,269,174
Earnings per ton per mile	0.77 cents.	0.76 cents.

PASSENGER TRAFFIC.		
	1909-10.	1908-9.
No. of passengers carried	11,172,891	9,784,450
No. of passengers carried 1 mile	1,355,266,088	1,071,149,528
Earnings per passenger per mile	1.83 cents.	1.88 cents.

TRAIN TRAFFIC STATISTICS.		
TRAIN MILEAGE.		
	1909-10.	1908-9.
Passenger trains	16,119,543	14,170,522
Freight trains	20,574,576	18,816,900
Mixed trains	1,672,993	1,932,776
Total trains	38,367,112	34,920,198
CAR MILEAGE.		
Passenger cars—		
Coaches and P.D. and S.	82,472,864	67,763,387
Combination	2,833,703	2,763,961
Baggage, mail and express	34,158,162	30,545,494
Total passenger cars	119,464,729	101,072,842
Freight cars—		
Loaded	433,498,575	363,036,580
Empty	118,134,609	108,873,650
Caboose	22,374,512	20,048,637
Total freight cars	574,007,696	491,958,867
Passenger cars per traffic train mile	6.72	6.28
Freight cars per traffic train mile	25.80	23.71

PASSENGER TRAFFIC.		
	1909-10.	1908-9.
Passengers carried (earning revenue)	11,050,924	9,675,075
Passengers carried (earning revenue) 1 mile	1,341,255,609	1,058,912,909
Passengers carried (earning revenue) 1 mile per mile of road	133,080	108,750
Average journey per passenger	121.37	109.45
Average amount received per passenger	2.20	2.04
Average amount received per passenger mile	1.81	1.86
Average no. of passengers per train mile	75.38	65.76
Average no. of passengers per car mile	15.72	15.01
Revenue from passengers per passenger car mile, c.	28.47	27.96
Total passenger train earnings per train mile	1.64	1.49
Total passenger train earnings per mile of road, \$	2,902.13	2,456.20

FREIGHT TRAFFIC.		
	1909-10.	1908-9.
Tons of revenue freight carried 1 mile	7,569,824,332	6,210,086,958
Tons of non-rev. freight carried one mile	1,110,379,421	995,000,557
Total tons (all classes) freight carried one mile	8,680,203,753	7,205,087,515
Tons of revenue freight carried 1 mile per mile of road	751,079	637,775
Tons of non-rev. freight carried 1 mile per mile of road	110,172	102,187
Total tons (all classes) freight carried 1 mile per mile of road	861,251	739,962
Average amount received per ton per mile of revenue freight	0.778	0.760
Average no. of tons of revenue freight per train mile	340.25	299.29
Average no. of tons of non-rev. freight per train mile	49.91	47.95
Average no. of tons (all classes) freight per train mile	390.16	347.24
Average no. of tons of revenue freight per loaded car mile	17.46	17.11
Average no. of tons of non-rev. freight per loaded car mile	2.56	2.74
Average no. of tons of (all classes) freight per loaded car mile	20.02	19.85
Freight train earnings per loaded car mile	13.59	13.00

Freight train earnings per train mile	\$ 2.65	2.27
Freight train earnings per mile of road	\$ 5,844.47	4,845.52

STATEMENT OF PENSION DEPARTMENT TO JUNE 30, 1910.

Balance at June 30, 1909	\$680,317.86
Amount contributed by company for year	80,000.00
Amount received as interest	37,675.60
	\$797,993.46
Payment of pension allowances for year	110,889.20
Balance in cash and investments	\$687,104.26
NUMBER ON PENSION ROLL AT JUNE 30, 1910.	
Under 60 years of age	56
Between 60 and 70 years of age	222
Over 70 years of age	157
Total	435

Railway Finance, Meetings, Etc.

**Alberta Ry. and Irrigation Co.**—Approximate net profits from all sources, exclusive of land sales, for July, \$18,735, against \$30,003 for July, 1909. Railway traffic receipts for Aug., \$30,024, against \$27,581 for Aug., 1909. Cumulative traffic receipts for two months ended Aug. 31, \$58,006.

**Algoma Central and Hudson Bay Ry.**—A discharge of a mortgage given by the company to the Central Trust Co. of New York, Jan. 1, 1903, to secure an issue of bonds, and subsequently assigned to the United States Mortgage and Trust Co., was deposited with the Secretary of State at Ottawa, Aug. 27. On the same date a mortgage deed, dated July 1, 1910, given by the company to the U.S. Mortgage and Trust Co., to secure an issue of first mortgage 5%, fifty year gold bonds, guaranteed as to principal and interest by the Lake Superior Corporation was filed with the Secretary of State.

**Bessemer & Barry's Bay Ry.**—Press reports state that the Mackenzie, Mann & Co. interests have secured control of this mineral carrying line extending from near L'Amable on the Central Ontario Ry. to the older ore mines at Bessemer, Ont., five miles. This is not officially confirmed. The Dominion Parliament last session empowered the Ontario & Ottawa Ry. Co., a Mackenzie-Mann company, to acquire the Bessemer & Barry's Bay Ry. as well as a number of other lines the control of which has since been secured.

**Buffalo and Lake Huron Ry.**—After providing for the interest on the first and second mortgage bonds, the accounts for the half year ended June 30, showed a balance of £14,828 10s. 4d. available for dividend. Out of this the directors declared the usual dividend of 5s. 3d. per £10 share, carrying forward £1,043 17s. 1d. The dividend warrants were posted Sept. 6. The company receives £35,000 every half year from the G.T.R. as rental for the line from Goderich to the International bridge near Buffalo, N.Y., which is sufficient to pay the interest on the £763,758 of bonds, and 5¼% on the £525,130 of common stock, and a little over. Out of this surplus of income the company has secured at a cost of £8,062 17s. 8d. bonds of the nominal value of £13,894 9s. 4d.

The half yearly meeting of the shareholders was held in Liverpool, Eng., Sept. 6, when the report was adopted, and the dividend declared. The directors and officers are:—Chairman, M. H. Maxwell, Liverpool; J. M. Syngue, Westham, Kent; E. Ashton, Liverpool; Secretary, J. Lindley, London; Assistant Secretary, E. Capern, London.

**Canada and Gulf Terminal Ry.**—The annual meeting was held at Montreal, Sept. 7. Following are the officers and directors for the current year:—President, M. J. O'Brien, Renfrew, Ont.; Vice President, H. J. Lyons, Montreal; other directors, J. A. O'Brien, Renfrew, Ont.; F. W. Rous, Montreal; C. A. Gauvreau, Stanfold, Que.; J. A. Ross, St. Flavie,

Que.; D. Caron, Guienne, Que.; A. A. Soucy, Matane, Que.

**Central Vermont Ry.**—Gross earnings for 12 months ended June 30, \$3,785,918; operating expenses, \$2,860,278; net earnings, \$925,640, against \$3,795,332 gross earnings; \$2,883,624 operating expenses; \$911,707 net earnings for 1908-09. The balance in hand after deducting all charges for the year is \$7,640, against \$3,118 for the previous year. The expenses for the year were 75.5% of the gross earnings, against 75.9% for the previous year.

**Dominion Atlantic Ry.**—Gross earnings for July, \$147,600, against \$143,357 for July, 1909.

**Grand Trunk Pacific Branch Lines Co.**—There has been listed on the London, Eng., Stock Exchange an additional £21,600 of G.T.P. Branch Line Co.'s 4% bonds.

**Klondike Mines Ry.**—Following are the officers and directors for the current year:—President, J. A. Seybold, Ottawa; Vice President, W. C. Greig; Secretary, A. Haydon, Ottawa; other directors: C. G. Kekewich, J. Latta, both of whom reside in London, Eng. The company does not make its annual report public.

**Lake Superior Corporation.**—Press reports state that application is being made to have the L.S.C. common stock listed on the Canadian and the U.S. stock exchanges. The company owns the Algoma Central and Hudson Bay Ry., the Manitoulin and North shore Ry., the Algoma Central Steamship Line, the International Traction Co., and the Trans St. Mary Ry., the latter two being the electric railway operated in Sault Ste Marie, Ont., and Mich., respectively.

**Quebec and Lake St. John Ry.**—Total earnings for July, \$56,689.43; for Aug., \$52,003.15, against \$54,388.32 and \$55,420.84 for July and Aug., 1909, respectively. Aggregate total earnings for eight months ended Aug. 31, \$376,063.25, against \$387,830.72 for same period 1909. For the eight months ended Aug. 31, there was a decrease in the earnings per mile, of \$38.22, as compared with the same period 1909. The mileage operated during the respective periods was 285.4 and 285.

**Temiscouata Ry.**—Profits for June, \$6,450; for July, \$4,646. Aggregate profits for seven months ended July 31, \$26,474.

**White Pass and Yukon Ry.**—Gross earnings for July, \$214,337, against \$223,657 for July, 1909.

International Ry. of New Brunswick.

T. Malcolm, contractor for the building of this railway, in an interview in Montreal, Sept. 16, is reported to have said that the line from Campbellton to St. Leonards, N.B., 110 miles, would be ready for operation for its entire length, early in October. Two trains will be run each way daily. The stations on the line are Campbellton, Upsalquitch, Hillyards, Richards, Five Fingers, Jardine River and St. Leonards. The company has power to join with a U.S. company for the erection of a bridge across the St. John's River so as to make connection with the U.S. lines in Van Buren, Me., and a bridge is projected across the Restigouche River at Campbellton, N.B., to connect with the Atlantic Quebec & Western Ry. from Matapedia, which is being continued towards Gaspe. (Sept., pg. 727).

The Michigan Central Rd., is offering for sale four car ferries, heretofore operating between Detroit, Mich., and Windsor, Ont., they being of no further service, now that traffic is being diverted through the new Detroit River tunnel. Two of the ferries are of steel, and two of iron. The capacity of each is the same—21 cars. (Sept. pg. 725.)



## Analysis of the Waters is the Basis for the Success of Dearborn Water Treatment

The foundation for our operations is a thorough knowledge of the conditions. Scale formation, corrosion, foaming, leaks and other troubles affecting locomotive boiler tubes and sheets are caused directly by the presence of salts in the boiler waters. By the analysis we obtain knowledge of the nature of each supply, and the treatment is made up of reagents that will handle the conditions over the entire district.

The treating of locomotive boilers by the Dearborn process requires no outlay of capital for installation of equipment; the manner of applying the treatment is simple; the cost per thousand gallons of water is less than by any other method; and the desired results are assured if the treatment is correctly used. Gallon samples of the waters required for analysis.

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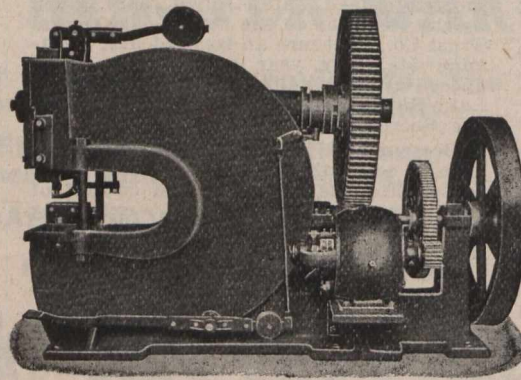
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The Cincinnati Punch & Shear Co.,

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Cincinnati, O., U.S.A.

## A HISTORY OF THE PAY-AS-YOU-ENTER CAR AND ITS LESSON

The following cities are using Pay-As-You-Enter Cars: Chicago City Railway, 839 cars; Chicago Railways, 1,328; Public Service Corporation of New Jersey, 466; New York City Railway, 555; Third Avenue Railroad, New York, 550; International Railway, Buffalo, 200; Buffalo & Lake Erie Traction Co., 10; Washington Ry. & Elec. Co., Washington, D.C., 100; Capital Traction Co., Washington, D.C., 51; Municipal Traction Co., Cleveland, Ohio, 180; United Rys. Co. of St. Louis, Missouri, 310; Portland Ry., Lt. & Pwr. Co., Portland, Ore., 25; Columbus Ry. & Lt. Co., Columbus, Ohio, 10; Wichita R.R. & Lt. Co., Wichita, Kan., 14; Jacksonville Elec. Co., Jacksonville, Fla., 5; Dallas Elec. Co., Dallas, Texas, 20; Houston Elec. Co., Houston, Tex., 41; Northern Texas Trac. Co., Ft. Worth, Texas, 25; Ithaca Street Ry., Ithaca, N.Y., 2; Peoria Street Ry., Peoria, Ill., 13; Urbana & Champaign Ry., Champaign, Ill., 3; Mutual Lt. & Water Co., Brunswick, Ga., 4; Rochester Ry. Co., Rochester, N.Y., 25; Ft. Dodge, Des Moines & So. R.R. Co., 2; Muskogee Elec. Trac., Muskogee, Okla., 6; Union Traction Co., Dubuque, Ia., 4; Topeka Ry. Co., Topeka, Kas., 12; United Rys. & Elec. Co., Baltimore, Md., 32; Detroit United Ry., Detroit, Mich., 225; Cincinnati Traction Co., Ohio, 50; Montreal Street Railway, 400; British Columbia Elec. Ry., 30; Calgary Street Railway, 18; Metropolitan Street Ry., Kansas City, Mo., 50; Edmonton Radial Ry., 4; San Antonio Traction Co., San Antonio, Tex., 6; Rockford & Int. Ry., Rockford, Ill.; Cairo Street Ry. & Lt. System, 6; Des Moines City Railway, Iowa, 12; Macon Ry. & Lt. Co., Macon, Ga.; Virginia Ry. & Power Co.; Columbia Elec. St. Ry. & Lt. & Power Co., Columbia, S.C.; Aurora, Elgin & Chicago Ry., Chicago, Ill.; Wichita Falls Traction Co., Wichita Falls, Tex.; Ottawa Electric Ry. Co., Ottawa; Bloomington & Normal Ry. & Lt. Co., Bloomington, Ill.; Corsicana Transit Co., Corsicana, Tex.; Compania Electrica y de Ferrocarriles, Mexico; The Milwaukee Elec. Ry. & Lt. Co., Milwaukee, Wis.; Springfield Street Ry. Co., Springfield, Mass.; Lynchburg Traction Co., Lynchburg, Va.; Chicago & Southern Traction Co., Chicago, Ill.; Calumet & South Chicago Ry. Co., Chicago, Ill.

### THE LESSON

taught by this widespread use of Pay-As-You-Enter Cars is obvious. Increased Revenue, Accident Elimination and Schedule Improvement have been demonstrated in every case. Isn't all this sufficient to show that it always pays to operate the Pay-As-You-Enter Car? Why not remodel some of your present cars?

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78 CRAIG STREET WEST, MONTREAL



**Canadian Northern Ry. Construction, Etc.**

**The C.N.R. and St. John, N.B.**—Speaking at St. John, N.B., Sept. 4, the Minister of Public Works said Mackenzie, Mann & Co., had expressed to him a strong desire to secure an outlet for their line at St. John. It had been suggested that the Intercolonial Ry. be transferred to them, but he believed that the country wished to retain that line as a government railway. If Mackenzie, Mann & Co., the Premier of New Brunswick, and himself would get together another means of meeting the wishes of the railway builders in reference to Courtenay Bay might be found.

**Canadian Northern Quebec Ry.**—In connection with the action instituted by the Quebec city council to recover \$200,000, the bonus paid by the city to secure the location of workshops in the city, the council Sept. 10, decided to grant an extension of time to Oct. 1, to see what the company proposed to do. The application was made by the C.N.Q. Ry. Auditor, who stated that the company would carry out its obligations to the city.

The ten mile extension of the old St. Jacques branch, into Rawdon, Que., was opened for traffic Sept. 3. In connection with this branch it is stated in Montreal papers that the company expects at some future time to extend the line to Hudson Bay. It is claimed, so the reports state, that the only available pass through the Laurentian Mountains for reaching the National Transcontinental Ry. in northern Quebec is via Rawdon, and up the tributaries of the Lac Ouareau River.

**Canadian Northern Ontario Ry.**—Application has been made to the Board of Railway Commissioners for the approval of the location plans for the first five miles of a line from near Hurdman's bridge skirting south of the Rideau River. This is the eastern end of the line now under construction from Toronto.

The work on this line between Toronto and Trenton is everywhere well advanced, and the sub-contractors on grading are moving on beyond Trenton, from which point grading is being gone on with to Belleville. The route as approved through Sidney tp., is north of the highway from Trenton, to a point east of Belleville cemetery, thence south of the highway to the city. H. K. Wicksteed, Chief Locating Engineer, recently arrived in Belleville, for the purpose of going over the route located for the line easterly from that city, so as to connect it up at Deseronto, with the recently acquired Bay of Quinte Ry. This will necessitate a route following the bay shore, crossing the branch lines to the cement works on a viaduct, and keeping along the lake front to Deseronto. The Bay of Quinte Ry. will be utilized to Sydenham, from which place it is about 92 miles to Ottawa.

Angus Sinclair, who has the contract for building the line from Toronto to Trenton, has had his contract extended for 22 miles from Trenton to Shannonville. A press report of Sept. 17, says grading has been begun at Trenton, proceeding easterly, and that A. McGuinnis started work on the west side of the river, at Belleville, working west.

The Toronto-Trenton section of the line is expected to be opened for traffic about the end of the year, and it is hoped to have work on the Trenton-Deseronto section sufficiently far advanced, as to have it ready for traffic during the summer of 1911, and the rest of the line into Ottawa ready by the end of that year.

The question of the entrance of the line from Sudbury into Port Arthur has been before the Port Arthur city council upon several occasions recently. The city authorities are anxious to prevent the company securing all the water front

north of Bare Point, and the City Engineer has prepared a plan showing an alternative route above the C.P.R. This latter line it was submitted would give a better gradient but would cost from \$75,000 to \$100,000 more than the shore route. H. K. Wicksteed, Chief Locating Engineer, was in Port Arthur, Sept. 3, in consultation with the municipal officers as to these proposals. He is said to have told the city authorities that the company wanted to have all arrangements completed this year so that the building of the line could be started in the spring, and carried through without any hitch.

**James Bay and Eastern Ry.**—Under the act granting aid to certain railways, a contract has been entered into with the Dominion Government for building 100 miles of line westerly from Roberval, Que., towards James' Bay.

**Canadian Northern Ry.**—The company's hotel in Port Arthur, Ont., is nearing completion. The main entrance is from Cumberland St., and there is also an entrance from the side overlooking the bay. The building is 51 by 213 ft., 94½ ft. high, and has 975,000 cubic feet of floor space. The exterior walls are Indiana limestone for the first two stories and lace-pressed brick above that. There is a deck house on the roof, and above the edge of the main walls all round there is a brick parapet, the court thus formed making a promenade and palm garden.

On the first floor are the main lobby, 27x68 ft.; cafe grill, 19.6x34 ft.; barber shop, 17x19 ft.; bar room, 17x27 ft.; ladies' parlor, 17x20 ft.; six stores each 17x47 ft. The office overlooks both entrances. On the second floor are the main restaurant, with a seating capacity for 120, and kitchen 20x69 ft. This floor also contains 10 bedrooms, 13.6x20 ft. each, and provided with bath, toilet and wash basin; also with clothes closet. The two rooms on either side, at the Arthur street end of the building, are arranged so that they can be used en suite. There are three complete bedroom floors. Each floor contains 23 bedrooms, 13 ft. 6 in. by 20 ft. each. The total number of rooms on these three floors is 69 rooms, making with the 10 rooms on the second floor, a total of 79 rooms in the hotel with bath, and adding the 24 rooms on sixth floor without baths, making a total of rooms for rental 103. In addition there are 12 servants' rooms on the sixth floor. On the roof is a fan house controlling the ventilation of the entire building, and in the basement is the boiler room, engine house, baggage room, stores, etc. The building is so arranged as to be added to when necessary.

The arrangement reported to have been completed Aug. 18, between R. J. Mackenzie for the company, and the St. Boniface city council, has been signed. It provides that if the plans of the National Transcontinental Ry. are changed along certain indicated lines, the C.N.R. will build a 38-stall roundhouse, and various other buildings, in St. Boniface, half of these buildings to be completed in 1911 and the remainder by the end of 1912. The contract on file in the city clerk's office shows that Mr. Mackenzie will endeavor to procure the erection of a steel traffic and street car bridge across the Red River at some point between Arnaud St. and Tache Ave., opposite Bannatyne Ave., Winnipeg, and the contract also contemplates the construction of a subway at Provencher Ave., and a union station in St. Boniface.

Press reports from Winnipeg, Sept. 15, state that W. Mackenzie, President, said the location for the hotel which the company proposed building in the city was the corner of Water and Main Sts., where the old Northern Pacific hotel formerly

stood. The report states that the hotel will cost about \$2,000,000.

A number of sub-contractors and C.N.R. engineers, etc., were recently proceeded against for trespassing on C.P.R. property, in the Rosebud country, along the route of the projected line into Calgary. After some conferences with J. S. Dennis, Assistant to the Vice President, C.P.R., an agreement was reached as to the building of the line through the C.P.R. irrigation belt.

M. H. McLeod, in an interview at Edmonton, Alta., Sept. 7, is reported to have said the contractors had the uncompleted portions of the route of the branch into Calgary covered with men, and he had hopes that the grading would be completed this year. The matter of the entrance into Calgary was taken up Sept. 1, with the city council there by President Mackenzie. The city asked the company to move the location of its tracks 25 ft. east, but Mr. Mackenzie said they could not be moved, and in the event of the Board of Railway Commissioners ordering a change, another site entirely might be selected.

The question of the location of the branch from the Vegreville-Calgary line, westerly to the Brazeau River Valley is causing a good deal of discussion. The Department of Railways in Aug., approved of the location of the line from Stewartwyn to the western boundary of range 25, and on account of the opposition of the Alberta Central Ry., it was suggested that the line might be located to Rocky Mountain House, via Lacombe, instead of Red Deer. President Mackenzie, is quoted as having said, Sept. 1, that although the line will not be completed, steel will probably be laid as far west as the Calgary and Edmonton Ry. this year.

Application is being made to the Board of Railway Commissioners for a recommendation to the Governor-in-Council for the sanction of an agreement amalgamating the Edmonton and Slave Lake Ry., with the Canadian Northern

**Canadian Northern Pacific Ry.**—W. Mackenzie, President, arrived in Victoria, B.C., Sept. 3, and discussed a number of matters connected with the route of the line in the province, etc., with the Provincial Government.

Work was reported to be in progress on the first 15 miles of the coast end of the line, Aug. 30. Five construction camps had then been pitched between Port Mann and Mount Lehman. C. H. Johnson had his gangs working between Port Mann and Mission City, his headquarters being in New Westminster; C. R. Shock & Son were working on a five mile section on either side of Fort Langley, where the construction camp had been pitched, and McDonald Bros. have headquarters at Chilliwack, B.C., the end of the 60-mile section under contract. These are sub-contractors under the Northern Construction Co.

Engineers are engaged, under the direction of T. H. White, Chief Engineer, in making surveys at Port Mann for terminal yards, etc. W. Mackenzie, President, visited the site of the proposed terminals, Sept. 8, in company with T. G. Holt, the C.N.R. Executive Agent in British Columbia. In an interview at Vancouver before leaving for the east on the following said, Mr. Mackenzie is reported to have denied the report that his company intended to make application to the railway commission for a change of its route from Edmonton to the coast, and further stated that construction would be carried out with all possible dispatch, following the survey as at present located, with the possible exception of short distances where it may be necessary to deviate to avoid tunnel work or high grades. Edmonton and the coast would be connected at as early a date as possible consistent with the proper construction of a standard line with the lowest possible gradients. Con-



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tracts for further sections of the line in British Columbia would be let during the current year.

At Vancouver, Sept. 9, the Board of Railway Commissioners had under consideration the C.N.P.R.'s application to use the C.P.R. right of way through the Fraser Canyon near Lytton, to which the C.P.R. raised no objection, but application was made to use the C.P.R. right of way also for seven miles above the Canyon. After some argument it was decided to engage C. E. Cartwright, to make an independent survey of the C.N.R. location in the district and to make an estimate of the alternative route suggested by the C.P.R.

Survey work is being carried on in connection with the proposed lines in Vancouver Island, under the charge of G. B. Hughes, Engineer for the Island lines. It was reported recently from Victoria that H. K. Wicksteed, expected to arrive Oct. 1, in order to pass upon the route located, before arrangements are made for letting contracts.

A Victoria dispatch Sept. 21, said it was reported that a contract had been let for building 30 miles to Sooke, the first section of the proposed line from Victoria to Barkley Sound, on the southwest coast of Vancouver Island.

**Duluth, Winnipeg and Pacific Ry.**—We are officially advised that the contractors, Foley, Welch and Stewart, have the whole line from Duluth to Virginia, Minn., covered with men, there being

### G. T. R. Pacific Type Locomotive.

During the past few years the weights of express passenger trains have increased to such an extent that it has become necessary, on many roads, to employ six-coupled locomotives in high speed service. For work of this character, either the ten-wheeled or Pacific type is usually selected. With the same maximum load per driving wheel, the Pacific type shows no superiority over the ten-wheeled type, as far as adhesion weight is concerned; and hence at slow speeds the tractive force developed by the two classes should be approximately the same. The Pacific type, however, possesses greater boiler capacity, and this is a distinct advantage in high speed work, or where long grades must be negotiated.

The Baldwin Locomotive Works has recently built five Pacific locomotives for the G.T.R. They are known as class P according to the railway company's classification. The tractive force exerted is 31,500 lbs., and with 131,050 lbs. on driving wheels, the ratio of adhesion is 4.15. They were built in accordance with drawings and specifications furnished by the G.T.R.

The boiler used in this design is of the extended wagon top type with wide fire-box. The longitudinal seams are sextuple riveted, and welded at the ends. The side water legs of the fire-box slope inward as they rise; the staying is radial, and the front end of the crown is sup-

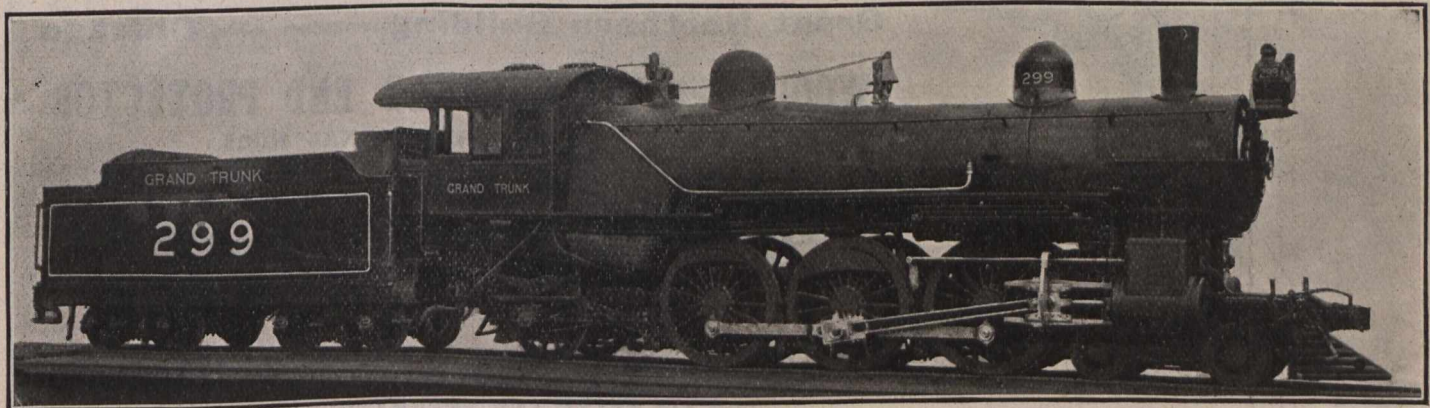
The driving springs are underhung, and are equalized with the trailing springs.

All truck wheels under the locomotive and tender are steel tired, and were manufactured by the Standard Steel Works Co. The trailing truck wheels have cast steel centres, while the front engine truck wheels and the tender wheels have cast iron centres. The Mansell style of fastening is used in all cases.

The tender frame is composed of 10 inch steel channels and the trucks are of the arch bar type, with cast steel bolsters. The tank has a water bottom, and provision is made for carrying 7,000 gallons of water and 10 tons of coal.

These locomotives, although not of exceptional size, are the first Pacific types shipped to Canada by the builders, and are therefore of considerable interest. The principal dimensions are as follows:

Gauge, 4 ft. 8½ in.  
Cylinder, 22 in. x 28 in.  
Valve, balanced slide.  
Boiler—Type, wagon top; material, steel; diameter, 66 in.; thickness of sheets, 9-16 in. and ⅜ in.; working pressure, 200 lbs.; fuel, soft coal; staying, radial.  
Fire Box.—Material, steel; length, 96⅞ in.; width, 75¼ in.; depth, front 72¾ in., back 56¼ in.; thickness of sheets, sides ⅜ in., back ⅝ in.; crown ⅝ in., tube ½ in.  
Water Space.—Front, 5½ in.; sides, 4½ in.; back, 4½ in.  
Tubes.—Material, steel; thickness, 0.125 in.; number, 305; diameter, 2 in.; length, 20 ft. 7 in.  
Heating Surface.—Fire box, 170 sq. ft.; tubes, 3,274 sq. ft.; firebrick tubes, 28 sq. ft.; total, 3,472 sq. ft.; grate area, 50.6 sq. ft.  
Driving Wheels.—Diameter, outside 73 in., cen-



Grand Trunk Railway Pacific Type Locomotive.

in all about 1,500 employed on the grading and timber bridging. It is expected to get about 25 miles of track laid this fall, and to finish up the work in the summer of 1911. The tunnel at Short Line Park, about eight miles from Duluth, will be about 500 ft. long. Work was started on it Sept. 13, and it is expected to have it completed in about a month. (Sept., pg. 733).

F. H. Phippen, K.C.; G. G. Ruel, G. F. Macdonnell, R. H. M. Temple and A. J. Reid, all of whom are connected in a legal capacity with the Canadian Northern Ry. and allied interests, are incorporators of the Candian Power and Paper Co., Ltd., which has been incorporated under the Dominion Companies Act, with a capital of \$10,000,000, and office at Toronto.

The Secretary, Board of Railway Commissioners, has issued the following circular to railway companies: "Several accidents have occurred on railways subject to the Board's jurisdiction, due to overhead structures not being the height required by the statutes, and I am directed to ask that you report to this Board not later than Nov. 30 particulars of all overhead bridges, snow-sheds or other structures that are not of the statutory height."

ported on four rows of expansion links. The fire-door opening is formed by flanging both sheets outward, and uniting them with a sleeve. The master mechanic's standard front end is used, with a short extension and tapered stack. The furnace contains a brick arch, supported on four water tubes, each three inches in diameter.

The steam distribution is controlled by balanced slide valves, driven by Stephenson link motion. The rockers are placed between the first and second pairs of driving wheels, immediately in the rear of the links; and each rocker is connected to the corresponding link by a short transmission bar. The valve rods are necessarily long and are supported by the guide yoke. This plan of motion dispenses with heavy transmission bars, such as are necessary when the links and rockers are placed on opposite sides of a driving axle.

The frames are of cast steel, with rear sections of forged iron. For a locomotive of this size, the main frames are comparatively narrow, their uniform width being four inches. Each frame is cast in one piece with a single front rail, to which the cylinders are bolted. The rear sections are 2 inches wide by 12 inches deep, and are arranged to accommodate the trailing truck, which is of the radial type with outside journals.

tre 66 in.; Journals, main 9½ in. x 12 in., others 9½ in. x 12 in.

Engine Truck Wheels.—Diameter, front, 31 in.; journals, 6½ in. x 10½ in.; diameter, back, 49 in.; journals, 8 in. x 14 in.

Wheel Base.—Driving, 13 ft. 4 in.; rigid, 13 ft. 4 in.; total engine, 33 ft. 2 in.; total engine and tender, 62 ft. 3½ in.

Weight.—On driving wheels, 131,050 lbs.; on truck, front, 37,100 lbs.; on truck, back, 38,500 lbs.; total engine, 206,650 lbs.; total, engine and tender, about 345,000 lbs.

Tender.—Wheels, number, 8; diameter, 34 in.; journals, 5½ in. x 10 in.; tank capacity, 7,000 gals.; fuel, 10 tons.

Service, passenger.

**Grand Trunk Ry.**—U.S. press reports Sept. 16, stated that the G.T.R. directors had authorized the purchase of the Chicago Great Western Rd., if satisfactory terms could be arranged. C. M. Hays, President G.T.R., and the President of the C.G.W. Rd., were said to have had a conference Sept. 15.

Judge McGibbon, of Prince Edward Island, has been appointed Chairman of the Board of Conciliation and Investigation under the Lemieux act established to adjudicate on the question of wages and conditions of labor of the maintenance of way men on the Canadian Pacific, Canadian Northern, and Grand Trunk Railways. Messrs. McGuigan and Lee are the other two members of the board, representing the railway companies and the men respectively.



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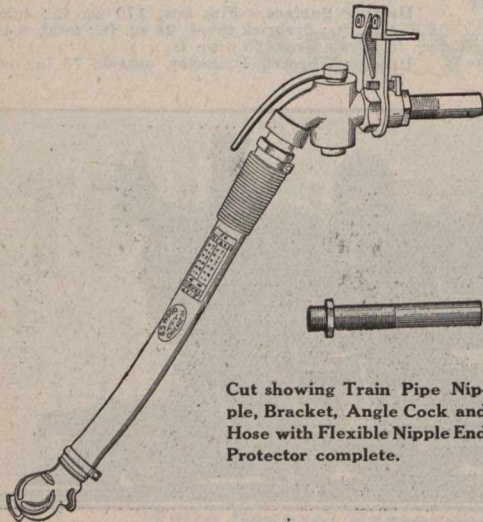
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**C.P.R. Betterments, Construction, Etc.**

**The Maritime Provinces.**—The developments of the C.P.R. in Nova Scotia and New Brunswick is causing much speculation there at present particularly in Halifax and St. John. It is reported in Halifax that that city is to become the sole winter port for both passengers and freight and that in order to make it the more accessible a new line will be built, starting from near Fredericton, N.B., in as straight a line as possible through New Brunswick and Nova Scotia to Halifax, and that this line will be hurriedly pushed forward in the very near future. Another dispatch while suggesting the building of the line from Fredericton, to Halifax, says that the Nova Scotian port will be made the terminal for the Trans-Atlantic passenger trade, while St. John, will remain the freight terminal. The reports from St. John, N.B., claim that the company has purchased additional property in the city and on the water front, and that this purchase would give the company a commanding position at the head of the harbor, as well as on the West side, and terminals of its own for steamships on the Bay of Fundy service could be constructed there giving quick connection by the bay route. On Sept. 9, the Mayor of St. John stated that obstacles in the way of the transfer of the west side shore lots to the C.P.R. as a site for railway yards near the elevator, had been overcome, and he expected that the transfer would be made by the city very soon.

**Place Viger Station Improvements.**—A press report states that a contract was let Sept. 12, for the alterations and additions to the station and hotel at Place Viger, Montreal, to John Stewart & Co. The old buildings have already been cleared off the site, and the foundation of the new station has been put in. The entrance to the station, instead of facing Craig St., at present, will be at the corner of Craig and Perri streets, where a large rotunda will give entrance alike to the station and the hotel. The hotel entrance proper, however, will face the Viger Gardens, and the whole of the space now occupied by the station will be given over to the hotel, while the station itself will extend from Craig along Berri to Notre Dame. Into this new station the trains will be able to run without the sharp curve necessitated at the present time. There will be nine tracks in the station.

**St. Louis de Mile End Station.**—A permit has been issued for building a new station at a cost of \$37,000 at St. Louis de Mile End, Montreal. It will be on the St. Louis boulevard, and will be 262 by 40 ft., and two stories high. D. L. Loomis & Sons are the contractors.

**Lake Temiskaming Colonization Ry. Extension.**—The Minister of Public Works for Quebec, stated in a speech at Ville Marie, Que., Aug. 29, that if the C.P.R. did not build its projected line from South Timiskaming within the next two years the Government would do so. (See also Long Soo and Abitibi Ry., July, pg. 549.)

**Ottawa Yard Facilities.**—The city authorities received notification from the company Sept. 14, of a project for extending its limits in the neighborhood of Wellington St. viaduct for the purpose of increasing the yard facilities and putting up new buildings. In his letter Vice President McNicoll said considerable land had been acquired and it was proposed to purchase an additional area taking in several blocks. The intention of the company is to erect a larger roundhouse and other buildings on the land acquired. The assessment on the property within the area indicated by the company is about \$15,000.

Arrangements are being made between the Mayor and Vice President

McNicoll for a meeting to discuss the project for a tunnel in the city.

**Kingston and Pembroke Ry.**—During the past three years, we are advised, the company has rebalasted the main line with the exception of about 16 miles, which were in good shape. During the current season a large amount of ballasting was done, over \$30,000 having been appropriated for that purpose. The other betterments included new work to bridges and culverts at five points; a siding off the Bradford branch; replacing 10 miles of fencing northward from Godfrey, and general repairs to bridges and culverts at 75 points.

**Smith's Falls to Toronto.**—Referring to the reports that the company was about to undertake the building of another line from Smith's Falls into Toronto, D. McNicoll, Vice President, in a recent interview, stated that it would rest entirely on the engineers' report. It was a question of gradients rather than route; it was most important to get a level line first, but the question of the route had also to be considered. One of the reports referred to stated that a line was to be built from Smith's Falls to Belleville and thence to Toronto, and another report was to the effect that the new line to Toronto would branch off the main line at either Perth or Bathurst. The company controls the Campbellford, Lake Ontario and Western Ry. charter, which was projected to give a line nearer the lake front than the present line. Several surveys have been made over the route proposed for this line, but nothing further has been done.

**Toronto Improvements.**—Vice President McNicoll, in an interview at Toronto, Sept. 13, said he was working on plans for a greater freight terminal in Toronto, but they had not taken definite shape. A few days previously he was quoted as saying that the company had made plans for Toronto and would shortly be making a proposition to the city council. These plans might include warehouses, new lines, new yards, freight sheds, stations and all things dealing with terminal matters. His own opinion was that the present site of the union station will become an undesirable one for a passenger station, and that with the development of the city northward, he would not be surprised if, in course of time, the big station of the city will be located in the north.

Men started work Sept. 1, in the preparation of new freight terminals at North Toronto. The foundations for a freight shed have been completed and the brickwork is being proceeded with. Three new sidings have been laid, and other work is to be done.

**West Toronto Yards.**—Officials of the company and the York township council arranged, Aug. 30, for the protection of three level crossings. Two 30 ft. subways are to be put in, one at Elizabeth St., and one at the Scarlett Plains, while an 8 ft. subway is to be put in at Jane St. This latter subway is to be widened to 30 ft., at the cost of the municipality when desired. J. Osborne, General Superintendent, stated that the company would ask the council for some concessions at a later date in connection with the Toronto yards.

**Lambton-Islington Second Track.**—Steel has been laid on the second track which has been built from Lambton station to near the entrance to the golf club house, at which point, there is to be a change in the alignment, as the grading to the Humber river, and to near Islington station is being done on the north side of the existing tracks. Beyond Islington station, to the new line to Mimico, the grading is being done on the south side of the present tracks. The bridge and building department has a gang enlarging the culverts on the present line to accommodate the second track. The present second track from

Toronto westerly ends at the eastern end of Lambton station, which building will have to be moved before connection can be made with the second track now being laid west of there.

**Islington-Mimico Branch.**—The branch line from west of Islington, to Mimico, Ont., has been ballasted, and the connection with the G.T.R. has been made. Land has been acquired to make a connection at the Islington end, so that trains may be run from the branch either east or west.

**Ingersoll to Code Jct.**—The grading and culvert work on the 4.5 miles of line between Code Jct., on the Toronto-Windsor line, and Ingersoll, Ont., is well advanced. The contractors are Macconnell and Fletcher. This piece of line will connect up the old Tillsonburg, Lake Erie and Pacific Ry., now terminating at Ingersoll, with the St. Mary's and Western Ontario Ry., another C.P.R. subsidiary now having its eastern terminal at Code Jct., and will enable trains from St. Mary's to be run through to Ingersoll direct instead of to Woodstock as at present.

In connection with the reports that the company contemplated the abandonment of Port Burwell, as a terminal for its cross lake ferry, the Dominion Government has under consideration the building of a 1,200 ft. breakwater at the southwest side of the harbor, with a view of preventing the formation of a sandbar, which is proving an obstacle to navigation.

**London Improvements.**—In an interview at London, Sept. 14, Superintendent McNeillie, stated that he expected to receive orders to go ahead with the improvements at the station and terminals any day. The roundhouse would be the first building to be erected.

A London press dispatch, Sept. 7, stated that plans had been received in the city showing a new station at Quebec road, a 26-stall roundhouse, machine shops, office buildings, and a considerable re-arrangement of the yards.

**London-Port Stanley, Ont.**—Press reports state that the company has been having surveys made for a line from near Belmont through Yarmouth tp., to Orchard Beach, on Lake Erie.

**Thessalon Station and Yards.**—An agreement has been reached by which a new station, 112 ft. long, will be built and additional siding accommodation provided at Thessalon, Ont., on the Algoma branch line.

**Fort William, Ont.**—A contract is reported to have been let to O. A. C. Stewart & Co., Winnipeg, Man., for the abutments and piers for the bridge over the Kaministikwia River, Fort William, Ont.

**Subway at Kenora, Ont.**—Plans were submitted to the Kenora town council, recently, for a subway under the C.P.R. tracks, at Main St., the work to cost about \$40,000. The company will provide 70% of the cost; 20% will come from the Dominion level crossing elimination fund, and 10% will be provided by Kenora. The subway will be built by the C.P.R.

**New Western Lines.**—The shareholders will be asked at the annual meeting, Oct. 5, to authorize the directors to issue 4% consolidated debentures to provide for building the following branch lines in Manitoba, Saskatchewan and Alberta: Moose Jaw-Outlook branch, 118 miles; Weyburn-Lethbridge branch, 50 miles; Teulon extension, 56 miles; Lauder-Griffin branch, 33 miles; Craven-Bulyea branch, 21 miles; Kipp-Aldersyde branch, 58 miles; Langdon branch, 40 miles; Regina-Colonsay branch, 134 miles; Snowflake branch extension, seven miles; Virden-McAuley branch, 36 miles. These lines have either been completed, or are practically completed.



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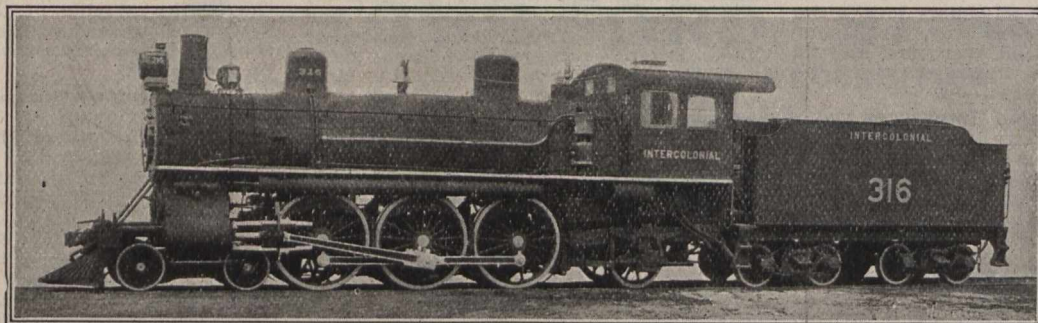
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MONTREAL



A contract has been entered into with the Dominion Government under the act granting aid to certain railways, for building an extension of the Winnipeg Beach line to Gimli, Man., 9.5 miles.

**Winnipeg-Portage la Prairie Second Track.**—The second track between Winnipeg and Portage la Prairie, Man., was expected to be completed Sept. 15.

**Estevan Westerly.**—In order to provide employment for settlers and their teams, W. Whyte, Vice President, has authorized the grading of about 20 miles westerly from Estevan, Sask. The work has been started.

**Port Moody, Indian River and Northern Ry.**—The line under construction is 18 miles long, and extends from Emerson's spur, at the eastern end of Port Moody, B.C., at which point it connects with the C.P.R. main line, to Indian River. This river flows into the north arm of Burrard Inlet. Work is going on between Port Moody, and a point on the north shore of Burrard Inlet, at a distance of about four miles from Emerson's spur. The line follows the eastern and northern shore of the inlet for the whole of the four miles, and is designed primarily to develop valuable water frontage on that portion of the Inlet for industrial purposes. So far as at present located the line has a maximum gradient of 0.7% and an easy curvature. With the exception of some trestle work across a portion of the mud flat at the extreme eastern end of the Inlet, there is no bridging of any importance on this four miles. It is expected that steel will be laid upon the four miles by the end of Nov. The contractors are Macdonell, Gzowski & Co., Vancouver.

A press report states that over a mile of the line was ready for track laying, Aug. 30. In the course of the grading hard pan was struck which made construction more difficult and prevented the completion of the four miles by Sept. 1, as was at first contemplated.

**Esquimalt and Nanaimo Ry.**—The section of the Alberni extension as far as Cameron Lake has been completed, and it was expected that a train service would be placed in operation over it by Sept. 30. Work on the five mile section round Cameron Lake is being proceeded with satisfactorily, and it is expected that it will be completed by the end of the year. The grading is expected to be completed right into Alberni by Jan. 1, and the bridge work will be completed by Mar. 30, 1911, so as to allow the track laying gang to begin work at Cameron Lake, April 1.

A contract has been entered into with the Dominion Government under the act granting aid to certain railways, for building a line from Duncans, on the main line, to Cowichan Lake, 24 miles.

A Victoria dispatch of Sept. 20, said the company was calling for tenders for building the Comox branch.

**Minneapolis, St. Paul and Sault Ste. Marie Ry.**—U.S. press reports state that a certificate has been granted to the company permitting it to build a line in Superior, Wis., from its present terminal to the ore docks; also an extension of the line to the proposed plant of the U.S. Steel Corporation, via the Tomahawk Bay route. (Sept., pg. 731).

**Hudson's Bay and Pacific Ry.**—G. Atwood, Chief Engineer of the Hudson's Bay and Pacific Ry., which has opened offices at Prince Albert Lake, has announced that he has been authorized to expend any monies necessary to complete a detailed survey for a route from Prince Albert to Fort Churchill. He says he has a large number of men in the field, and makes the announcement in refutation of the rumors that the London backers of the road were about to withdraw their support.—Prince Albert press dispatch.

### Resignation of Thomas Tait.

A Melbourne, Australia, cable of Sept. 21, states that Thomas Tait, Chairman Victorian Railway Commissioners, has resigned and will return to Canada. The reason for his resignation, as stated in the dispatch, is on account of a recent accident at Melbourne, by which a number were killed and others injured. From the last Australian papers to hand it would appear that the accident was caused by the carelessness of some minor officials at the Melbourne terminus. The news of Mr. Tait's resignation is a matter of great surprise in Canada, as he has met with great success in his administration of the Australian railway, and has received much endorsement in Parliament and in the Victorian press generally.

Mr. Tait was born at Melbourne, Que., July 24, 1864, and entered railway service Sept., 1880, since when he has been, to July, 1881, clerk G.T.R. Audit Department; July to Oct., 1881, clerk in office of Assistant to President Chicago and Grand Trunk Ry.; Oct., 1881, to Apr., 1882, clerk in G.T.R. Solicitor's Office, Belleville, Ont.; Apr. to Oct., 1882, clerk General Manager's office, G.T.R.; Oct., 1882 to Sept., 1886, private secretary to Vice President and General Manager C.P.R.; Sept., 1886, to May 23, 1887, clerk General Traffic Manager's office, C.P.R.; May 23, 1887, to Feb. 1, 1889, Assistant Superintendent C.P.R.; Moose Jaw, Sask.; Feb. 1, 1889, to Mar. 12, 1890, Superintendent Ontario Division C.P.R., Toronto; Mar. 12, 1890, to Mar. 1, 1893, General Superintendent Ontario and Quebec Division, C.P.R.; Mar. 1, 1893, to May 3, 1897, Assistant General Manager C.P.R.; May 3, 1897, to Apr., 1901, Manager C.P.R. Eastern Lines; Apr., 1901, to Mar., 1903, Manager of Transportation, C.P.R. He sailed from Vancouver for Australia, May 1, 1903, having received the appointment of Chairman of the Victorian Railway Commissioners.

Since the above was put in type, we have been advised that Mr. Tait and his family will sail from Australia Nov. 30, via Indian and Europe, for Canada.

### White Pass and Yukon Railway Rates.

British Columbia press dispatches early in September stated that the Board of Railway Commissioners had made an order respecting rates on the W.P. & Y. Ry. On Sept. 16, the Secretary of the Board at Ottawa advised us that no formal order had reached him for issuance.

The order was evidently promulgated in B.C., as the Vancouver World published it Sept. 13, as follows:—

"The British Yukon Ry. Co., the British Columbia Yukon Ry., and the Pacific & Arctic Ry. and Navigation Co., and the White Pass & Yukon Ry. Co. are to cease from discriminating against the applicant (Conrad), and in favor of the Atlas Mining Co., R. R. Neil and W. D. Greenhough and any and all said parties. That said railway companies cease and desist from discriminating in favor of the locality in which the Atlas mining properties are located and against the locality in which the mines of the applicant are located.

"That said railway companies file with the board on or before Nov. 1 tariffs showing the rates granted to the Atlas Mining Co., pursuant to the contract entered into between the Pacific & Arctic Ry. & Navigation Co. and the Atlas Mining Co., dated March 21, 1910.

"That said railway companies file with the board on or before Nov. 1 a tariff amending or supplemental to C. R.C. 9, issued Sept. 16, 1909, by the Pacific & Arctic Ry. & Navigation Co., the British Columbia Yukon Ry. Co.,

and the British Yukon Co., forming the 'White Pass and Yukon route,' giving carload rates of \$1.75 a ton on ore and concentrates from Cariboo to Skagway.

"That the said railway companies grant to all shippers of ore and concentrates upon their line or lines of railway proportional rates and privileges at least as favorable as those granted to the Atlas Mining Co. under said contract.

"That said railway companies in due course obtain for the applicant if he notifies them in writing so to do, the same or as favorable ocean rates as they have obtained for the Atlas Mining Co., or in the event of said railway companies being unable to obtain the same or as favorable ocean rates for the applicant, then they are to cease and desist from obtaining discriminatory ocean rates for the Atlas Mining Co. and handle the ore of applicant, and that of all other shippers over their lines upon terms and conditions as to wharfage and otherwise exactly similar to that granted by said contract to the Atlas Mining Co."

### 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.

W. W. Butler, Second Vice President and Director of the American Steel Foundries Co. while retaining those positions, has severed his active connection with the company in order that he may devote all his time to the Canadian Car & Foundry Co. and his other Canadian interests.

The Canada Iron Corporation Ltd. has issued an exquisitely printed and well illustrated, bound book, of 126 pages, containing full particulars of its activities, and information as to its iron mines, blast furnaces, car wheel and pipe foundries and machine shops, together with standard pipe and car wheel specifications.

The Canadian Gold Car Heating and Lighting Co. has issued a catalogue embodying all the various devices and special fixtures connected with its systems of train heating, with detail illustrations of all the parts. The descriptions given, cover steam and vapor heating, combined coal-fired heaters with hot water circulation, and electric heaters, as well as equipment for Pintsch gas and acetylene lighting systems.

A press dispatch says:—"Since the relining of the blast furnaces, the Nova Scotia Steel Co. has been putting all previous records for daily production far in the rear. Before the improvements were completed, the average daily output was 180 tons. Since that time, the average has been greatly increased, and some remarkable days have been put in. On one day the output was 210 tons, on another, 230 tons, and on another, 275 tons."

**I.C.R. Buildings at Campbellton.**—We are officially advised that as the season is so far advanced only temporary buildings will be put up to replace those burned, with the exception of the locomotive house and this work is being done by railway employes under the direction of the engineer, using as far as possible second hand materials which are available. Plans are being prepared for a station house, to be built next summer.



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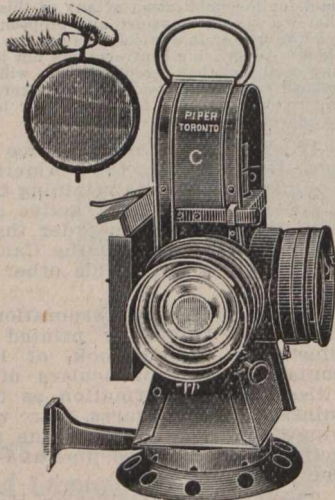
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MONTREAL

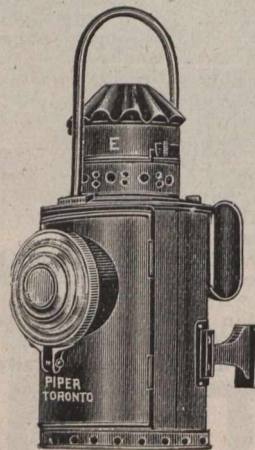
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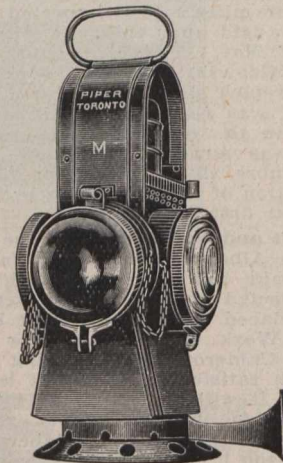
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## TRANSPORTATION APPOINTMENTS.

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

**Algoma Central and Hudson Bay Ry.**—G. A. Montgomery, heretofore Superintendent Manitoulin and North Shore Ry., has been appointed Superintendent Michipicoten Division A.C. & H.B.R., vice R. Y. Seelye, who was also Superintendent Helen Mine, and who has been appointed General Superintendent of Mines, Lake Superior Corporation. Office, Michipicoten Harbor, Ont.

**Boston and Maine Rd., Maine Central Rd.**—C. S. Mellen, President New York, New Haven and Hartford Rd., has also been appointed acting President B. & M., and M.C. Rds., vice L. Tuttle, resigned.

**Canadian Freight Association, Western Lines.**—W. E. Campbell has been appointed Secretary Treasurer, with jurisdiction over freight inspection and car rental on all lines in Canada west of and including Port Arthur, Ont.

A. C. Ferguson, heretofore acting Manager Canadian Car Service Bureau, Western Lines, has been appointed Chief Clerk Canadian Freight Association, Western Lines, Winnipeg office.

J. Burchell, heretofore Manager and Secretary-Treasurer, Canadian Car Service Bureau, Western Lines, Vancouver, will until Jan. 1, 1911 continue the work of supervision of freight inspection and car rental on lines in British Columbia, and all reports, correspondence, etc., should continue to be addressed to him.

**Canadian Northern Ry.**—T. Musgrove, heretofore freight repair foreman, has been appointed coach yard foreman at Winnipeg, vice A. E. Lewis, resigned.

T. A. Howell, heretofore in charge of the Salvation Army's immigration work at Toronto, has been appointed General Immigration Agent, C.N.R. Office, Toronto.

G. F. Southall, heretofore in the Salvation Army's immigration department at Toronto, has been appointed Travelling Immigration Agent, C.N.R. Office, Toronto.

**Canadian Pacific Ry.**—C. E. E. Ussher, heretofore Assistant Passenger Traffic Manager, Winnipeg, has been appointed Passenger Traffic Manager, vice Robt. Kerr, retired. Office, Montreal.

A. P. Walker, Assistant Division Engineer, Toronto, who has been on leave of absence, has returned, and resumed his duties.

M. A. Fullington, who acted as Assistant Division Engineer, Toronto, during the absence of A. P. Walker, has been granted a short leave of absence.

R. H. Pierce, heretofore Assistant Superintendent, has been appointed Superintendent Sleeping, Dining and Parlor Cars and News Service, District 4, Office, Moose Jaw, Sask.

R. R. Smart, heretofore Car Service Agent, Moose Jaw, Sask., has also been appointed Fuel Agent, Saskatchewan Division. Office, Moose Jaw.

G. Moth, heretofore Trainmaster at Moose Jaw, Sask., has returned to the locomotive service.

A. A. Smith, heretofore Trainmaster at Moose Jaw, Sask., has been appointed Trainmaster District 1, Alberta Division, vice A. N. Hobkirk, transferred. Office, Medicine Hat, Alta.

H. O. Whitney has been appointed Roadmaster Lethbridge subdivision, District 1, Alberta Division, vice — Barry, assigned to other duties. Headquarters, Medicine Hat.

A. N. Hobkirk, heretofore Trainmaster District 1, Alberta Division, Medicine Hat, has been appointed Trainmaster District 2, Alberta Division, vice W. R.

Loucher, transferred to Moose Jaw, Sask. Office, Calgary, Alta.

A. Houghton has been appointed Assistant Trainmaster District 2, British Columbia Division, vice A. Halkett, appointed Trainmaster at Moose Jaw, Sask. Office, Kamloops, B.C.

R. C. Barker, heretofore Chief Dispatcher District 2, British Columbia Division, Vancouver, B.C., has been appointed Chief Dispatcher District 3, B.C. Division, vice F. Walker, transferred. Office, Nelson, B.C.

F. Walker, heretofore Chief Dispatcher District 3, British Columbia Division, Nelson, B.C., has been appointed Chief Dispatcher District 2, B.C. Division, vice R. C. Barker, transferred. Office, Vancouver, B.C.

A branch office has been opened at Antwerp, Belgium, for the working of the Company's continental business, instead of it being represented by an agent as heretofore. T. McNell, heretofore Traffic Manager Manchester Liners, Ltd., Manchester, Eng., has been appointed Agent, vice S. E. Cruse, resigned. Office, 25 Quai Jordaens.

**Delaware and Hudson Co.**—The office of General Auditor has been created, and the following change made in the organization of the accounting department: The Comptroller will have charge of the general, corporate and fiscal accounts. The General Auditor will have charge of the operating revenue and expense accounts. Allen McCarty has been appointed General Auditor. Office, Albany, N.Y.

**Grand Trunk Pacific Ry.**—The following agents have been appointed:—Rivers, Man.; A. Donnelly; Pope, Man.; S. Edwards; Lazare, Man.; J. A. Jacques; Atwater, Sask.; S. C. McDonald; Venn, Sask.; R. M. Sutherland; Wainwright, Alta.; A. M. McCorkle; Tofield, Alta.; A. B. Dowling; Edmonton, Alta.; W. H. Oliver.

**Grand Trunk Ry.**—G. Beckingham, heretofore Roadmaster, Point St. Charles, Montreal, has been appointed General Roadmaster Eastern Division, vice D. McCooe, promoted. Office, Montreal.

D. McCooe, heretofore General Roadmaster, Montreal, has been appointed Superintendent of Grade Separation at Toronto, and will have entire charge of all construction work in connection therewith. Office, Toronto.

F. W. Egan, having recovered his health, has resumed his duties as Superintendent Western Division, Detroit, Mich.

J. Ehrke, who has been acting Superintendent Western Division, Detroit, Mich., during the absence of F. W. Egan, has resumed his duties as Assistant Superintendent District 25 (Main line), and District 26. Office, Battle Creek, Mich.

The following agents have been appointed:—Newtonville, Ont., P. C. Brown; Pickering, Ont., F. S. Allin; Omeme Jet., Ont., H. S. Snider; Georgetown, Ont., J. T. Cameron; Lucan, Ont., W. J. Dore; London East (Pass.), Ont., C. Sampson; Ridgeway, Ont., A. Yaeck; Alma, Ont., W. J. Dobbie; Dalkeith, Ont., D. J. Mackintosh.

**Manitoulin and North Shore Ry.**—F. Robinson, heretofore Trainmaster and Chief Dispatcher, Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont., has been appointed Superintendent M. & N.S.R., vice G. A. Montgomery, transferred to A.C. & H.B.R. service. Office, Sudbury, Ont.

**Michigan Central Rd.**—G. E. Gott, heretofore Night Chief Train Dispatcher, has been appointed Chief Train Dispatcher, vice G. W. Babbitt, deceased. Office, St. Thomas, Ont.

W. H. McNabb has been appointed Night Chief Train Dispatcher at St. Thomas, Ont., vice G. E. Gott, promoted.

**New York Central and Hudson River Rd., West Shore Rd., Boston and Albany Rd.**—L. F. Vosburgh, heretofore Assistant General Passenger Agent, has been appointed General Passenger Agent, vice Gerrit Fort, resigned. Office, Grand Central Terminal, New York.

**Pere Marquette Rd.**—C. M. Booth, heretofore First Assistant General Freight Agent, has been appointed General Freight Agent, vice P. F. Gaines, deceased. Office, Detroit, Mich.

J. E. Williams, heretofore Chief of Tariff Bureau, has been appointed Assistant General Freight Agent, with general supervision of the Tariff Department, and such other duties as may be assigned. Office, Detroit, Mich. The position of Chief of Tariff Bureau has been abolished.

R. P. Paterson has been appointed Assistant General Freight Agent. Office, Detroit, Mich.

**Reid Newfoundland Co.**—T. Power has been appointed Roadmaster Division 2, between Whitbourne and Clarendville, including Placentia Branch, vice D. Ferguson, transferred.

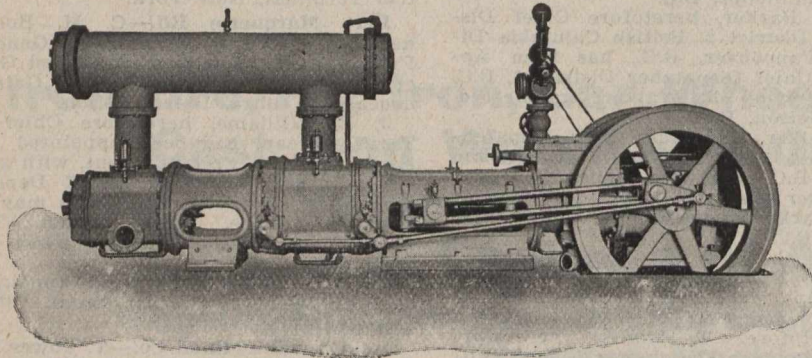
W. C. Harvey has been appointed Travelling Marine Engineer, vice P. Stewart.

## Transportation in Europe.

Following up his books on "Railroad Freight Rates," and "The Working of the Railroads," which deal with the operation of railways in the U.S. and Canada, L. G. McPherson, lecturer on transportation at John Hopkins University, has written a book dealing with transportation in Europe, the information upon which it was written having been collected during a visit to Europe with the National Waterways Commission. Mr. McPherson presented a formal report of his investigations to the Commission, and the present volume is a rearrangement and amplification of the report. After an introductory chapter, in which the author contends that continental Europe as a whole is the proper basis for a comparison of its traffic conditions with those existing in the United States, there are chapters dealing with land roads and interior waterways, the development of the railways, railway passenger tariffs, railway freight tariffs, concerning freight traffic, international rail traffic, phases of Government control, comparative usefulness of inland waterways and railways, and a summary of the situation on the continent. These chapters pass under review the whole traffic conditions of continental Europe, tracing the development from the days when the sole means of communication between one place and another, the undeveloped natural waterways, and pack trails on land, through the different stages to the present day condition of affairs. The development of transportation in England is dealt with separately, "because," as the author observes, "of its isolated position, its physical characteristics, and its peculiar political and economic development." The transportation status in England, he says, "although in certain general features analogous to that of the continent of Europe, is in important respects widely different." In addition to these differences there is also, he points out, a close relation between many English and United States institutions, which makes such separate treatment desirable. The book is full of information and gives a carefully written, full and well balanced review of the European situation. The book is published by H. Holt and Co., New York, and may be obtained through the Railway and Marine World's Book Department. The price is \$1.62, including postage.



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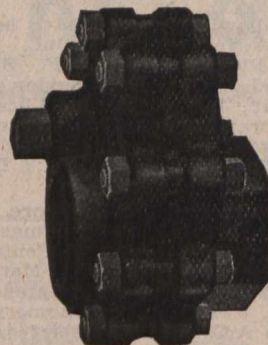
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## MAINLY ABOUT PEOPLE.

A. MacMurchy, Solicitor C.P.R., Toronto, has returned there from England.

Mrs. Hayter Reed, wife of the Manager in Chief C.P.R. Hotels, has gone to England for a short visit.

Dr. N. A. Macnab, in charge of the hospital on the G.T. Pacific Ry., west of Edmonton, Alta., died there Sept. 16.

J. C. S. Bennett, C.P.R. official photographer, returned to Montreal, Sept. 14, from a tour through Western Canada.

R. S. McCormack of the C.P.R. Legal Department, Toronto, was married there to Mrs. E. E. Weir, of Hastings, Ont., Sept. 5.

W. Poupore, who died in Montreal, recently, aged 91, was father of W. J. Poupore, contractor for railway and canal works.

James Mills, LL.D., one of the Board of Railway Commissioners, has retired from the Board of Regents of Victoria University, Toronto.

W. J. Hatch, General Air Brake Inspector, C.P.R., Montreal, was elected Third Vice President of the Air Brake Association, at its recent convention.

W. M. Ryder, who died at St. Johns, Que., recently, aged 92, was father of E. A. Ryder, Secretary to the President, Boston and Maine Rd., Boston, Mass.

G. J. Bury, General Manager C.P.R. Western Lines, Winnipeg, attended a meeting of Western railway men in Chicago, Ill., Sept. 9 and following days.

J. M. Curry, Mayor of Amherst, N.S., and associated with the Canadian Car and Foundry Co., was married to Miss A. M. Mackeen, in Montreal, Sept. 7.

R. J. Mackenzie, of Mackenzie, Mann & Co., Winnipeg, bought in Toronto, Aug. 27, the pacing stallion Joe Patchen II., reports stating that the price paid was \$12,000.

Lucius Tuttle, who has resigned the Presidency of the Boston and Maine and Maine Central Rds., was, from Jan., 1887 to 1889, Passenger Traffic Manager C.P.R., Montreal.

W. J. Crossen of the Crossen Car Manufacturing Co., Cobourg, Ont., is one of the directors of the Northumberland-Durham Power Co., and of the Central Ontario Power Co.

H. Murray, of Holmes, Murray and Sharkey, having a grading contract on the G.T. Pacific Ry. Toftfield-Calgary branch, died Aug. 31, from injuries inflicted by a discharged laborer.

Miss Phyllis Hendrie, daughter of the late Wm. Hendrie, Hamilton, Ont., founder of the railway cartage firm of Hendrie & Co., and also engaged in railway contracting, was married to Allan Case of Toronto, recently.

P. V. Johnson, Seattle, Wash., who was associated with his brother, C. J. Johnson, on a grading contract on the Canadian Northern Pacific Ry., at New Westminster, B.C., died suddenly at Harrison Hot Springs, B.C., Aug. 31.

D. Murphy, C. E., who was engaged in construction of the lift locks on the Trent Valley Canal, died in a Montreal hospital, Sept. 14, as the result of an accident, his motor cycle having been run down by an automobile.

J. T. McKenney, City Agent Northern Pacific Rd., Duluth, Minn., who was formerly ticket agent for the N.P. Rd., in Winnipeg, is reported to have been appointed District Passenger Agent same road, at St. Paul, Minn.

C. F. Merry, who was active in promoting the Dakota Southern Rd., a line which was projected to run to Valley City, S.D., and on to Winnipeg, Man., was arrested at Carrington, N.D., Sept. 11, on charges in connection with the promotion of the company.

N. Curry, President Canadian Car and Foundry Co., Montreal, has been elected Vice President of the Canadian Manufacturers Association. J. S. N. Dougall, President Dougall Varnish Co., Montreal, has been elected Vice President of the Association for Quebec province.

Wm. Mackenzie, of Mackenzie, Mann and Co., exhibited a number of Jersey cattle from his farm at Kirkfield, Ont., at the Toronto Exhibition, which secured the following awards:—two senior championships, eight first prizes, one second prize, two third prizes and two fourth prizes.

F. A. Delano, President Wabash Rd., with one of his daughters and some friends started for a tramp in the bush near the Delano summer residence, near Cliff Lake, Mich., Sept. 4, and got lost. The party was found Sept. 6 on the shore of Lake Superior, seven miles from the Huron Mountain Club, having suffered considerably from exposure and want of food.

In referring to G. J. Bury, General Manager C.P.R. Western lines, in our last issue, it was mentioned that he started his railway career as stenographer for Wm. C. Van Horne. As a matter of fact he commenced work under Thos. G. Shaughnessy, when the latter was Purchasing Agent, afterwards becoming Mr. Van Horne's Secretary, and for a number of years he was between Messrs. Van Horne and Shaughnessy's offices.

N. S. Dunlop, represented the C.P.R., at the recent conference held at Boston, Mass., of the Railway Gardening Association of America. This association has for its object the promotion of flower planting and shrub growing on station grounds and railway property generally, with a view to making the places which are at present unsightly, attractive, and of making the bare places round railway stations attractive by providing seeds, bulbs, etc., for the station agents and other employes, and in advising as to the laying out of the waste land at stations and other places.

N. DesBrisay, whose appointment as Travelling Passenger Agent, St. John, N.B., was announced in our last issue, was, from June 14, 1904, to May 31, 1905, clerk in District Passenger Agent's office, St. John; June 1, 1905, to June 7, 1907, ticket clerk, City Ticket office, St. John; June 14, 1907, to Dec. 5, 1908, ticket clerk, s.s. Empress of Ireland; Dec. 5, 1908, to May 24, 1909, exchange ticket agent, Halifax, N.S.; May 27, 1909, to Nov. 19, 1909, exchange ticket clerk, Quebec; Nov. 19, 1909, to May 4, 1910, exchange agent, Halifax, N.S.; May 5 to July 15, 1910, exchange agent, Quebec; all service with the C.P.R.

L. F. Vosburgh, who has been appointed General Passenger Agent New York Central and Hudson River Rd., West Shore Rd. and Boston and Albany Rd., New York, entered railway service in 1893, since when he has been, to 1895, assistant night ticket agent Lake Shore and Michigan Southern Rd.; 1895 to 1897, assistant ticket agent, same road; 1897 to 1903, City Passenger Agent, same road; 1903 to 1906, General Western Passenger Agent, same road; 1906 to Feb. 1, 1910, General Eastern Passenger Agent, New York Central Lines, New York; Feb. 1 to Sept. 1, 1910, Assistant General Passenger Agent, New York Central Lines, New York.

Robert Kerr, who has retired from the position of Passenger Traffic Manager C.P.R., was born at Toronto, Aug. 23, 1845. He entered railway service in 1866, since when he has been, to 1879, warehouse clerk, etc., Northern Ry. of Canada; 1879, Through Freight Agent same road; 1879 to 1884, General Freight and Passenger Agent Northern and Northwestern Rys.; June 1, 1884, to

Jan. 1, 1896, General Freight and Passenger Agent C.P.R. Western and Pacific Divisions, Winnipeg; Jan. 1, 1896, to June, 1899, Traffic Manager C.P.R. Lines West of Lake Superior; June, 1899, to Sept., 1910, Passenger Traffic Manager C.P.R., Montreal.

C. J. Panser, roadmaster Winnipeg Beach and Teulon branches C.P.R., died suddenly at his home in Winnipeg, Sept. 9, aged 64. Referring to Mr. Panser's death, Vice President W. Whyte, said:—"He came to Winnipeg in 1881 from the Southern Minnesota division of the Chicago, Milwaukee and St. Paul Rd., where he was employed under J. M. Egan, who was at that time Superintendent of the Milwaukee line. When Mr. Van Horne, now Sir William, came to the C.P.R. he brought with him Mr. Egan and Mr. Panser, the latter being employed on construction work, and shortly rose to the position of roadmaster, which he occupied from 1882 to the time of his death."

W. S. Kinnear, who recently resigned the Assistant General Managership of the Michigan Central Rd., on the completion of the Detroit River Tunnel of the construction of which he had charge, has been appointed President of the Kansas City Terminal Railway Co. at Kansas City, Mo. This company has been formed by the twelve large railway systems entering Kansas City, and the work contemplated consists of re-vamping the present Kansas City Belt Ry., operating some 61 miles, completing a six track belt line around the city and building a new union station. The total estimated expenditure is about \$39,000,000 of which about \$6,000,000 will be spent on the new union station.

The Galt Hospital at Lethbridge, Alta., was founded in 1885, by the late Sir Alex. Galt, its first home being a small wooden building. This was removed in 1891 when the existing main building was erected, also by Sir Alex. Galt, who also bequeathed the institution an endowment now amounting to \$40,000. A nurses' home was added by E. T. Galt, and in 1908, he offered to donate \$30,000 for extensions to the hospital if the city of Lethbridge provided a similar amount. This was done, and the new buildings erected, were opened Sept. 1, by Sir Wilfrid Laurier. The hospital is administered under the provisions of an act of the Alberta Legislature, E. T. Galt, President of the Alberta Ry. and Irrigation Co., being Chairman; and P. L. Nalmsmith, General Manager A.R. and I. Co., being Vice Chairman.

C. E. E. Ussher, who has been appointed Passenger Traffic Manager C.P.R., Montreal, was born at Niagara Falls, Ont., Dec. 29, 1857, and entered railway service in 1874, since when he has been, to May, 1876, clerk in Auditor's office, Great Western Ry.; May, 1876, to June, 1880, clerk in General Passenger Department same road; June, 1880, to Apr., 1883, chief ticket clerk Wabash, St. Louis and Pacific Ry.; Apr. to Nov., 1883, rate clerk Chicago and Atlantic Rd.; Nov., 1883, to Nov., 1886, in commercial business at Hamilton, Ont.; Nov., 1886, to May, 1889, chief ticket clerk C.P.R.; May, 1889, to Jan. 1, 1898, Assistant General Passenger Agent C.P.R., Montreal; Jan. 1, 1898, to Dec., 1906, General Passenger Agent C.P.R. Eastern Lines, Montreal; Dec., 1906, to Sept. 30, 1910, Assistant Passenger Traffic Manager C.P.R., Winnipeg.

Howard G. Kelley, whose portrait appears on the first page of this issue, was born in Philadelphia, Pa., Jan. 12, 1858, and entered railway service in 1881, since when he has been, to 1884, Assistant Engineer on location, construction and bridge construction Northern Pacific Rd. Western and Pacific Divisions; 1884 to 1887, engaged in mining; 1887 to Jan., 1890, Resident Engineer and Super-



intendent of Bridges and Buildings, St. Louis Southwestern Ry. System, including the St. Louis Southwestern Ry. of Texas; Jan., 1890, to Mar., 1898, Chief Engineer same road; Mar., 1898, to July, 1907, Chief Engineer Minneapolis and St. Louis Rd., and from July, 1900, to July, 1907, also Chief Engineer Iowa Central Rd., and from Mar., 1898, to Mar., 1899, also Consulting Engineer St. Louis Southwestern Rd.; from July, 1907, Chief Engineer G.T.R., Montreal. He is a Member of the Institute of Civil Engineers of Great Britain, and of the American Society of Civil Engineers, and served two terms as President of the American Railway Engineering and Maintenance of Way Association.

Robt. Kerr, who has retired from the position of Passenger Traffic Manager C.P.R., was the guest of a number of representatives of various transportation companies, at dinner, Sept. 30, at the Windsor Hotel, Montreal, when he was presented with a grandfathers' clock with full set of chimes. The committee which had the arrangement in hand, consisted of:—G. T. Bell, Assistant Passenger Traffic Manager, G.T.R.; G. Hannah, General Passenger Agent, Allan Line; R. F. Macfarlane, General Passenger Agent, White Star-Dominion Line; W. Stitt, General Passenger Agent, C.P.R.; T. Henry, Manager Richelieu & Ontario Navigation Co.; V. G. R. Vickers, Superintendent Dominion Ex. Co.; W. A. Cooper, Superintendent Sleeping, Dining and Parlor Cars Service, C.P.R.; Guy Tombs, General Freight and Passenger Agent, Canadian Northern Quebec and Quebec and Lake St. John Rys.; F. J. McClure and W. A. Coates, General Passenger Agent, and General Freight and Passenger Agent, Donaldson Line; N. Mooney, General Agent Passenger Department, New York Central Lines; J. O. Apps, General Baggage Agent, C.P.R.; H. R. Charton, General Advertising Agent, G.T.R.; W. T. Robson, Advertising Agent, C.P.R.; W. G. Annable, General Passenger Agent, C.P.R. Steamship Lines, and F. M. Southam, of the Southam Press.

**Quebec Central Ry.**—For the year ended June 30 the directors announce a dividend of 2%, or 10s. per £25 share, this being the first distribution on this issue since the company was formed. The net revenue for the year was \$351,900, an increase of \$55,100, and after meeting all interest charges, there remains a surplus of \$70,800, which, added to \$46,300 brought forward, gives a total credit balance of \$117,100. The 7% income bonds are now quoted at 116, and on this basis the yield is 6%, the company has the right, however, to pay off the issue at par at the commencement of 1922. The capital stock stands at 16, which, on the basis of the dividend now declared, represents a return of 12½%. The outlook for the current year is fairly satisfactory, and it is possible that, now a commencement has been made with dividend payments, the company will achieve considerable progress during the next few years.—Canadian Gazette.

J. W. Gerell, formerly Manager Toronto Shipyards, has been appointed Assistant Manager Polsons Iron Works, Toronto.

A Montreal press report of Sept. 28 states that C. Murphy, heretofore General Superintendent Eastern Division C.P.R., Montreal, has been appointed General Superintendent of Transportation C.P.R. Eastern Lines, Montreal.

M. O. Robinson, heretofore C.P.R. Resident Electrician, at Fort William, Ont., was appointed Manager of the Port Arthur-Fort William Electric Ry., by the joint street railway board, Sept. 7. His salary is fixed at \$175 a month, and his appointment dates from Oct. 1.



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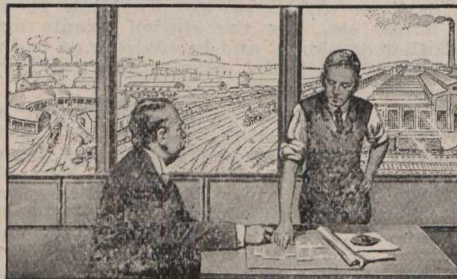
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**Railway Rolling Stock Notes.**

The Nova Scotia Construction Co. has received one four-wheel locomotive from the Montreal Locomotive Works.

The Fraser River Lumber Co. has ordered 50 flat logging cars from the Canadian Car and Foundry Co., Montreal.

The Dominion Coal Co. has ordered 50 all steel hopper cars from the Canadian Car and Foundry Co., Montreal.

The Intercolonial Ry. has received two consolidation locomotives from the Canadian Locomotive Co., Kingston, Ont.

The Western Canada Power Co. has purchased a 40-ton locomotive for its line from Ruskin to Stave River Falls, B.C.

The Canada Cement Co. has ordered four 50-ton steel hopper cars from the Canadian Car and Foundry Co., Montreal.

The Canada Iron Corporation has ordered 60 steel ore cars, 50 tons capacity, from the Canadian Car and Foundry Co., Montreal.

The Canadian Malting and Brewing Co. has ordered one 30-ton refrigerator car from the Canadian Car and Foundry Co., Montreal.

The International Ry. of New Brunswick has ordered one special passenger car from the Canadian Car and Foundry Co., Montreal.

The Canadian Bridge Co., Walkerville, Ont., has ordered two 40-ton steel flat cars from the Canadian Car and Foundry Co., Montreal.

The Portland Canal Short Line Ry. has received two box cars, 30 tons capacity, from the Canadian Car and Foundry Co., Montreal.

G. W. T. Nicholson, St. Timothee, Que., has received one four-wheel locomotive from the Montreal Locomotive Works.

The C.P.R. has ordered two rotary snow plows from the Montreal Locomotive Works. They will be more powerful than any yet built.

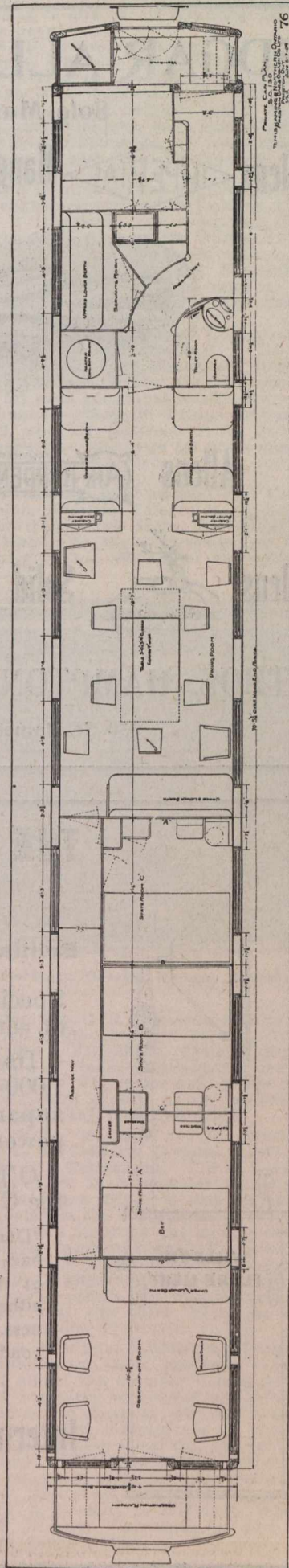
The C.P.R. has ordered 20 steel tank cars, two 40-ton experimental drop bottom cars for grain, and five all steel snow plows, from the Canadian Car and Foundry Co., Montreal.

The British Columbia Electric Ry. has ordered 25 flat logging cars, 40 tons capacity, from the Canadian Car and Foundry Co., Montreal.

The Canadian Northern Ry. recently ordered from the Canadian Car and Foundry Co., Montreal, 10 first class cars (being built at Amherst, N.S.), five baggage cars, 630 box cars, 30 tons capacity (115 of which have been delivered), and four dining cars (one of which has been delivered).

N. Curry, President Canadian Car and Foundry Co., in an interview at Montreal, Sept. 16, said that during the present year the company will turn out 12,000 cars, even if no further orders are booked. Of this number 4,000 cars have already been delivered. The company's three plants, Mr. Curry added, are running to their fullest capacity.

The new parlor cars which the G.T.R. is building at its Point St. Charles shops for use on the International Limited, will be 73 ft. long over end sills, and will be equipped with cast steel body bolsters, extra heavy beams and steel platforms. The trucks will be of six-wheel type, with 38 in. Krupp steel tires and steel bolsters. They will have high speed air brakes and air signals, and be heated with straight steam from the locomotive, electric lighting and electric fans. The parlor will be finished in African mahogany, with inlaid and marquetry design, with trimmings of statuary bronze; carpets in two toned green,



Temiskaming and Northern Ontario Railway Commissioners' Official Car. Floor Plan.

with chairs upholstered in green plush, and green leather in the smoking room. Each of the cars will have a library, free to the occupants, with the latest books, and the whole will be equipped with the most approved appliances for comfort and convenience.

The new dining cars which the G.T.R. has recently built at its Point St. Charles shops, for the International Limited, are equipped with six-wheel trucks, fitted with 38 in. Krupp steel tires and steel bolsters, steel platforms with standard wide vestibules, high speed air brakes and air signals, heated with straight steam from the locomotive and with cooking ranges. They are lighted by electricity, and the dining rooms are finished in African mahogany, with accommodation for 30 diners in each. The kitchens are equipped with the most improved devices for expeditious service, and special arrangements have been made for a supply of water under air pressure. Following are the chief dimensions:—

Length over end sills	70'	7"
Length over buffers	78'	7"
Extreme width	10'	1 1/2"
Extreme height	14'	6 1/2"
Total inside length	69'	10"
Length of dining room	32'	6"
Width of dining room	8'	8"
Length of kitchen	15'	10"
Width of kitchen	6'	7"

The Intercolonial Ry. is building, at its Moncton shops, N.B., one stores car with steel underframe, made by the Canadian Car and Foundry Co., Montreal, and six cabooses, of which the following are the chief particulars:—

Stores Car.	
Length over end sills	41' 0"
Width over side sills	9' 15 1/8"
Height, top of sills to under side of plates	7' 9"
Length inside	40' 2 3/8"
Width inside	8' 6"
Outside of end sill to centre of body bolster	5' 6"
Centre to centre of cross frame tie timber	9' 0"
Height, top of rail to centre of drawbar	2' 10 1/2"
Wheel base of truck	5' 6"
Door openings	3' 0"
Distance between truck centres	30' 0"
Underframes	Steel
Truck bolsters	Simplex
Journal boxes	McCord
Air brakes	Westinghouse

Six Cabooses.	
Length over platform sills	35' 6"
Length over nailing strips on end sills	30' 0"
Width over nailing strips on side sills	9' 0"
Height, top of nailing strips to under side of plates	6' 8"
Length inside	29' 6 1/2"
Width inside	8' 6 1/2"
Height inside, top of floor to under side of carlin	7' 1 1/4"
Outside of end sill to centre of body bolster	5' 0"
Centre to centre of cross frame braces	6' 4"
Height, top of rail to centre of drawbar	2' 10 1/2"
Wheel base of truck	5' 0"
Door opening, side	2' 10"
Door opening, end	2' 3"
Distance between truck centres	20' 0"
Platforms	Standard Coupler Co.
Journal boxes	McCord
Air brakes	Westinghouse

The Temiskaming and Northern Ontario Ry. has added to its rolling stock a private car, named Sir James, which has been built by the Preston Car and Coach Co., Preston, Ont., for the use of the members of the Commission. It is unique, and is said to be the first of its kind, either built or used, in Canada. The underframe is entirely of steel, the centre member being a box girder, composed of two 20 in. channels, extending continuously from buffer beam to buffer beam, boxed top and bottom, with 1/2 in. by 20 in. steel. The draft gear is encased in the end of the box girder. On the side framing, which is of structural steel cased with wood, is a steel plate, extending continuously from end to end of the car, and from the outside sill to the sash stool. On the top of this is rivetted a compression member of 3/4 in. by 6 in. steel extending from end to end of the car body. There are no under



truss rods of any description. The trucks are composed entirely of steel, each having four side bearings. On the top of each journal box there is an equalizing spring soft enough to take care of all the inequalities of the rail, and still not stiff enough to communicate the jolt to the car. It is equipped with Westinghouse air brakes, with 18 ins. cylinder, and is lighted with Pintsch gas and electricity. The electric current is obtained from a Tate bifunctional accumulator storage battery, which is said to be the first of its kind to be used for car lighting. The battery weighs 500 lbs., and it will light continuously, fifty 16 c.p. lamps and operate nine fans for 24 hours. The Safety Car Heating and Lighting Co.'s system of heating is used, with two water tanks, 24 by 120 ins., with hot and cold water throughout the car. The interior is finished in quartered oak, inlaid with white holly and ebony of plain design, all polished. The observation room is situated in the rear, with an open platform. There are three staterooms, dining room, two sleeping sections, heater room, servants' room with upper and lower berths, toilet room and kitchen. The observation room is equipped with a speed indicator and air gauge piped direct from the train line and back of the cylinder, so that observations can be made. The car is similar in most respects to one in use on the Pennsylvania Rd.

#### Among the Express Companies.

A. C. Thorn, heretofore agent Dominion Ex. Co., at Halifax, N.S., has been appointed city agent at Quebec, vice H. Henderson, resigned.

J. H. Greig, heretofore assistant cashier Dominion Ex. Co., Montreal, has been appointed agent at Halifax, N.S., vice A. C. Thorn transferred to Quebec.

The Canadian Northern Ex. Co. has opened offices at Cromer, Durban, Grays, Hilton, Ladysmith, Pleasant Point and Rounthwaite, Man.; Candian, Carlesburg, Jameson, Kendal and Pelly, Sask.

G. H. H. Nase has been appointed Route Agent Canadian Ex. Co., with charge of routes 55, 56, 57 (Moncton to Sackville inclusive), 58, 59, 65, 90, 92, 93, 94 and 95, with headquarters at St. John, N.B., vice J. H. Parr transferred to Montreal.

We are officially advised that the Canadian Northern Ex. Co., has not yet made any direct appointments in connection with its eastern business. The express service on the Canadian Northern Ontario lines, is under the jurisdiction of A. J. Hills, Superintendent C.N.O.R., Toronto, and on the Quebec lines, it is under the supervision of W. A. Kingsland, Auditor C.N.Q.R., Quebec.

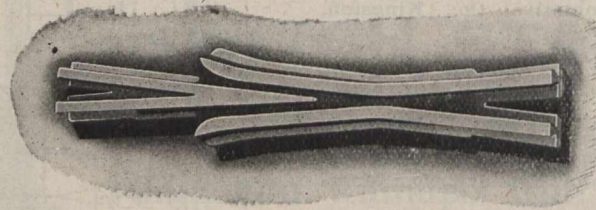
The Dominion Ex. Co., in announcing that, from Sept. 1, it operates over the Dominion Atlantic Ry. in Nova Scotia, and over the Dominion Atlantic Steamship Line St. John to Digby and Yarmouth to Boston, states that waybills will be made for shipments to and from any former Maritime Ex. Co.'s offices at rates obtained by adding to the local rates to Halifax, St. John or Truro, the rates shown in transfer tariffs from such points to destination, graduating once under the aggregate through rate per 100 lbs. For the steamship service between Yarmouth and Boston, until further notice, business originating west of Vanceboro, and any business for Boston requiring all rail service, will be routed as heretofore.

The Nova Scotia Temperance Act of 1910, in sec. 10, provides that no common carrier, express company, or other carrier, shall accept from any person in any part of the province, any package containing intoxicating liquor for carriage, or delivery to any person, in any


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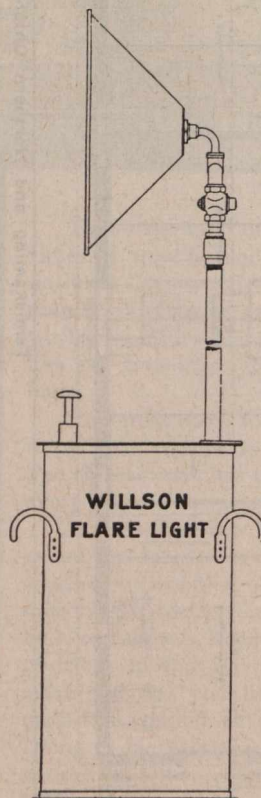
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municipality in which the act is in force, other than to a vendor duly appointed under the provisions of part 1 of the act, or a legally qualified physician, chemist or druggist. Sec. 11 provides that every package of liquor so shipped, or offered for carriage, shall bear in some conspicuous place, a label containing in full the name and address of the person shipping the package and of the person to whom the package is to be delivered, and the character and quantity of the liquor contained in the package. Sec. 32 provides for the enforcement of a penalty of not less than \$20 nor more than \$50 for each offence, under secs. 10 and 11. The act is in force in every part of Canada in which the Canada Temperance Act is not, excepting Halifax county and city and Richmond county, in which places, the act comes into force on the expiration of the existing licenses.

The Dominion Ex. Co., following the acquirement of the Dominion Atlantic Ry. by the C.P.R., has succeeded the Maritime Ex. Co., which operated over the D.A.R., from Halifax to Yarmouth, 215 miles; Windsor to Truro, 57 miles; Kentville to Kingsport, 13 miles; and the Dominion Atlantic Steamship Line, between St. John, N.B., and Digby, N.S., and Yarmouth, N.B., and Boston, Mass. The number of offices taken over is 50. An office will be opened at Boston, Mass., under the name of the Western Express

charged by the telegraph companies operating in and out of Winnipeg set aside, was heard.

A. B. Smith, Manager G.T.P. telegraphs, while in Fort William, recently, is reported to have said, that the telegraph lines between Fort William and Winnipeg, and between Lake Superior Jct., and Winnipeg, were completed. The line is also being erected westward, concurrently with the construction of the railway.

The Dominion Government has a staff of engineers engaged in locating a route for a telegraph line along the Skeena River to Stewart on the Portland Canal. It is stated that this connection for Stewart will follow up the Kitsumkalum valley, across the Naas valley to Alice Arm, and from thence to the Portland Canal and Stewart.

The Board of Railway Commissioners has approved Tariff C.R.C. 1, the local tolls, of the Anglo-American Telegraph Co. The rate is 25c. for 10 words and 2c. for each additional word, between the company's offices in Prince Edward Island, and also between P.E.I. and New Brunswick. The rates for press messages are 25c. for 100 words, and ¼c. for every additional word.

We are officially advised that the Dominion Wireless Telegraph Service has been transferred from the Department of Marine to the Department of Naval Service. The officials of the telegraph

The Pacific Cable Board's report for the year ended Mar. 31, shows that 115,663 messages were dealt with against 103,812 in the previous year, the number of words being 1,356,135 against 1,225,048. One of the increases was in press messages, due to the decrease in rates, as a result of the negotiations of the Imperial Press Conference held in London, Eng., last year. The chief increase, however, was in ordinary messages, amounting to about 10%. The total receipts were £111,723, with a credit balance of £17,956. The traffic receipts show an increase of £403, but owing to transfer delays, £2,211, which should have been credited to 1909-10, has had to be included in the current year's accounts. The report states that difficulties, largely geographical and climatic, with the land lines in Canada, have been spoken of in previous reports, after full consideration, the Board has come to the conclusion that much could be done to minimize these if it had in its own hands the working of the line between Bamfield and Montreal. It has, accordingly, entered into an agreement with the C.P.R. for a lease, exclusively, for five years, of a line between these points, which the company is to maintain in good condition, while the Board provides the working staff and retains such portion of the tolls as have hitherto been paid to the C.P.R. This arrangement, it is claimed will have several advantages,



Temiskaming and Northern Ontario Railway Commissioners' Official Car.

Co. The territory taken over has been added to the Dominion Ex. Co.'s Atlantic Division, of which V. G. R. Vickers is Superintendent, as well as Superintendent of the Western Ex. Co. F. W. Branscombe, route agent, has been placed in charge of the new territory, and he will be assisted for a time by T. R. McKenzie, route agent. The D. A. R. agents will act as express agents at all stations, except at Truro, N.S., where F. Fennell, Dominion Ex. Co.'s agent, has taken charge; Halifax, N.S., where J. H. Greig has been appointed; St. John, N.B., where J. R. Haycock has been appointed, and Yarmouth, N.B., where an exclusive agency has been established, in charge of A. M. Steves. The Western Ex. Co.'s agency at Boston, Mass., has been placed in charge of J. F. Masters.

#### Telegraph and Cable Matters.

The Canadian Northern Telegraph Co. has opened offices at Cromer, Durban, Grays, Hilton, Ladysmith, Pleasant Point and Rounthwaite, Man.; Candian, Carlesburg, Jameson, Kendal and Pelly, Sask.

At a sitting of the Board of Railway Commissioners held in Winnipeg, Sept. 22, the application of the Winnipeg Board of Trade and of the Winnipeg Grain Exchange to have the tariff of tolls

service, are, C. P. Edwards, Superintendent of Radio-telegraph Service, Ottawa, and E. J. Haughton, District Superintendent of Radio-telegraph Service, Victoria, B.C. The latter has charge of the Pacific coast branch of the service, and reports to the Superintendent.

J. Kent, Manager C.P.R. telegraphs, and B. S. Jenkins, General Superintendent of Telegraphs, C.P.R. Western Lines, were in Vancouver recently, on an inspection trip. It was stated that the delay in the completion of the cable, which will improve the communication between Vancouver and Victoria, was due to manufacturers in the east being unable to ship material, owing to congestion of orders. It was, however, expected that the cable would be ready for operation by Oct. 1.

The Dominion Wireless Telegraph-Telephone Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of \$40,000 and offices at Windsor, to deal in wireless telegraph and telephone instruments, to erect and operate wireless telegraph and telephone systems, and to conduct a general wireless telegraph and telephone business for hire. The provisional directors are:—J. Clark, A. Beckett, S. Anderson, Windsor; L. F. Boomer, Cleveland, O., and T. E. Clark, Detroit, Mich.

keeping, at all times, a clear line for the Board's messages and allowing the adoption of the Continental system of operating, thus involving less risk of error in transmission than the American system.

#### Grain Elevator Notes.

The Brown Brothers Elevator Co., has been incorporated under the N.W.T. Companies Ordinance, with a capital of \$10,000 and offices at Regina, Sask.

The Dominion Premier is reported to have stated, while on his western tour, that the Government would build an elevator at Prince Rupert, B.C.

The Alberta-Canadian Elevator Co. is reported to have leased a storehouse in New Westminster, B.C., while it is arranging to erect an elevator there.

The contract for the erection of a 200,000 bush. elevator at Sudbury, Ont., costing \$135,000, is reported to have been placed with the Barnett and Record Co.

The Suplee Elevator Co., has been granted a license to do business in the province of Quebec, with its chief place of business at Montreal, and R. F. Ogilvie, as its principal agent.

The Saskatchewan Elevator Commission returned to Regina recently, from a



trip to several U.S. western cities, where enquiries into the shipping and general elevator conditions were made.

D. Horn, Grain Inspector at Winnipeg, is reported to have resigned, to accept the managership of King's elevator at Port Arthur, Ont., which was operated jointly by the C.P.R. and the late J. G. King.

The G.T.P. Elevator Co.'s elevator at Fort William, Ont., was operated for the first time, Sept. 9, when the first grain was passed through. This elevator was fully described in our Jan., 1909, issue, and illustrated in our Aug., 1909, issue.

The Manitoba Elevator Commission has purchased three elevators from the Western Elevator Co., the Winnipeg Elevator Co., and the Farmers Elevator Co., all of which are situated at Underhill, with a combined capacity of 105,000 bush. It is stated that only one of these will be open for business this season.

The Dominion Millers' Association, at its annual meeting at Toronto, Sept. 2, passed a resolution that the association should co-operate with the Grain Growers' Association of the Northwest, and with the exporters to make proper representation to the Government towards taking over the terminal elevators at Fort William and Port Arthur.

The W. B. McKay Co., has been incorporated under the New Brunswick Companies Act, with a capital of \$49,000 to purchase and carry on the business heretofore conducted at Sussex, N.B., as W. B. McKay & Co., and in connection therewith to erect and operate grain elevators. The provisional directors are, W. B. McKay, C. D. Davis, G. B. McKay, C. H. Perry, and M. McKay, Sussex, N.B.

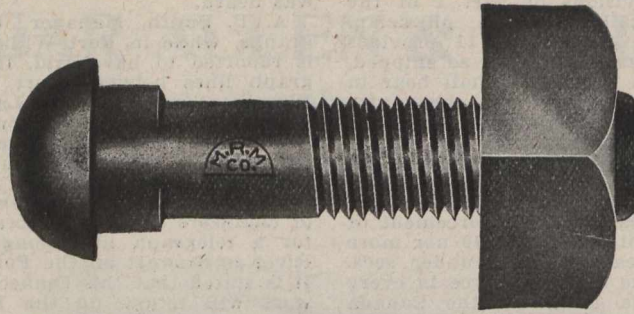
The grain elevator capacity at Montreal, according to the Montreal Harbor Commissioners' report for 1909, includes six elevators, with accommodation for 4,100,000 bush., as follows:—Harbor Commissioners' no. 1, 1,000,000 bush.; Montreal Warehousing Co., A, 500,000 bush., B, 1,000,000 bush., C, 600,000 bush.; C.P.R., A, 500,000 bush., B, 500,000 bush.

The Montreal Harbor Commissioners' report for the year ended Dec. 31, 1909, just issued, shows that 11,554,262 bush. of grain were handled at the elevator during the year, against 8,661,350 bush. in 1908, and 1,078,289 bush. in 1907. From the commencement of the season, the elevator was worked day and night, and on several occasions was unable to deal with the grain offered.

Work on the preparation of the site for the erection of the Montreal Harbor Commissioners' elevator at Montreal, is progressing rapidly. It is stated that about one half of the foundation work has been completed. The bed is of concrete, re-inforced with steel. This work will be continued as long as the weather permits, the wood work being prepared during the winter, so that the whole may be rushed early in the spring. In connection with the elevator, two jetties will be built for the accommodation of two vessels, and the elevator will be connected with the existing grain carrier system.

The Armstrong Towing Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of \$40,000 and office at Cache Bay, to carry on a towing, rafting, wrecking and general shipping and forwarding business. G. Grant, A. Dods and B. Williams, Toronto, are the provisional directors.

The repairs and improvements at lock 17, Cornwall canal, are about completed. A new weir has been built west of the lock gates to effect a better regulation of the flow of water. This will not be used this season, as some clearing work remains, which cannot be accomplished until the canal is drained off.



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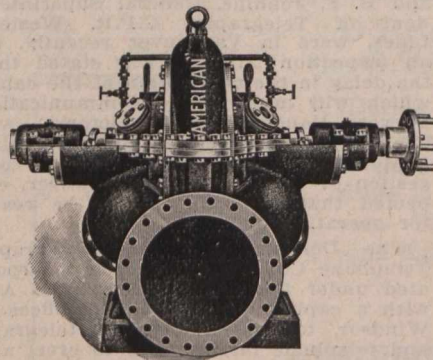
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## Street Railway Track.

By Guy Boyer, Superintendent of Construction, Montreal Street Railway.

Track construction, and its maintenance, is an important subject, and the matter has been so fully written up and discussed that it is difficult to add anything new. I do not intend to go into the various details, but will endeavor to make a few brief comments, in regard to track foundation, and its maintenance.

The reconstruction of track in a large system like that of the Montreal St. Ry. is a difficult problem, and it is made more difficult, on certain streets, over which the cars of various routes travel, making a minute and a half headway between cars, the traffic cannot be conveniently diverted to other streets. Taking it for several months back, the average number of passengers carried, during 24 hours, amounts to 331,581.

In regard to the use of concrete for track foundation, it is my contention that there is only one way to make it satisfactory, in a climate where we have such extremes of heat and cold, as in Montreal, that is the concrete is of little use as a foundation for track, if we do not go below the frost line. This, you are all aware no company could afford to do, as the expense would be too great.

A method of construction we have adopted today, is as follows: We adapt ourselves to conditions. Where we open up a piece of track, to renew the rails, and find that the foundation is good, with ties that are sound, and fairly well bedded in concrete, they may have settled in places, we clean off all loose material, lay our rails, bring them to correct new surface, with oak shims placed over the old wood ties, then tamp up the rails with a slightly moistened mixture of cement, sand and fine gravel, or crushed stone, in the proportions of 1 cement, 3 sand and 8 gravel. The heavy traffic is allowed over the rails, which helps the tamping and indicates when it is uniformly well done. After the rails have been tamped, and retamped, until practically no movement can be detected, a layer of concrete is put down to raise between the rails, and the strips outside, to the proper height. The layer of concrete forms an even hard surface to support the blocks. Room must be left for at least half an inch of sand to cushion the blocks.

We have found that pitch as a filler for spaces between the blocks has cost us a great deal of money, and it has proved practically worthless. This may be due to poor quality of pitch, extreme heat and cold, and probably to use of salt. Owing to the fact that the pitch has not given satisfaction, we are now using a cement grout as a filler, and have found it will prevent water from getting under the blocks. In Montreal, where we lack drainage underneath the foundation of our tracks, water, frost, and heavy traffic all tend to destruction of track.

The surface drainage of streets is also an important matter. I have observed where the streets are nearly level, and improperly crowned, after a rain storm, the water has laid on the surface of our track, and after some time, has apparently filtered through the foundation and put the track in bad shape. For an example of this, take any road, I don't care where, and notice the track laid on the hills, with quite a steep grade, where the strain on the rails and joints is greater than on a flat street, and I think you will agree with me that the foundation of tracks holds up better, owing to the water draining off rapidly.

The construction we have adopted for streets about to be paved; and for streets already paved, where the original foundation is found defective, is to put in ties, spaced 18 ins. apart, then dig out all soft clay or other poor material, so that at no point will there be less than six inches of well rammed stone or good material underneath the ties. The coarser grades of stone are placed in the bottom and pounded in layers. Finely crushed stone is used on top and the ties tamped and retamped, until brought as near as possible to a uniformly solid bearing. The uniformly, well pounded stone bed, is prepared so that there is a slight depression around the sides and ends of the ties, in order to insure that sufficient cement from the concrete will find its way to their base, sides and ends, to preserve the wood, and at the same time give the concrete a chance to grip the convex sides of the ties. When the traffic has demonstrated that all the ties show practically no movement, the space inside and outside the rails is filled with concrete to the height required for the kind of block used, space being left for a cushion. We feel satisfied that this kind of foundation will allow the rails to spring slightly, which seems to be necessary, and at the same time will form a good foundation for the blocks. Offset drains from the stone foundation under the tracks, should be placed at all depressions in the street to carry off to the sewers any surface water from leaks in the water-mains, or service pipes. This is a matter the city should give attention to.

If slight settlement takes place at the joints or elsewhere, I feel confident that with the ties to shim on, or repacked if found necessary, that repairs can be made better and at a much less cost.

The contention, a few years ago, was that the more rigid the foundation the better the track, but we have found out since that the more rigid the track the more expensive the maintenance, as the life of the rails is reduced to a minimum. For example, take an intersection laid in concrete and an intersection laid in macadam with ties. There can be the same amount of cars passing over each one and the one in macadam will wear several years longer. It stands to reason that the more rigid you have a diamond or any part of an intersection or any piece of track, the quicker it will wear out. Take for example a piece of steel: put it on a piece of wood and hammer it, you do not dent the steel. Put the same piece of steel on an anvil where there is no cushion and you will soon find that the steel bears an impression.

Our great trouble is keeping the track in proper repair, and I want to draw attention to a few causes of the rapid destruction of track. I contend that any car allowed out on service, with one or more flat wheels, instead of bringing in a revenue, is causing a deficit, owing to the damage it does to the track. Trucks out of square are bad. Cars stiff on the friction plates use up extra power and wear out the rails on curves very rapidly. The weight and the speed of cars require our special attention.

Another thing which tends to make bad places in the track is the numerous excavations made adjacent, parallel, and

sometimes underneath, for sewers, water and gas pipes, conduits, etc., also open cuts and tunnels made at right angles under the tracks. We have kept a record of cuts made underneath the tracks since July 1, 1907, and up to May 31, 1910, we have recorded 3,315. These cuts average practically 10 ft. damage to our track, making 6 miles of defective track in three years or two miles a year. Trouble is sure to develop, in course of time, at each place where a cut is made, resulting in a nasty sag in the track, causing the pavement to break up. The bad places that arise from the last named source are apt to be put down to faulty track construction. By referring to the record of cuts, the real source of the defects can be accounted for. It seems to me that any street railway company could justly demand compensations from the city, company, or individual, which made an excavation that caused damage to the track foundation.

## The Toronto Tube Question.

Messrs. Jacobs and Davies, consulting engineers of New York, were instructed May 25 to report for the information of the Toronto City Council their views as to the necessary arrangements for handling the traffic, having in mind the present system and the city's rights to construct tubes in the central part and surface lines in the outlying districts, and also their views in regard to the likelihood of such an undertaking being self-sustaining, making the estimate of the cost of construction, equipment and maintenance and probable business, and their views as to the most feasible location of such tubes and surface railways.

In their report, dated Aug. 25, a summary of the history of the Toronto Ry., the Toronto and York Radial Ry., and the Toronto Suburban Ry., is given, with details of their lines and operation. It is pointed out that the different lines are of different gauges, as follows:

Toronto Railway	4 ft. 11 in.
Toronto and York Radial Ry.	—
Metropolitan division	4 ft. 8½ in.
Scarboro and Mimico divisions	4 ft. 10¾ in.
Toronto Suburban Ry.	4 ft. 10¾ in.

Referring to the service given by the existing lines, the report says:—

"The traffic situation in Toronto is such that it will be one growing only in the northerly radiations in relation to the business centre; also there can be little question but it will grow fast; and unseemly congestion in the streets may be avoided even with profit financially by the adoption of subways in the not far distant future. Comparatively speaking, there is no unusual congestion of traffic, the only congestion at the present time being chiefly confined to Yonge St. Congestion will of course grow, and it will be admitted that the fewer public railways on the surface of the streets the more presentable the city, and the freer also will be the surface for proper conduct of other classes of traffic, and the better able will the trolley lines be to conduct the business of distribution with comfort to the public. We have carefully studied the present street railway system, and we find that so far as the supply of cars, the routing, and the general conduct of the system are concerned, we see no occasion to suggest any improvement. Slight exception might be taken to the number of routings on Yonge St., and it might be possible to select parallel streets for a few of these routes, though it must be more apparent to you than to us what may be done or possible in this direction. The quality and comfort of many of the cars, particularly of the trailers, admits of improvement. Congestion is a comparative term, and it must be admitted, in comparison with other cities, we have observed a very small proportion of the passengers have to stand, and that only for a small part of the journey. There is no reason, however, why Toronto



should suffer any discomfort in its transit facilities because other cities do, and additional and better cars can most certainly be welcomed. It seems that conditions attaching to the franchise do not permit of an understanding between the city and the railway company whereby passengers may—on a single 5c. fare—obtain transportation within a radius of say from 6 to 8 miles from the City Hall. On the other hand, Toronto, being about 10 1/4 miles in extreme length by 3 1/4 miles in width, is a most unusual city in the fact that for its population it extends over a very large area, making it, what it seems to be, an exceedingly open, attractive and healthful city, but for that very reason it makes transit to some extent more expensive to operate because of longer distances to travel.

After reviewing the whole situation and comparing Toronto with United States and European cities, the engineers submit the following solutions of the problem:—

Scheme 1—This is what we consider the most ideal subway system following the lines of the present streets that could be laid out; that is to say, it is comprehensive and would form part of a circular system which the city may require at some future date. This circular system would be a complete subway ring, with its northern part along St. Clair Ave. and its lower eastern portion passing through Broadview, Danforth and Woodbine, while its western portion would find its way from the foot of Yonge St. to Keele terminus via the busiest streets of wards 4, 5 and 6. The northern portions of this circular system would be outside the city limits of 1891, and radial lines feeding and being fed by the circular rapid transit subway would expeditiously convey passengers during the day and perhaps goods and merchandise during the night into the heart of the city. The scheme is divisible into three main portions: A line down Yonge St. from St. Clair Ave. to Wellington St.; a line from Broadview and Danforth to Front and Yonge; a line from Front and Yonge to Dundas and Keele at the north-west corner of the old city limits.

Our estimate for this scheme, considered and constructed as a whole, is \$23,470,000, including equipment, car yards, converting station, land, contractors' profits, engineering, and carrying charges during construction; of this amount \$16,755,000 is for construction of subways and stations and installation of track, and \$903,000 is for carrying charges during construction. If the project is divided for the purpose of construction and operation into three component parts—the arms radiating from near the south of Yonge St.—the cost would be somewhat higher, and the estimate comes to for section (a) \$6,100,000, of which \$4,180,000 is for construction and track, and \$232,000 is for carrying charges; for section (b) \$11,350,000, of which \$8,187,000 is for construction and track, and \$436,000 is for carrying charges; for section (c) \$6,235,000, of which \$4,189,000 is for construction and track, and \$240,000 is for carrying charges. This makes the total cost of scheme 1, considered as three sections, \$23,685,000.

The subway system just outlined would be incomplete without an additional system of radial surface lines outside the city limits of 1891. The following routes may be recommended: Lines to the north from St. Clair Ave. on Bathurst St. and Lakeview Ave; lines to the northwest from Keele terminus via St. Clair Ave. and Jane St.; lines to the east from Broadview and Danforth terminus, passing along Danforth with branches to the north via Leslie St. and Woodbine Ave. This would open up a large territory north of Danforth Ave. Consideration of the exact routes of these radial lines can be matured later, the main point being to extend them into territory now unserved.

Scheme 2 consists of a line running up Yonge St. from near the Union Station to

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St. Clair Ave. We have selected three alternative routes for this, and our object in doing so has been to see how low a cost could be reasonably expected for such a line. The three routes are as follows: (a) On Yonge St.; (b) on Teraulay St.; (c) on Victoria St. and Yonge St. The object of (b) and (c) is to pass through as much length as possible in streets that have no car lines on them, thus reducing the cost of construction.

Scheme 2 (a): There are seven stations on this line, and our estimate for the work, as before, including equipment, contractors' profits, engineering, land, and interest during construction, is \$6,762,000, of which \$4,777,600 is for construction of subways and stations and installation of track, and the amount included for carrying charges is \$260,000.

Scheme 2 (b) by Teraulay St. is a line following a route by which, in order to save cost, Yonge St. is avoided as much as possible. There are six stations on this line, and the estimate of the cost, inclusive of equipment, land, contractors' profits, engineering, and interest during construction, is \$5,540,000, of which \$3,781,000 is for construction of subways and stations and installation of track, and \$213,000 is for carrying charges during construction. This scheme aims at tapping the district between the Metropolitan and the Weston lines in Toronto Junction. Surface lines would be suggested north into St. Clair Ave. and north of that again via Forest Hill Road, Vaughan Road, Bathurst St., etc.

Scheme 2 (c): This scheme follows Victoria St., and like the previous one, avoids the expense of passing under the busiest portion of Yonge St. There are seven stations on this line, and the estimate for the work, including equipment, land, contractors' profits, engineering and interest during construction, is \$6,825,000, of which \$4,819,000 is for construction of subways and stations and installation of track, and \$263,000 is for carrying charges. The extra length over scheme 2 (a) does away with the saving effected by not passing under Yonge St. for its entire length, while the route itself is not so good. Therefore, as between schemes 2 (a) and 2 (c) the former is preferable.

As an addition to either of these routes, we merely suggest the consideration of an eastern branch on the line of Bloor St. This necessitates the building of a double-decked viaduct to connect Bloor with Danforth, and crossing the Rosedale valley road and the Don valley. This is not at all a cheap piece of work, as the viaduct crossing is expensive; however, it links up Bloor and Danforth—which might be a desirable and logical thing to do as a civic improvement—and serves to open up the district north of Danforth. The estimate for this work, not necessarily an adjunct to the simple Yonge St. scheme, is \$2,613,000, including contractors' profits and engineering; of this \$100,000 is for carrying charges and \$1,400,000 is for the viaduct.

Scheme 3—Having outlined certain suggested routes, following the present layout of the city streets, we may make one more estimate. We have been supplied with a map of the city on which are shown two proposed main diagonal streets, going respectively northwest and northeast from near the foot of Yonge St. The estimate for the subway work in this diagonal street scheme is \$17,700,000, of which the amount for construction of subway and stations is \$11,816,000, and that for carrying charges during construction is \$680,000.

The report then deals with various systems of operating the lines, criticising adversely municipal ownership and operation, and favoring the city building the transportation system and letting a company operate it. This method is favored on the grounds that the credit of a municipality is generally better than that of a company, and the latter being better to regulate.

### Quebec Ry., Light and Power Co.

The company is operating 56.22 miles of track, of which 17.22 miles are in the city, and 39 miles are suburban lines. Its rolling stock comprises 35 closed cars and 34 open cars operated on the lines in the city, and 75 cars operated on suburban lines. On the old Quebec, Montmorency and Charlevoix Ry., a steam freight service is also given for which there are 90 flat cars, 16 box cars and one stock car. Five locomotives are owned, which are used not only to operate the freight service but to haul passenger trains off other lines carrying pilgrims to the shrine at Ste. Anne de Beaupre. The company owns the hotel at Kent House, which is being enlarged at a cost of \$50,000, and provides a number of attractions in the Montmorency Falls park.

Extensions of the company's lines are constantly being demanded, and at present two important new lines are under construction. The first of these is an upper level line to Montmorency park, leaving the present line at Beauport, and ascending gradually until the summit is reached, then running along the edge of the cliff to the park. The second new line is nearly complete, and is an extension of the line westerly from the city to the top of Sillery Hill, about 2.5 miles. The directors and officers made an inspection of this line, Sept. 12. A double track had then been laid to Belvedere Road, and a single track for a considerable distance further west. A passenger service was placed in operation Sept. 18 to Montcalm Park, a mile and a half west of Maple Ave., and it was expected that the balance of the line, about a mile, would be ready for the operation of passenger cars early in Oct.

In order to provide for the increasing business on existing lines, and for the operation of the new lines, C. E. A. Carr, General Manager, recently stated that the

company had on order 16 pay-as-you-enter type cars, and was installing additional machinery in its power stations.

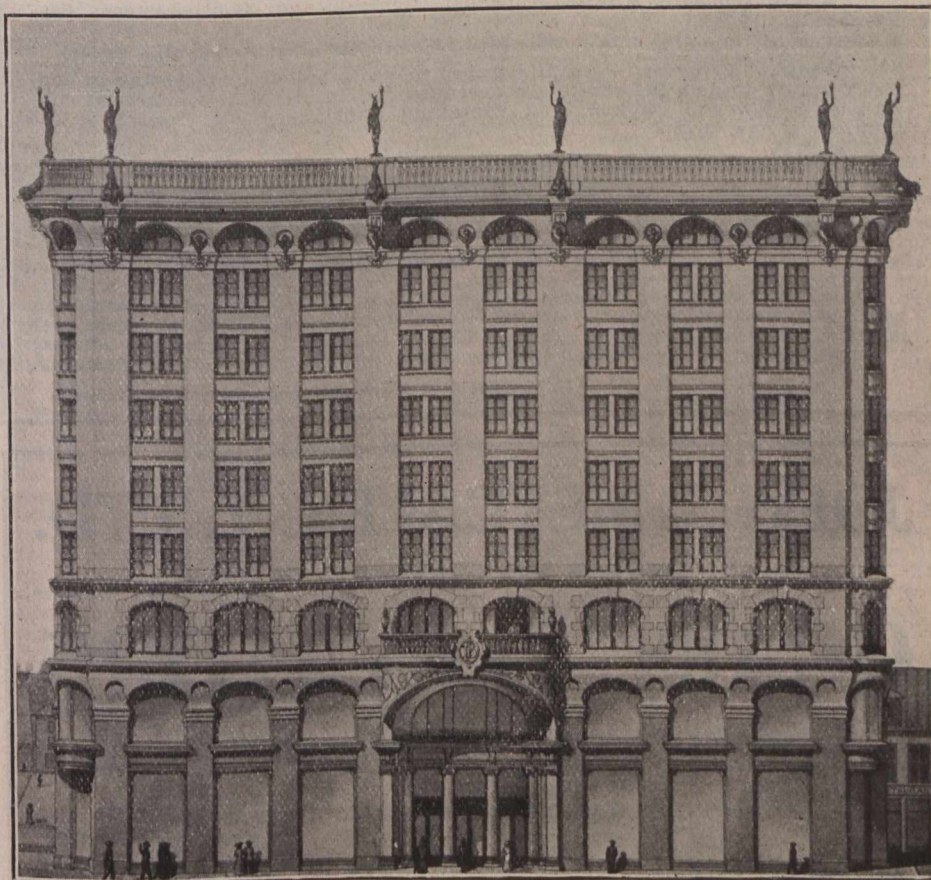
For the purpose of bringing together the entire office and operating staff of the Quebec Ry., Light, Heat & Power Co., and its subsidiary companies including the Quebec Ry. Light & Power Co., an eight storey office building is being erected at the corner of Crown and St. Joseph St. An illustration of this building is given on this page. The building will be of steel with terra-cotta fire proofing for floors and partitions. The first two stories will be faced with granite, and the upper stories, either of granite trim and Scotch brick or terra cotta. The building will have a floor space of about 100,000 square feet. The main portion of the new building will be laid out as offices for the company, and the portions not required for the company's immediate use will be leased. (Sept., pg. 783).

### Projects, Construction, Betterments, Etc.

**British Columbia Electric Ry.**—Plans were submitted to the Vancouver board of works, Aug. 23, showing a number of extensions and new lines which the company had in contemplation in the city. Some of these lines will be built at once, particularly the loop line via Cedar Cottage. The plans have been sent to the city council.

J. C. M. Buntzen, a director of the company, stated in Vancouver, Sept. 2, that the proposal to build a new central station on the site of the present building would have to be postponed for some time owing to the heavy construction programme in hand.

The new service between Vancouver and New Westminster, through Burnaby municipality has been started. The delay in starting it was caused by the straightening and lowering of the track



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near the Wise road on the interurban line. Under the Vancouver Fraser Valley and Southern Ry.'s charter the company proposes to build another line to connect Vancouver and New Westminster. The original plans for the Vancouver end of the line were disapproved by the city, and new ones were submitted Sept. 7. These are under consideration and a satisfactory agreement is expected to be reached at an early date.

The New Westminster board of works recommends the approval of plans for a wharf for the company at the lower end of Eighth St.

On the line from New Westminster to Chilliwack, grading is reported as progressing satisfactorily. The work across the Sumas prairie was expected to be completed Sept. 15, thus finishing the work. The steel laying gang was following close behind the graders and track was expected to be laid into Chilliwack by Oct. 1. The overhead work is being put up between Abbotsford and Sumas prairie, between which point and Chilliwack it has already been completed. The substation at Chilliwack is expected to be completed by Oct. 1, and the substations at Clayburn and Majuba Hill are also well advanced.

Plans have been prepared for a new car barn at Third St., first east of St. Davids Ave., North Vancouver.

Work on the extension in Point Grey is being progressed with, and it is expected that the Oak St. and Alma Road lines will be completed this year.

A party of engineers has started work on a survey for a route for a line along the Dyke Road towards Port Guichon. F. R. Glover, Assistant General Manager, stated at a dinner given to the Vancouver Board of Trade at Ladner, Aug. 30, that sooner or later the company would have a line through that country. The only obstacle in the way was that the building of a bridge over the Fraser River was a big undertaking for so short a line as this would be. The company's engineers were collecting data preparatory to giving an estimate on the cost of a structure for the Delta line.

We are advised that the company has in contemplation the building of an electric railway in the Saanich district, from Victoria to the northerly point of the peninsula, 22 miles. Preliminary surveys have been made for this line by C. E. Cartwright, C.E. It has not been definitely decided whether the line will be built. (Sept., pg. 781.)

**Grand Valley Ry.**—The Brantford, Ont., city council has passed a bylaw permitting the Brantford St. Ry., a component part of the G.V.R., to lay a track to the Holmedale district at once, and allowing it to postpone laying the Eagle Place and West Brantford line until next year. The line will go down Church St. to West Mill, and will be used for freight as well as passenger traffic. Tenders are being asked for the work and it is expected to have the line completed by Dec. 15. Some delay is being experienced in the work of track laying, etc., in Brantford owing to the scarcity of labor, and the City Engineer was directed Sept. 3, to endeavor to have the work pushed ahead more expeditiously.

On the Grand Valley section of the line, press reports state that contracts are about to be let for building and equipping a substation at Paris. (Sept., pg. 781.)

**Hamilton, Waterloo and Guelph Ry.**—J. Patterson, who is promoting this proposed electric railway left Hamilton, Ont., for London, Eng., Sept. 15, without having made any announcement as to the probable building of the line. He was reported to have completed financial arrangements for this purpose when he returned from England in Aug. (Sept., pg. 781.)

**Kamloops to Okanagan Lake.**—With a view of developing some extensive gyp-

sum deposits, H. Pearce proposes to obtain power to build an electric railway from Kamloops to Grand Prairie, Vernon and on to Okanagan Lake. The projected line would connect with the C.P.R. and the Canadian Northern Pacific Ry.

**London, Aylmer and Port Burwell Electric Ry.**—Press reports state that J. H. Teall, Tillsonburg, Ont., has completed arrangements for financing the building of this projected electric railway from Port Burwell, via Aylmer to London, Ont. A site for a terminal has been secured on the creek at Port Burwell, and it is reported that the Elgin county council has had plans prepared for building a steel bridge to carry an electric line, across the creek so as to give access to the lake front. The people of Port Burwell, the reports state are looking forward to the starting of construction in the spring.

**London to Sarnia.**—A London, Ont., dispatch of Sept. 21 says: "The proposed London to Sarnia electric railroad, for which ex-Ald. Stewart holds the charter, will be taken over by an English syndicate. It was stated to-day upon first class authority that a syndicate has sent representatives to this country, who have quietly looked over the proposition and been most favorably impressed with it. Several prominent London men will go upon the board of directors."

**The Moncton Tramway Electricity and Gas Co.** has an agreement with the Moncton, N.B., city council by which it may take over the electric and gas plants owned by the city, and operate them for a period of years on a percentage of earnings basis. It has also a franchise from the city for operating a street railway for a period of 40 years from Mar. 26, 1910, the routes to be subject to the approval of the council. The first line to be built will probably be on Main St., from the Intercolonial Ry. station to King St., along King St. to St. George St., then to the Intercolonial Ry. shops and back to the station.

Dr. Henderson, President of the M. T.E. and G. Co., is also President of the Maritime Oil Products Co., which owns petroleum and gas wells on the Stoney Creek district of Albert county, about 10 miles south of Moncton, and proposes to pipe gas to the city for fuel and light purposes.

The officers and directors of the M.T.E. and G. Co. are:—President, Dr. J. A. Henderson, London, Eng.; Vice President, F. W. Sumner; other directors:—Hon. C. W. Robinson, T. Williams, G. R. James, H. M. Wood, Sackville, N. B.; General Manager, O. P. Poggis; Secretary and Treasurer, W. F. Wheeler. Unless otherwise stated, all the officers and directors reside in Moncton. (July, pg. 585.)

**Montreal and Southern Counties Ry.**—In connection with the extension of the line from St. Lambert, we are advised that what is described as the Chambly extension is about a mile of track in St. Lambert, which will have to be laid to connect the present track with the Central Vermont Ry. branch, which has been leased. This extension is expected to be completed next spring. The work of electrifying the C.N.R. branch from St. Lambert to Richelieu is being proceeded with, and it is expected to have it completed by June, 1911. The C.V.R. line extends on from Richelieu to Farnham, on to Granby, and has its terminus at Waterloo, and there is a branch line extending from near Marieville, known as the St. Cesaire branch. It is intended to electrify the line to Granby, and the St. Cesaire branch, but, we are advised, that it may not be done for some time yet.

We are further advised that it is not intended to go on with the building of the Boucherville or Laprairie sections at present. (Sept., pg. 781.)

**Montreal and Toronto Underground Lines and Terminals.**—A. P. Gillies is quoted as stating that the capital for the building of an underground system in Montreal has been underwritten. All that was required, in order to go ahead with the work, was a franchise, and steps, he added, would be taken at an early day to bring the matter before the city council and the board of control. (Sept., pg. 727; and Montreal Central Terminal Ry., July, pg. 549.)

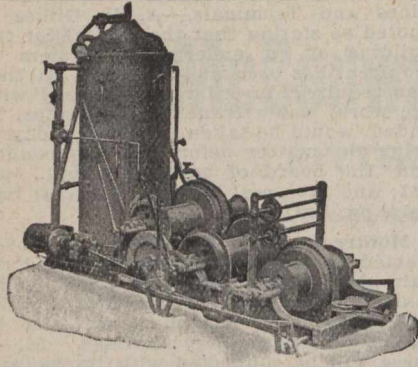
**Montreal Street Ry.**—Work has been started on the new construction and repair shop at Youville, Montreal. The main building will have an area of 115,000 square feet, and there will also be several other smaller buildings. All of these will be connected with tracks, and the yard will also contain sidings for unloading material, and for holding cars awaiting repair. The stores department will be a separate erection 198 by 55 ft. All the buildings will be of brick and Montreal limestone. (Sept., pg. 781.)

**Moose Jaw Electric Ry.**—The City Clerk was instructed to write to the company, Sept. 8, calling attention to the slow progress of construction, and urging greater speed if the company is to fulfil its agreement.

A prospectus which has recently been issued sets out that the company has been incorporated under the British Columbia Companies Act with offices at Victoria, B.C., and registered under the Foreign Companies Ordinance of Saskatchewan, with offices at Moose Jaw, Sask. The authorized capital is \$400,000, and its present object is set out as the construction and operation of an electric railway system in Moose Jaw. The officers and directors are:—President, A. A. Dion; Vice President, N. J. Ker; Secretary-Treasurer, D. R. Street; Solicitor, E. J. Daly; other directors:—D. O'Connor, Jr., P. B. Melton, E. M. Saunders and J. T. Cashman; Chief Engineer, J. B. McRae. With the exception of Messrs. Saunders and Cashman, who reside in Moose Jaw, all the officers and directors live in Ottawa. The franchise acquired by the company is for twenty years, at the end of which term the city council must either buy the property and plant at its real value, with the consent of the ratepayers, or continue the franchise for another twenty years. For five years the company will be exempt from all taxes or charges by the city; for the remaining 15 years, the company will pay taxes on half the assessed value only on real estate, plant and equipment. The city is to receive during the second five years of the franchise \$250 a mile of unpaved streets occupied by the tracks, and \$500 a mile of paved streets, and for the remaining 10 years of the franchise double these rates. Three miles of track is expected to be in operation by Jan. 19, 1911, and an additional three miles by Dec. 31, 1911, but these dates may be extended. The cost of these six miles of line is estimated at \$200,000. (Sept., pg. 781.)

**Nanaimo, B.C.**—An agreement has been arrived at with the Dominion Stock and Bond Co., granting a franchise for an electric railway in Nanaimo, B.C. The city council is preparing a bylaw to confirm the agreement and will submit it to the ratepayers at an early date. The agreement provides for the building of a line in Nanaimo, and extending to Brechin, Wellington and Ladysmith, and such other points as it may seem advisable from time to time. It is proposed to build about 20 miles of line, the city to guarantee the company's 4½% bonds for \$300,000. The company is to set aside 10% of its annual net profits, out of which the bonds are to be repaid, and upon this having been accomplished, the same percentage of net profits is to be paid into the city treasury. (Aug., pg. 683.)



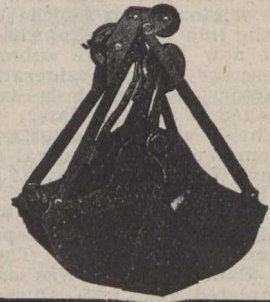


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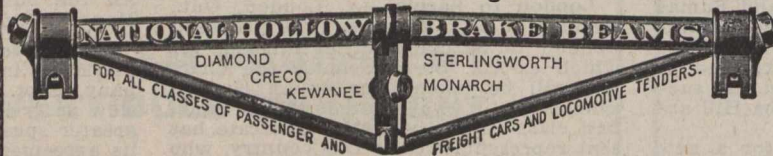
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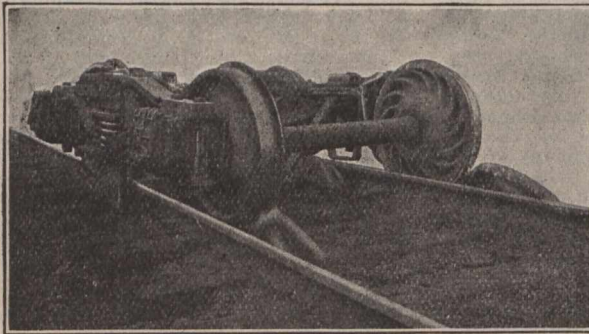


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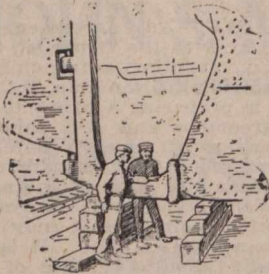
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**Niagara, St. Catharines and Toronto Ry.**—The line from Welland to Port Colborne, Ont., is now practically completed and it is expected to have it opened for traffic early in Oct. In regard to future extensions press reports state that the extension from Port Colborne to Fort Erie will be gone on with next year, and that plans are under consideration for a line from St. Catharines to Niagara-on-the-Lake and Queenston. In this connection there are reports current that arrangements are being made by which the Canadian division of the International Ry., which includes the Niagara Falls Park and River Ry., will be taken over and operated in connection with the N. St. C. and T. Ry., Jan. 1, 1911. The I. Ry. began the issue of new tickets on the Canadian division Sept. 1, on which notification is given that they will be void after the new year, and this is taken to imply that there will be some change in the operation of the line then. (July, pg. 585).

**Niagara Falls, Welland and Dunnville Electric Rd.**—This projected electric railway is to run from Niagara Falls, west along Lundy's Lane to Allanburg, thence south to Port Robinson, and on to Welland, continuing south to Danville, thence westerly to Dunnville, a total distance of 35 miles; with a branch line from near Allanburg westerly through Fonthill and Fenwick, thence south six miles to Marshville, where it rejoins the main line. A report as to the route, probable cost of construction, estimated traffic, is being prepared by Roberts and Abbott, engineers, Cleveland, Ohio. The officers and directors are:—President, F. R. Lalor, M.P., Dunnville; Vice President, G. Arnold, Ridgeville; Secretary, F. E. Misener, Marshville; Treasurer, G. H. Bugar, Welland; other directors:—H. A. Rose, Welland; J. C. Gardner, C.E., Niagara Falls. (May, pg. 399).

**Nipissing Central Ry.**—The ratepayers of New Liskeard, Ont., on Sept. 3, voted in favor of a bylaw granting a franchise for the building of an electric railway on the streets of the town. The line is to enter the town from Haileybury, where it at present has its terminus, and is to be built by Nov., 1911. (Sept., pg. 781).

**North Midland Ry.**—The promoters of this company, which has power to build lines from London to Stratford, Ont., and various places in Huron county, are submitting plans to the various municipalities through which the line will run, for the purpose of securing franchises, and a guarantee of bonds. It is estimated that a bond issue of \$800,000 will be necessary to finance construction, and it is proposed to ask London to guarantee \$200,000 of this, and to ask the municipalities to guarantee the balance in proportion to the mileage of line built in each. The company proposes to use hydro-electric power to be purchased from the municipalities. (Mar., pg. 233).

**Ontario and West Shore Electric Ry.**—Two special meetings of the Goderich, Ont., town council, have been held to decide on the streets which shall be utilized by the company for its lines, but no decision has been reached. Another meeting has been called and it is expected to have the matter settled at an early date so as to enable the track to be laid and the first section of the line completed by the end of the year. The company has not yet done anything in the way of building a power house. (Sept., pg. 787).

**Ottawa Electric Ry.**—The permit granted for the erection of a brick transformer station in Ottawa was for the Ottawa Electric Co., and not for the Ottawa Electric Ry., as stated in our last issue. (Sept., pg. 781).

**Peoples Ry.**—Work is being gone on with at various points on the line, and recent reports state that over five miles of grading has been completed between Bloomingdale and Berlin, Ont., and that

a steam shovel and 45 teams are at work grading between Petersburg and New Hamburg. (Sept., pg. 781).

**Port Arthur and Fort William Electric Ry.**—The ratepayers of Port Arthur, Ont., voted Sept. 8, in favor of the by-law to raise \$12,000 by debentures for the purpose of building a new car barn. (Sept., pg. 783.)

**Sherbrooke Ry. and Power Co.**—The laying of the new rails on the street railway was begun Sept. 5, and it is expected to have the work completed by the winter. (Sept., pg. 783.)

**Stratford Ry.**—The directors of this at present unincorporated company, with some of the members of the city council of Stratford, Ont., went over the route of the proposed electric railway between Stratford and St. Marys, Aug. 27, and suggestions were made for altering the projected route at various points with a view of making it more convenient for future extensions. Stratford city has already passed a bylaw granting a franchise for lines in the city. (Sept., pg. 783).

**Toronto and York Radial Ry.**—Plans have been filed with the Ontario Railway and Municipal Board for a deviation of the line at Mimico creek, where there are some very sharp curves, and a small river to cross. It has been necessary to purchase additional land for right of way, and a sufficient area has been acquired to provide for laying a long siding or crossing point at this deviation, which takes in the proposed new bridge over the creek. The foundation work for the new bridge is being proceeded with, and grading for the deviation has been started. The company has not made any definite plans for building a second track. (July, pg. 585).

**Toronto Eastern Ry.**—Press reports, Sept. 17, stated that engineers had nearly completed surveys for the first section of this projected railway, and that the first section to be built would be from Toronto to Newcastle, Ont. The route will be on a private right of way just north of the Kingston road, nearly all the way. The reports further state that a considerable part of the right of way has been secured, and that contracts for grading, etc., will be let at an early date. Negotiations are reported to be in progress for the entrance into Toronto. (Aug., pg. 685).

**Toronto Ry.**—By an arrangement between the company and the city council a start has been made on the construction of two out of the six new lines ordered to be built by the Ontario Railway and Municipal Board. A start was made on the Harbord St. line at Ossington Ave., Sept. 16, and on the Wilton Ave. line at Sherbrooke St., Sept. 19. The city grades the portion of the street on which the track is to be laid, and concretes and paves it, after the company has laid the tracks. (Aug., pg. 685).

**Welland, Ont.**—A press report says that a franchise has been granted by Crowland tp., to C. J. Laughlin, Toronto, to build an electric railway from Welland to Welland Jct., Ont. (Aug., pg. 685).

**Winnipeg Electric St. Ry.**—Work was started Aug. 20, putting in the diamond on Main St., at the corner of Euclid Ave., for the belt line to run down Euclid to Sutherland Ave., and across the Louise bridge. The standards for carrying the trolley wire along Portage Ave. west to the city limits are being erected, and it is expected that the double track line on this section of the company's line will be ready for traffic early in Oct. (Aug., pg. 685).

The British Columbia Electric Ry., which formerly paid a bonus, at the end of each year, to its employes, has granted an increase in wages in lieu, to date from July 1, the commencement of the financial year.

## Electric Ry., Finance, Meetings, Etc.

**British Columbia Electric Ry.**—Gross earnings for July \$283,535; working expenses \$173,850; net operating earnings \$109,685; renewal funds \$23,820; net earnings \$85,865; approximate income from investments \$22,000; net income \$107,865, against \$220,665 gross earnings; \$123,063 working expenses; \$97,602 net operating earnings; \$16,084 renewal funds; \$81,518 net earnings; \$16,500 approximate income from investments; \$98,018 net income for July, 1909. The working expenses from July 1, include an increase in wages to employes, granted in lieu of the bonus formerly paid at the end of the year, which was not included in these returns.

**Berlin and Bridgenort Electric St. Ry.**—Following are the officers and directors for the current year:—President, W. H. Breithaupt; Vice President, J. S. Anthes; Secretary, A. Millar; other directors, L. J. Breithaupt, G. M. Shirk.

**Halifax Electric Tramway.**—Railway receipts for Aug., \$22,781.86, against \$21,370.12 for Aug., 1909.

**Hull Electric Co.**—The annual meeting was held Sept. 7. Following are the officers and directors for the current year: President, A. R. Creelman, K.C.; Vice President, W. R. Baker; other directors, D. McNicoll, I. G. Ogden, E. W. Beatty, J. Osborne and E. Hanson.

**London St. Ry.**—Gross earnings for Aug., \$23,165.50; expenses \$16,231.42; net earnings \$6,934.08; deductions \$2,441.75; net income \$4,492.33, against \$22,465.38 gross earnings; \$14,498.61 expenses; \$7,966.77 net earnings; \$2,441.75 deductions; \$5,525.02 net income for Aug., 1909. Aggregate gross earnings for eight months ended Aug. 31, \$164,679.09; expenses \$119,386.18; net earnings \$45,292.91; deductions \$19,140.40; net income \$26,152.51, against \$158,444.27 aggregate gross earnings; \$111,675.33 expenses; \$46,768.94 net earnings; \$19,256.08 deductions; \$27,512.86 net income for same period 1909.

**Montreal St. Ry.**—Passenger earnings for Aug., \$382,817.76; miscellaneous earnings \$16,010.81; total earnings \$398,828.57; operating expenses \$216,314.19; net earnings \$182,514.38; city percentage on earnings \$50,854.46; interest on bonds and loans \$14,482.71; rent leased lines \$552.90; taxes \$4,000; total charges \$69,890.07; surplus \$112,624.31; expenses per cent. of earnings 54.24, against \$344,513.84 passenger earnings; \$10,715.88 miscellaneous earnings; \$355,229.72 total earnings; \$180,582.60 operating expenses; \$174,647.12 net earnings; \$44,083.70 city percentage on earnings; \$14,444.55 interest on bonds and loans; \$498.67 rent leased lines; \$3,000 taxes; \$62,026.92 total charges; \$112,620.20 surplus; 50.84 expenses per cent. of earnings, for Aug., 1909. Aggregate total earnings for 11 months ended Aug. 31, \$3,889,475.05; operating expenses \$2,237,830.24; net earnings \$1,651,644.81; total charges \$516,743.81; surplus \$1,134,901; expenses per cent. of earnings 57.54, against \$3,492,776.55 aggregate total earnings; \$2,046,598.01 operating expenses; \$1,446,178.54 net earnings; \$450,601.63 total charges; \$995,576.91 surplus; 58.60 expenses per cent. of earnings for same period 1908-09.

**Port Arthur and Fort William Electric Ry.**—The report of the operations of the line for the year ended June 30, shows there are 19 miles of track being operated, 10 in Port Arthur, and 8 in Fort William. Gross earnings were \$130,664.32; operating expenses, \$74,373.44; net earnings, \$56,290.88. Statistics:—car mileage 491,760; fare passengers carried, 2,832,426; passes and transfer passengers, 28,000, making total passengers carried, 2,852,426; average fare per passenger, 4.1985 cents; average fare all pas-



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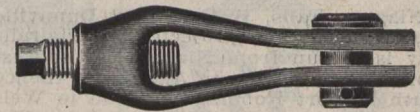
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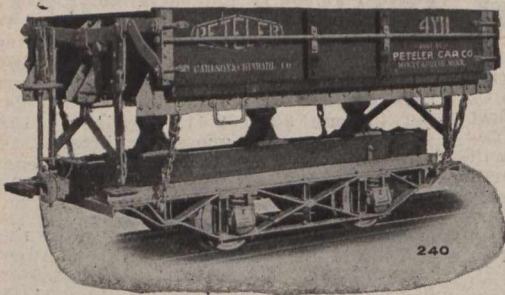
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sengers, 4,1690 cents; earnings per car mile, 26.3037 cents; operating expenses per car mile, 15.1237 cents. Capitalization of line:—Port Arthur, \$339,087; Fort William, \$307,000; total, \$646,087.13. Total expenditure on construction and equipment, \$644,700.

**Quebec Ry., Light and Power Co.**—Following are the officers and directors for the current year:—President, W. G. Ross; Vice President, Hon. E. B. Garneau; other directors:—R. Forget, N. Belleau, J. N. Greenshields, Hon. R. Mackay, Hon. C. E. Dubord, Hon. L. P. Pelletier, L. C. Webster; General Manager, C. E. A. Carr; Secretary, C. J. Pigot; Treasurer, W. J. Lynch. The new directors are:—Hon. E. B. Garneau, Hon. L. P. Pelletier, Hon. C. E. Dubord and L. C. Webster, who take the place of F. W. Ross, Frank Ross, W. Price and L. C. Marcoux. The meeting of shareholders, held in Quebec, Sept. 13, is reported to have been a formal one.

**St. Thomas Street Ry.**—Reports presented to the street railway committee of St. Thomas, Ont., show that for the year ended June 30, eight cars were being operated, the average daily mileage being 687, against seven cars, covering 1,064 miles a day in the year ended June 30, 1909. During the past financial year the service was changed from a 15 minute to a 20 minute one. The pay roll for the first week in Sept. 3, was reported to be \$249.57, against \$187.32 for the corresponding week in 1909.

**Toronto Ry.**—The Toronto board of control passed the following resolution, Sept. 9:—"Whereas it is desirable for the city to make an effort now to acquire by purchase the Toronto Ry. and to secure legislation to that end it is recommended that the board of control be authorized to confer with the President and directors of the company with this end in view and to report to council the result of such conference, and further, that if a basis of purchase agreeable to council be arrived at legislation be applied for to carry out such purchase." A couple of days previously it passed a resolution directing the City Solicitor to prepare a bill for the expropriation of the Toronto Ry., and to apply to the Ontario Legislature to have it passed. The Legislature has three times refused to pass such a measure.

**Toronto Ry.**—Gross earnings for July, \$367,211.14; expenses \$186,183.96; net earnings \$181,027.18, against \$329,803.94 gross earnings; \$168,200.88 expenses; \$161,603.06 net earnings for July, 1909. Aggregate gross earnings for seven months ended July 31, \$2,386,423.94; expenses \$1,237,497.49; net earnings \$1,148,926.45, against \$2,144,087.13 aggregate gross earnings; \$1,098,841.11 expenses; \$1,045,246.02 net earnings for same period 1909.

**Winnipeg Electric Ry.**—Gross earnings for July, \$252,014; working expenses \$119,754; net earnings \$132,260, against \$214,087 gross earnings; \$100,950 working expenses; \$113,137 net earnings for July, 1909. Aggregate gross earnings for seven months ended July 31, \$1,784,210; net earnings \$887,140, against \$1,424,991 aggregate gross earnings; \$715,452 net earnings for same period 1909.

Application has been made to the Dominion Department of Labor, by the maintenance of way employees of the C. P.R., the Canadian Northern Ry., and the G.T. Pacific Ry., for boards of conciliation. The employees have in each case named W. T. J. Lee, of Toronto as their representative, and F. H. McGuigan will represent the C.P.R. The other two companies have not named their representatives.

### Electric Railway Notes.

J. H. Gunn, son of Jas. Gunn, Superintendent Toronto Ry., died there, Sept. 15, aged 18.

The B.C. Electric Ry. has ordered 25 flat logging cars, 40 tons capacity, from the Canadian Car and Foundry Co., Montreal.

The Winnipeg Electric Ry. has ordered eight steel underframes for cars, from the Canadian Car and Foundry Co., Montreal.

The Montreal and Southern Counties Ry., has received one heavy double broom electric sweeper from the Ottawa Car Co., Ottawa.

The Moose Jaw Electric Ry. has received six pay-as-you-enter cars, 31 ft. long, mounted on single trucks, from the Ottawa Car Co., Ottawa.

The Quebec Ry., Light and Power Co. has received four pay-as-you-enter cars, 29½ ft. long, and two interurban cars, 60 ft. long, from the Ottawa Car Co., Ottawa.

J. R. Blackett, formerly Chief Auditor Dominion Coal Co., Glace Bay, N.S., has been appointed Comptroller Halifax Electric Tramway Co., a newly created position.

The Grand Valley Ry., Brantford, Ont., is reported to be in the market for eight single-truck city cars, two double-truck city cars and a single-truck snow sweeper.

The four pay-as-you-enter cars which the Quebec Ry., Light and Power Co. has received from the Ottawa Car Co., as mentioned in our last issue are 29½ ft. overall, and 18 ft. long without platforms.

The Montreal board of control decided Sept. 2, to ask the city council to repeal the present bylaw prescribing the kind of fender to be used by the electric railway lines in the city, and to decide on a new pattern.

A list of shareholders of the Quebec Ry., Light, Heat and Power Co., shows that 12,682 shares are held in France, 3,006 in England, 1,798 in the United States and 20 in Spain. The stock is distributed among 529 shareholders.

D. McDonald, Manager of the Montreal Street Ry., was present at the European Tramways Congress at Brussels, Belgium, Sept. 7-11, where he exhibited a pay-as-you-enter car, of which he is one of the patentees.

M. O. Robinson, heretofore Resident Electrical Engineer C.P.R., Fort William, Ont., has been appointed Manager Port Arthur and Fort William Electric Ry., vice N. C. Pilcher, whose appointment as Manager Sherbrooke Ry. and Power Co., was announced in our last issue.

The Electric Railway Construction Co., has been incorporated under the British Columbia Companies Act, with a capital of \$600,000, to carry on a general contracting business, and to promote companies for the operation of railways, including tramways and street railways.

H. W. Protzeller, Assistant Superintendent Twin City Rapid Transit Co., St. Paul, Minn., has been appointed General Manager International Transit Co., operating in Sault Ste. Marie, Ont., and Sault Ste. Marie, Mich., and which is controlled by the Lake Superior Corporation. T. J. Kennedy, heretofore Manager, and who was also Superintendent Algoma Central and Hudson Bay and Manitoulin and North Shore Rys., will devote his time to those railways, on which considerable extensions are in progress and projected.

W. J. Lynch, Treasurer Quebec Ry., Light, Heat and Power Co., was presented with an address and a cabinet of cutlery, at a dinner given in his honor

Sept. 13, by the officers and officials of the company in connection with his wedding, which took place in Quebec, Sept. 16, the bride being Miss Pacaud.

At a recent meeting of the North Toronto council, a letter was read from the Toronto and York Radial Ry., in response to a previous one from the council, that the company was not prepared to make any concessions in return for establishing a Sunday service, but that it would be willing to meet the ratepayers' wishes, so far as the service was concerned, if they would join with the company in endeavoring to secure the necessary permission.

The Toronto board of control has awarded the contract for the construction of a bridge to carry the highway, with the Toronto Ry., over the Don River and the railway tracks, at Queen St. East, to the F. H. McGuigan Construction Co., for \$193,000. The bridge was ordered by the Board of Railway Commissioners, the cost to be borne in the following proportions, city of Toronto, 15%; Toronto Ry., 15%; C.P.R., 35%; G.T.R., 10%, and Canadian Northern Ry., 25%.

The various electric companies having overhead wires in Montreal, including the Montreal Street Ry., the Montreal Park and Island Ry., the Montreal Terminal Ry., and the Public Service Corporation (formerly the Suburban Tramway Co.), have notified the city council that they are prepared to put their overhead wires in the civic conduit, which the corporation has been authorized by the Quebec Legislature to build, and will choose one member of the Board, in accordance with the terms of the act.

An injunction was obtained Sept. 14, restraining the contractors for the new power dam of the Sherbrooke Ry. and Power Co., from building a flume across certain properties. The judgment directs the suspension of the work until the main issue has been disposed of by the courts. The company was expecting to have the dam completed, so as to be able to turn on power by Nov. 1.

The Winnipeg city council's legal officers are preparing to bring an action to have the Winnipeg Electric Ry.'s franchise forfeited on account of alleged breach of contract in respect of the construction of new lines. The council has passed resolutions calling for the building of certain new lines, which the company has failed to build, and the City Solicitor has advised the council that this is sufficient grounds upon which to ask the courts to cancel the franchise.

**St. Leonards, N.B.,—Van Buren, Me., Bridge.**—The bridge which is about to be built across the St. John's River, to connect St. Leonards, N.B., and Van Buren, Me., under the charge of a commission appointed by the Dominion Government and the State of Maine, will be a highway one, but designed to carry electric cars, also. The Commissioners are: S. J. Chapleau, District Engineer, Department of Public Works, Ottawa, and P. D. Sargent, State Commissioner of Highways, Augusta, Me. The bridge will be 752 ft. long between back walls, and will consist of three spans of 143 ft. each, and one span of 322 ft.; carried on abutments, at the shore ends, and the three piers in the river. These piers and abutments are to be concrete. The bridge is designed for the following live load:—a 24-ton street car on two axles 7 ft. apart, and a 10-ton wagon on two axles 10 ft. apart, and 6 ft. gauge, or 100 lbs. per square ft. of roadway and sidewalk. The substructures is to be completed by Dec. 1, and superstructure by April 1, 1911. The amount voted by the Dominion Parliament and the Maine Legislature towards the erection of the bridge was \$28,125 each.



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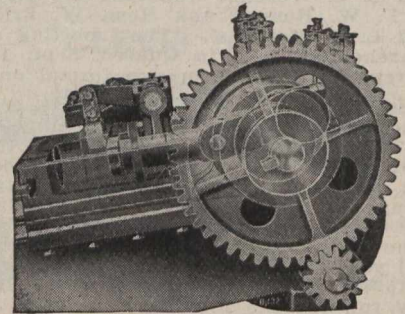
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SECRETARY, Jas. Morrison, Montreal.

**International Water Lines Passenger Association.**

PRESIDENT, W. M. Lowrie, New York.  
SECRETARY, M. E. Nelson, New York.

**The Shipping Federation of Canada.**

PRESIDENT, A. A. Allan, Montreal; MANAGER, AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

**Ship Masters' Association of Canada.**

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

**Lighthouse and Buoy Steamer Estevan.**

The specifications for the new twin-screw lighthouse tender and buoy steamer-boat, to be named the Estevan, for the Canadian Government, provide for the building of a vessel having the following principal dimensions: Length between perpendiculars, 200 ft.; moulded breadth, 38 ft.; depth, moulded to main deck, 17 ft. 6 in.; depth to lower deck, 10 ft.; depth main deck to bridge deck, 7 ft. 11½ in.; load draft, mean, 11 ft. 6 in. She is to have a deadweight carrying capacity of 375 tons; a coal capacity of 260 tons, and to have a speed of 12 knots an hour on a six hours trial.

The hull is to be of steel to be equal to class 100 A1 at Lloyds', with double bottom from peak to peak; fitted for water ballast, and divided into seven watertight bulkheads. The scantlings specified are those considered suitable for the work of the buoy service, and for navigation in icefields 12 inches thick. The vessel is to have a straight stem and elliptical stern, provided with two steel masts with p. p. topmasts. The propelling machinery is to consist of two sets of inverted, vertical, direct-acting, triple-expansion, surface-condensing engines, each set having three cylinders working on separate cranks placed at angles of 120 degrees with each other in the sequence of high, low and intermediate when the engines are going ahead. The engines are to be capable of developing the indicated horse power necessary to drive the vessel at 12 knots an hour on a trial of six hours duration when running at about 130 revolutions a minute with 180 lbs. steam pressure in the boilers. Steam will be supplied by two cylindrical, single ended boilers fitted for forced draught. The propellers are to be three-bladed, of the built-up type, are not to overlap and are to work outwards in going ahead.

The vessel will have four decks, lower, main, bridge, and boat. The main part of the lower deck will be given over to the boilers, engines and coal bunkers, aft of which will be an engineers' workshop, dynamo room and steward's storehouses, while forward will be provided the b'n's store, and quarters for firemen and seamen. On the main deck aft, will be provided the quarters for the engineers, second and third officers, cooks, stewards, and the special employes of the lighthouse and buoy section of the Marine Department, together with mess rooms; while forward of the open part of the deck will be the bath and washhouses, winches, etc. On the bridge deck will be quarters for the captain and the chief officer, and two two-bed staterooms for departmental officers upon inspection duty. Over this is the boat deck. The

vessel throughout is to be suitably equipped and furnished, and provided with electric light, including a 25,200 candle power search light. The following boats are to be supplied: Two surf boats, 26 ft. long, 8 ft. beam, and 2 ft. 5 in. deep; one captain's dinghy, 20 ft. long, 6 ft. beam, and 2 ft. deep; and one steam launch 30 ft. long, 7 ft. beam and 3 ft. 6 in. deep. This launch is to be provided with engines capable of driving her eight knots an hour, steam being supplied by a patent water tube boiler, provided with a patent paraffin burner, capable of raising steam from cold water in eight minutes, and tested under hydraulic pressure to 1,000 lbs. to the square inch. The vessel is also to be provided with a steam-boat hoisting winch; a five-barrelled 20-ton steam winch; two 2-ton double-barrelled steam winches, and a wireless telegraph equipment, the motor generator consisting of a 110 volt. 60 cycle single phase generator connected at full load.

**Proposed Dry Dock Construction.**

The Dominion Dry Dock Co., Ltd., the incorporation of which took place recently, with a capital of \$1,000,000, has completed its organization, and proposes to construct dry docks at Levis and St. John, N.B., and may also assist in increasing the capacity of the existing dry dock at Halifax, N.S. The dry dock, which will probably be built at Levis, will be larger than is required to obtain a Government subsidy on a first class dock, as provided in the recent subsidy act. The dimensions proposed, are as follows:—

Length from outer caisson stop to head	1,000 ft.
Width on floor	102 ft.
Width at coping	134 ft.
Width at entrance	100 ft.
Depth of water on entrance sill at high water	36 ft.

It will be fully equipped with the necessary machinery, repairing plant and shops, for its efficient operation, and for repairing vessels of the largest type, or now under construction. The estimated cost of the proposed work is \$4,000,000.

In connection with the proposed works at St. John, N.B., three sites are at present under consideration. The location of a site mainly depends on whether the Government will vote the necessary money, and start work on the opening up of Courtenay Bay, in order to make provision for the proposed Grand Trunk Pacific Ry. docks and terminals. The dimensions of the dry dock have not been settled on, as yet, but it is anticipated that the Government may require them to be the same as the one at Levis. The question of shipbuilding is also under consideration, and the carrying out of any plans in this direction, will depend entirely upon the business which may be anticipated from the erection of such works as will be undertaken. It is stated that, at present, it would be impossible to compete with British shipbuilders, in view of the higher cost of labor and material, and it would be necessary to be certain of a continuous supply of orders. Plans for the proposed dry dock at Levis will shortly be submitted to the Government, and if approved, work will be commenced almost immediately, the contractors being MacArthur, Perks and Co., Ottawa. The incorporators of the Dominion Dry Dock Co., include Sir Thos. G. Shaughnessy, President C.P.R.; Hugh A. Allan, Allan Line; G. D. Davie, Quebec; W. M. Dobell, Quebec; W. E. Foster, St. John; Lord Pirrie, Chairman Harland and Wolff, Ltd., Belfast, Ireland; Sir Robert W. Perks, Chairman MacArthur, Perks and Co.; and A. M. Grenfell, London, Eng.

The first cargo of the 1910 wheat crop was shipped from Fort William, on the C.P.R. s.s. Assiniboia, Aug. 29, to Owen Sound, for J. Richardson and Sons, Ltd., Kingston.

**Notices to Mariners.**

The Department of Marine has issued the following:—

82. Aug. 17.—221. British Columbia, Burrard Inlet, First Narrows, Prospect point, change in character of light. 222. British Columbia, Burrard Inlet, First Narrows, west entrance, change in position of gas lighted beacon, fog bell established.

83. Aug. 19.—223. Prince Edward Island, north coast, change in position of Cove head range lights. 224. New Brunswick, east coast, Kouchibouguac bay, Sapin point light station, light mast replaced by tower. 225. Newfoundland, west coast, St. John's bay, rock found southward of.

84. Aug. 22.—226. British Columbia, Vancouver island, west coast, Barkley Sound, Banfield creek, life saving station established. 227. Alaska, Revillagigedo channel, Spire island reef, light established. 228. Alaska, Tongass Narrows, East Clump, light established. 229. Alaska, Tongass narrows, Channel island, light established.

85. Aug. 23.—230. Quebec, River St. Lawrence below Montreal, Boucherville channel, off Ile Charron, buoys established.

86. Aug. 25.—231. Quebec, Ottawa river, Lake of Two Mountains, Graham, color of daymarks. 232.—Ontario, Lake Erie, Pelee passage, change in fog alarm at lighthouse.

87. Aug. 31.—233. British Columbia, Vancouver Island, west coast, Clayoquot sound, Hecate passage, uncharted rock. 234. British Columbia, Strait of Georgia, Galiano island, Porlier pass, bearing of range lights. 235. British Columbia, Fraser river, New Westminster, railway swing bridge, signal drum established. 236. British Columbia, Chatham sound, Malacca passage, reefs eastward of Bamfield islands, beacon established.

88. Aug. 31.—237. Nova Scotia, south coast, Liscomb shoal, bell buoy established. 238. Newfoundland, east coast, Catalina, Green island, change in characteristic of fog alarm. 239. Newfoundland, east coast, Fogo island, Burnt point, change in characteristic of fog alarm.

89. Sept. 3.—240. Ontario, Lake Erie, Rondeau harbor, construction of breakwater extension to west pier, caution. 241. Ontario, Georgian bay, Parry Sound approach, Wabuno channel, Sister rock, light established on beacon. 242. Ontario, Lake Superior, chart, Copper island to Lamb island issued.

90. Sept. 3.—243. Prince Edward Island, North coast, Cascumpeque harbor, range lighthouses moved from Sandy island to Aliberton. 244. New Brunswick, Gulf of St. Lawrence, South Tracadie gully, changes in light station.

91. Sept. 6.—245. New Brunswick, south coast, Bay of Fundy, St. Martins, lighthouse erected on the outer end of the east breakwater pier.

92. Sept. 9.—246. British Columbia, Vancouver Island, Scott islands, Triangle island, lighthouse established.

93. Sept. 14.—247. British Columbia, Vancouver Island, southeast coast, Victoria harbor, uncharted rock. 248. British Columbia, Burrard Inlet, First narrows, west entrance, sounding of fog bell at beacon. 249. British Columbia, Vancouver Island, east coast, Horswell channel, change in character of buoy.

94. Sept. 15.—250. Ontario, St. Joseph channel, shoal water in channel at Bamford island, caution. 251. Lake Winnipeg, north end, entrance to Nelson river, Warren landing, change in position of back light of upper range. 252. United States of America, Lake Superior, Isle Royale, Rock of Ages light station, permanent light established.

95. Sept. 16.—253. New Brunswick, Bay of Fundy, Deer island, off North West harbor, Pomped ledge, beacon erected. 254. Quebec, Gulf of St. Lawrence, Moisie river, range lights again in operation.

**Atlantic and Pacific Ocean Marine.**

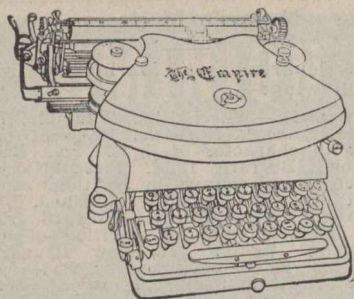
The Allan Line has opened new offices at 14 Cockspur St., London, S.W., Eng., for west end passenger business.

Pickford and Black, Halifax, N.S., are reported to have chartered the s.s. Luriston, in London, Eng., to replace the s.s. Dahomey on the Halifax-West Indies route.

Press reports from London, Eng., state that the Danish East Asiatic Co., is considering the establishment of a steamship service between British Columbia and South America.

The C.P.R. Empress of Britain, in arriving at Liverpool, Eng., Sept. 2, is reported to have broken all records for the





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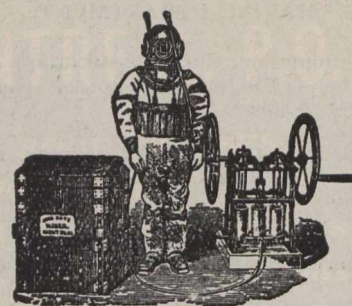
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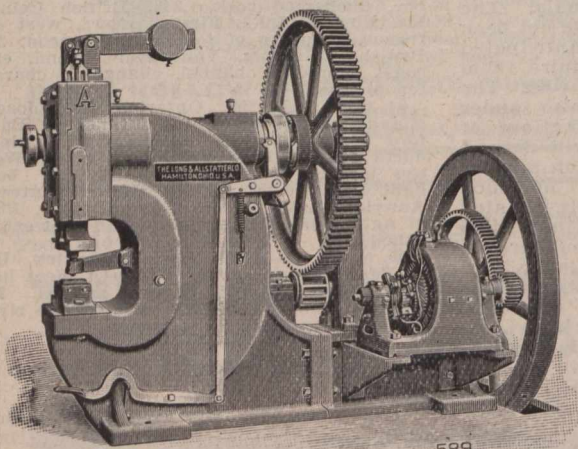
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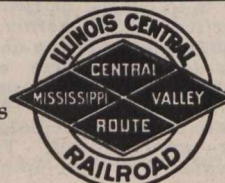
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Capt. R. Barrett, R.N.R., formerly commodore of the Allan Line, died recently at Liverpool, Eng., aged 84. He entered the Allan service in 1870, and commanded a number of the company's earlier vessels, retiring some years since.

Newfoundland press reports state that the Donaldson Line s.s. Tritonia is being altered to fit her for the wood pulp trade between Newfoundland and Manchester, Eng., and also to enable her to cope with ice in all the year round service.

Capt. Kendall, of the C.P.R. s.s. Montrose, is reported to have been awarded £250, by the British Government, in connection with the capture, on board, of H. H. Crippen, charged with murder in London, and Miss Le Neve, now charged as an accessory after the fact.

The Canadian Northern Steamships Ltd., has decided to use Halifax, N.S., as its winter port, the first vessel on the winter service to arrive there being the Royal Edward, scheduled to leave Bristol, Eng., Nov. 22, and leaving on the return trip Dec. 7.

The s.s. Ben Cruachan, which grounded near Louisburg, about three months ago, has been repaired at Halifax, N.S. The bottom was badly damaged, it taking 125 steel plates, each 19 by 3 ft. to put her in sea going condition. She was in dry dock 56 days, the repairs being reported as costing \$80,000.

The Osaka Yosen Kaisha has decided to include Victoria, B.C., as a port of call for its trans-Pacific service, the first arrival there scheduled being the Tacoma Maru, on Oct. 6. The company has four vessels in service, and will add two more, the Mexico Maru and the Canada Maru, early next year.

The Newfoundland Premier was in Quebec recently on his return from The Hague, and is reported to have said that his object in visiting there, was to meet representatives of certain Canadian shipping companies with a view to arrang-

ing some additional steamship facilities between Newfoundland and Great Britain.

The New Zealand Shipping Co. is reported to have sold its interest in the Canadian-Australian Steamship Line, to the Huddart and Parker Line, owners of the s.s. Zealandia, which company, in conjunction with the Union Steamship Co., will carry out the existing mail contract for the Canadian-Australia service until July 31, 1911.

The complete breaking up of the wrecked s.s. Heimdal at Sable Island has been abandoned owing to the lateness of the season. The machinery, etc., has all been removed. Wreckers are at work on the s.s. Hestia, which was wrecked at Grand Manan last year. It is hoped that the machinery and cargo will be salvaged, after which, the hull will be broken up.

Recent press reports stated that the Canadian Northern Steamships, Ltd., would shortly commence a regular weekly service between Canada and Europe, and in this connection would take over the operation of its s.s. Voltorno, which is now being run, by arrangement, by the North West Transportation Co. We are advised that at present there is nothing in the statements, and that no such decision has yet been arrived at.

A New York press dispatch states that the White Star-Dominion Line's steamships Laurentic and Megantic, will, this winter, make several trips to Halifax, from Liverpool and Portland. The first trip of the Laurentic, it is stated, will be made in Dec., from Liverpool, while the Megantic will be placed in the service for three trips. It is also stated that the company will arrange that the steamers can call on their east-bound trips.

The silly season is still on. Montreal press reports state that a scheme has been mooted in Europe, with a view to interest capital, for the establishment of a steamship service, between Halifax and Europe, the vessels required to be constructed on the "roller" principle,

according to plans prepared by G. H. Knapp, the inventor of a roller boat, which was built in Toronto, and which has caused considerable amusement and trouble in Toronto waters for several years.

At a recent conference of the representatives of the regular Trans-Pacific lines, at San Francisco, a tentative agreement was arrived at for the regulation of the steerage passenger rates to and from the Orient. Under the old agreement the rates on the C.P.R. Empresses was \$51, and on the C.P.R. s.s. Monteagle, \$43.50, while under the new arrangement the latter rate has been raised to \$47.50. C. E. E. Usher, Assistant Passenger Traffic Manager, Winnipeg, and C. B. Foster, Assistant General Passenger Agent, Vancouver, represented the C.P.R.

Sir H. Montagu Allan, who presided at a luncheon in London, Eng., Sept. 1, to celebrate the opening of new offices at 14 Cockspur St., is reported to have said, in connection with the Atlantic service, that designs for new vessels, for the Allan Line, were being made, and the company hoped shortly to call for tenders for the construction of larger and faster steamers than any at present running between Great Britain and Canada. We are advised that the company is working on plans for three vessels, each about 22,000 tons, and 675 feet long, for a speed of 22 knots an hour.

The bill, which will come before the British Parliament shortly, making it compulsory, that vessels carrying 50 or more persons, including the crew, shall be equipped with a wireless telegraph installation, is to be opposed. Various chambers of commerce and several ship-owners in Great Britain, have expressed themselves as strenuously opposed to such an act, claiming that it would injuriously affect the freight trade, increase freight rates and give a monopoly to wireless telegraph companies, while it is also stated that there are no shore stations on the East Indian and Australian routes.

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING AUGUST, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
A. Ferguson	130,262	Simcoe, Ont., 19'9	Paddle 2 n. h. p.	42.0	11.0	3.7	35	22	Ottawa	J. R. Booth, Ottawa
Chico	126,479	Mahone Bay, N.S., 1906	Screw 5 "	23.8	5.4	3.0	12	1	Halifax	C. L. Newman, Halifax
Columbia	121,960	Collingwood, Ont., 1910	" 13 "	72.0	15.2	6.3	42	25	Port Stanley, Ont.	N. S. Cornell and H. Taylor, Port Stanley, Ont.
Frank N. McCrea	126,589	New Westminster, B.C., 1910	" 16 "	86.6	16.4	7.1	106	64	Vancouver, B.C.	Columbia Coast Mission, Vancouver, B.C.
Inlander	126,122	Kingston, Ont., 1908	" 3 1/2 "	47.8	11.0	5.0	19	10	Kingston, Ont.	F. N. McCrea, Sherbrooke, Que.
Lord Beresford	126,613	Victoria, B.C., 1910	Paddle 13 "	135.5	23.5	5.2	521	340	Prince Rupert, B.C.	Prince Rupert Skeena Transp'n Co., Prince Rupert, B.C.
M. E. Wherry	126,716	Paisley, Scotland, 1909	Screw 45 "	75.2	18.6	8.9	112	18	St. John, N.B.	J. E. Moore, St. John, N.B.
Mary Sullivan	126,568	Little Bras d'Or, N.S., 1907	" 8 n. h. p.	35.0	11.2	5.5	14	..	Sydney, N.S.	D. Landry, Little Bras d'Or, N.S.
Mattawapiki	130,331	Douglastown, N.B., 1910	Screw 1 "	53.0	11.6	5.0	29	10	Chatham, N.B.	W. M. Sullivan, Red Bank, N.B.
Rotundus	130,261	Callendar, Ont., 1910	" 19 "	42.0	8.8	3.8	12	8	Ottawa	Montreal River Transportation Co., Ottawa
Westerner	130,251	Shelburne, N.S., 1910	" 1 "	92.0	20.6	6.8	133	66	Windsor, N.S.	Steamship Rotundus Co., Summerville, N.S.
	126,900	Vancouver, B.C., 1910	" 1 "	32.0	8.1	4.9	8	6	Vancouver, B.C.	M. Gosse, Vancouver, B.C.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING AUGUST, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
A. J. Sterling	126,594	Port Greville, N.S., 1910	Schr.	100.1	28.7	9.0	148	Parrsboro, N.S.	W. Sterling, M.O., Port Greville, N.S.
Annie Hendry	130,241	Liverpool, N.S., 1910	"	125.1	29.3	11.0	219	Liverpool, N.S.	Hendry, Ltd., Liverpool, N.S.
Christie C. Thom-ey	127,672	Burgeo, Nfld., 1918	"	102.0	26.9	10.0	123	Ottawa	Minister of Marine, Ottawa
Donald D.	126,941	Phippsburg, Me., 1876	Barge	184.3	37.2	23.8	1181	Victoria, B.C.	A. McDermott, Victoria, B.C.
E. B. No. 1	126,837	U. S.	Dredge	67.0	26.5	5.3	*	Toronto	V. T. Bartram, Toronto
Eva M. D.	126,450	Shelburne, N.S., 1910	Schr.	63.0	18.0	7.4	39	Halifax, N.S.	E. V. J. L. and J. P. Dempsey, Herring Cove, N.S.
Eva S.	126,345	Clarke's Harbor, N.S., 1610	Sloop	34.5	11.0	5.8	10	Barrington, N.S.	G. R. Swim, Clarke's Harbor, N.S.
F. G. French	126,715	Bath, Me., 1887	Schr.	98.2	28.1	8.3	152	St. John, N.B.	A. Holmes, Port Wade, N.S.
King Daniel	126,595	Five Islands, N.S., 1910	"	50.2	16.6	5.5	29	Parrsboro, N.S.	D. Fullmore, Five Islands, N.S.
La Bergeronne	126,850	Grandes Bergeronnes, Q., 1909	Sloop	65.1	21.7	5.9	40	Quebec, Que.	E. Tremblay, Grandes Bergeronnes, Que.
Madona May	126,569	Long Island, N.S., 1910	Schr.	88.8	11.9	5.5	16	Sydney, N.S.	J. Bonnar, Glace Bay, N.S.
Mary W. Catherine	126,295	Port Felix, N.S., 1910	"	36.6	11.0	5.9	13	Canso, N.S.	W. Pelrine, M.O., Port Felix, N.S.
P.M.	126,321	L'Islet, Que., 1909	Sloop	43.7	15.9	4.8	17	Quebec, Que.	P. Moreau, L'Islet, Que.
T. W. J. Whittier	126,567	Ingonish, N. S., 1907	Schr.	39.0	12.4	9.4	15	Sydney, N.S.	W. J. and P. Whitty, South Bay, N.S.
Virginie S.	122,190	New Harbor, N.S., 1910	"	41.0	12.9	7.1	16	Arichat, N.S.	E. V. Landry, M.O., Petit de Grat, N.S.
X.M.	120,849	Lotbiniere, Que., 1909	"	70.9	21.8	6.3	48	Quebec, Que.	J. F. Moreau, Escoumains, Que.



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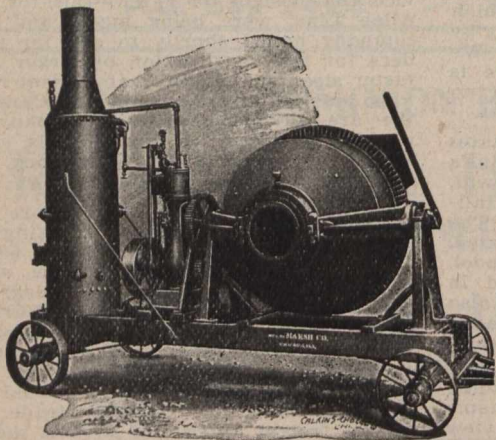
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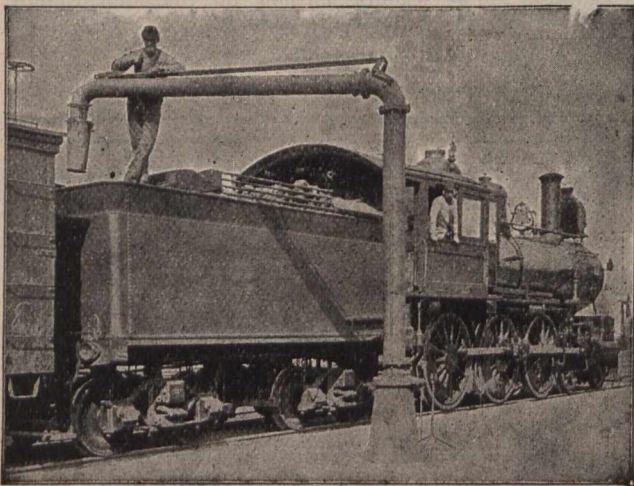
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Agents for Western Canada.



Capt. L. A. Demers, Wreck Commissioner, held an enquiry Sept. 1, into the cause of the grounding of the s.s. Craigendoran at Anticosti Island, at the end of August. It was claimed, on behalf of the captain of the vessel, that the sunken wreck of the s.s. Idaho, which has been lying in the neighborhood for a number of years may have been the cause of the accident. The charts, place the derelict some distance from the course which was being taken by the Craigendoran, but it is suggested that it may have shifted its position, as the charts are somewhat old. The Wreck Commissioner, after hearing all the evidence, said he would deliver judgment at a later date.

**Maritime Provinces and Newfoundland.**

Capt. A. McLeod has been appointed captain of the Charlottetown Steam Navigation Co.'s s.s. Northumberland, succeeding Capt. A. McLean, deceased.

W. C. Harvey, heretofore chief engineer of the Reid Newfoundland Co.'s s.s. Bruce has been appointed Travelling Marine Engineer for the company, with headquarters at St. John's.

From advices received in St. John's, Nfld., the decision in the enquiry into the cause of the collision between Harvey and Co.'s s.s. Regulus and the s.s. Karma, which has been held in New York, is against the Regulus. It is stated that she will be sold by public auction.

The Dartmouth, N.S., Ferry Commissioners, who recently considered tenders for the construction of a ferry steamer of steel and wood, have rejected all tenders made, and will call for new ones. The tenders ranged from \$20,500 to \$100,450.

The Gypsum Packet Co. of Windsor, N.S., is reported to have purchased the three masted ship Glooscap, which is being converted into a barge at New York. She was built at Spencer's Island, N.S., in 1891, her dimensions being:—Length, 238.1 ft.; breadth, 42.9 ft.; depth, 23.9 ft.; tonnage, 1,721 register.

The ferry service between Sydney and North Sydney, was commenced Sept. 4, by the steamboat Wampanoag. She was

built in the U.S., and is a screw driven vessel, with engine of 13 n.h.p., and is of the following dimensions:—length 57.3 ft., breadth 12 ft., depth 8.4 ft., tonnage, 38 gross, 22 register. She is owned by J. Doran, Levis, Que.

Capt. A. C. McLean, of the Charlotte-town Steam Navigation Co.'s s.s. Northumberland, died at Charlottetown, P.E.I., recently, aged 71. He was born at Richibucto, N.B., and followed the sea since he was 11 years of age. He, at various times, acted as pilot between St. John and Digby, on the St. Lawrence route, to the Magdalen Islands, and other places.

The Newfoundland fisheries dispute between Great Britain and the U.S., which was referred to The Hague for arbitration, has been decided in favor of Great Britain on the two most important points, viz.: the right to regulate the time and method of fishing, and the exclusion of U.S. fishers from bays, under the headland doctrine, by which the three mile limit is to be measured from an imaginary line drawn across the mouth of the bay, and not following the windings of the bay's coast line. Points granted in favor of the U.S. include that U.S. fishermen cannot be compelled to report to custom houses; that they cannot be taxed with light harbor and other dues; that U.S. vessels may employ Newfoundland fishermen, and that its vessels may purchase supplies and have other commercial privileges on treaty coasts, and may fish in bays on treaty coasts, except Labrador.

**Province of Quebec Marine.**

C. J. Smith, General Manager Richelieu and Ontario Navigation Co., sailed from Montreal, Sept. 9, for Great Britain, to arrange for building a steamboat for the company's Saguenay line. The dimensions of the proposed vessel are:—length overall, 284 ft. 4 ins.; length over stem and stern posts, 274 ft. 8 in.; breadth of beam on frame, 40 ft.; breadth of beam extreme, 57 ft. 10 ins.; depth of hull, molded, 16 ft. 5½ ins.; boiler to work at 175 lbs. pressure.

A warrant has been issued in the Montreal Admiralty Court for the seizure of

the steamboat Lorancia, on behalf of H. Scotte of Valleyfield, Que., who claims to own 64 shares in the vessel on a bill of sale. The shares claimed constituted a first mortgage, and it is stated that the first mortgage declines to hand over the boat. She is a screw driven boat, with engine of 27 n.h.p., and was built at Valleyfield in 1909, her dimensions being, length, 112 ft., breadth 22.2 ft., depth 7.7 ft.; tonnage, 346 gross, 205 register.

**Ontario and the Great Lakes.**

The Department of Public Works will receive tenders Oct. 4, for the reconstruction of the wharf at Lakeport.

The Department of Public Works received tenders, Sept. 21, for the construction of a pier at Brockville.

The Department of Public Works will receive tenders, Oct. 4, for the construction of a breakwater at Goderich.

The work of deepening the Welland river at Chippewa, to 12 ft., is in progress, by the Russell Contracting Co., Toronto.

The Montreal Transportation Co.'s steamboat Rosemount was docked at Kingston Sept. 16, for repairs, having started a number of plates by grounding on a shoal near Alexandria Bay.

W. Freeland, who for many years was well known on the Toronto water front, and who owned and operated the Freeland dock, recently purchased by the Niagara Navigation Co., died at Toronto, Sept. 9, aged 80.

The Richelieu and Ontario Navigation Co.'s steamboat Kingston, was towed into Kingston Sept. 15, after having drifted for about 10 hours, with a broken shaft. She was subsequently towed to Toronto.

The captains of the Niagara Navigation Co.'s steamboats Cayuga, Chippewa, Chicora and Corona, were fined \$650, in the aggregate, at St. Catharines, Sept. 1, for breaches of the Liquor License Act on board their vessels.

The canal committee of the Dundas council received tenders, recently, for the dredging of the Desjardins canal, in accordance with the Jennings award, in-

**LAKE GRAIN SHIPMENTS, 1909 CROP.**

The following statement, prepared by F. E. Gibbs, Grain Inspector, Fort William, Ont., shows the bushels of grain shipped from the different elevators at Fort William and Port Arthur, of the crop of 1909, Sept. 1, 1909, to Aug. 31, 1910, inclusive, with ports of destination. The last two figures in each column after the period represent lbs.

	Wheat		Oats		Barley		Flax	
	Canadian Vessels	Foreign Vessels	Canadian Vessels	Foreign Vessels	Canadian Vessels	Foreign Vessels	Canadian Vessels	Foreign Vessels
<b>CANADIAN PORTS</b>								
Collingwood.....	355,792.40		99,880.30		98,238.15			
Depot Harbor.....	3,355,566.10		386,848.29					
Goderich.....	5,100,574.40		2,498,724.05		185,626.26		251,421.26	
Kingston.....	7,583,887.40		4,029,396.16		487,879.37		92,648.00	
Montreal.....	6,483,509.00		3,378,565.19		464,180.32		253,792.20	
Midland.....	542,098.40		1,033,820.10		38,674.18			
Meaford.....	919,593.40		198,686.16		81,884.18			
Owen Sound.....	2,045,890.40		3,214,608.10		93,049.12			
Prescott.....	2,077.30		70,000.00					
Port Colborne.....	2,409,602.20		555,520.16		44,691.32			
Point Edward.....	1,842,432.00		941,161.11		149,923.08		75,230.20	
Port Stanley.....	101,000.00		65,252.00					
Tiffin.....	10,951,094.40		2,449,593.06		197,896.38			
Thorold.....	195,000.00							
Walkerville.....	264,410.30		206,210.02					
	42,152,580.10		19,123,268.00		1,837,044.44		673,092.10	
<b>FOREIGN PORTS</b>								
Buffalo.....	2,210,423.40	16,756,739.20	158,976.15	818,709.10	270,519.44	138,123.36	1,089,087.31	1,382,135.41
Chicago.....		321,167.30						
Duluth.....		9,472.20						
Erie.....		110,000.00				255,275.46		85,926.04
Port Huron.....	561,658.10	964,843.20				84,472.42		
Canadian Vessels.....	44,924,612.00		19,282,244.15		2,107,564.40		1,762,179.41	
Foreign Vessels.....		13,162,222.30		818,709.10		477,872.28		1,468,061.45
1909 Crop.....	63,086,834.30		20,100,953.25		2,585,437.20		3,230,241.30	
1908 Crop.....	49,379,726.50		12,301,020.05		1,957,989.05		1,593,410.45	



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Stock Cars, 50,000 lbs., 36 ft. inside, overhauled.  
Flat Cars, 60,000 lbs., 40 ft. long new bodies.  
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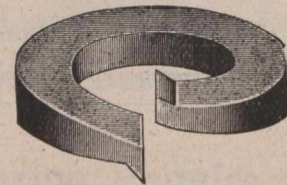
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**STANDARD STEEL  
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volving the removal of about 27,500 cubic yards of material. The work is to be completed by Dec. 1.

At the recent annual meeting of the Lake Shippers Clearance Association, at Winnipeg, it was announced that the first year had been a most successful one, the handling of grain had been simplified and expedited to a great extent, and there was a surplus of \$5,875.

The Marine Department's fog horn at Pelee Passage, Lake Erie, has been changed from a steam siren to a compressed air diaphone, the compressor being driven by an oil engine. The blasts and intervals remain unchanged.

The Richelieu and Ontario Navigation Co. has been suffering considerable loss recently, owing to the theft of ships' stores. A number of employes on the steamboat Toronto were arrested recently at Toronto, on charges of theft, and some restaurant keepers have also been charged with receiving.

The C.P.R. s.s. Alberta will, it is reported, be lengthened by about 42 ft. during the winter. It is said that the change, involving an expenditure of nearly \$60,000, will be commenced immediately after the last sailing of the season, and be completed in time for the re-opening of navigation.

The Lesslie Contracting Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of \$10,000 and office at Kingston, to carry on a general wrecking and salvage business, and in connection therewith to own and operate steam and other vessels. The provisional directors are, H. E. Richardson, J. F. and E. V. Lesslie, Kingston.

The annual meeting of the Kingston Shipbuilding Co., was held at Kingston, Sept. 9. Following are the officers and directors for the current year:—President, S. Dymont, Barrie; Vice President, H. A. Calvin, Kingston; Secretary-Treasurer, W. J. Fair, Kingston; directors: H. B. Smith, Owen Sound; A. Macdougall, Duluth, Minn.; J. McKelvey, Kingston; J. M. Smith, Collingwood.

The U.S. Lake Survey reports the stages of the Great Lakes for Aug. in feet above tidewater, as follows:—Superior 601.96; Michigan and Huron 580.35; Erie 572.09; Ontario 246.05. Compared with the average Aug. levels for the past 10 years, Superior was 0.99 ft. below; Michigan and Huron 0.85 ft. below; Erie 0.62 ft. below, and Ontario 0.54 ft. below.

The report of the International Waterways Commission on the question of the construction of a dam on the St. Lawrence at Long Sault Rapids, is stated in Montreal to be held up indefinitely. The press report states that there is to be a new commission, permanent in its character, and implementing the provisions of the Waterways Treaty between Canada and the U.S., to which the question will be handed for discussion and decision.

The Toronto Harbor Commissioners met the Minister of Public Works in Toronto recently, and urged that the Government undertake the work of dredging a channel in the Toronto harbor, to enable vessels with 20 ft. draught to come up to the docks which the city is about to build at Ashbridge's bay, at a cost of about \$130,000. In reply, it was suggested that the request be made by the civic authorities in the regular way, when it would receive the best consideration.

The Montreal Transportation Co.'s steamboat Bothnia is reported to have been sold to Capt. Loonan of Collingwood, for operation between Georgian Bay and Tonawanda, N.Y., in the lumber trade. The price paid is stated to have been \$10,000. The Bothnia was built at Garden Island in 1895, and was formerly named Jack. She is a screw driven ves-

sel with engine of 200 n.h.p., her dimensions are:—length 178 ft., breadth 37.8 ft., depth 12.3 ft.; tonnage, 833 gross, 478 register.

The Pittsburg Steamship Co.'s steamboat John B. Trevor, which was wrecked at Isle Royale last fall, and which was recently purchased and salvaged by F. S. Wiley, Port Arthur, is to be rebuilt during the winter and placed on the Canadian register. She was built at Cleveland, Ohio, in 1895, her dimensions being:—Length, 308 ft.; breadth, 38 ft.; tonnage, 1,713 gross, 1,318 register, and she is equipped with triple expansion engines with cylinders 18 3/4, 32 and 54 ins. diam. by 42 ins. stroke, supplied with steam by two Scotch boilers 12 by 13 ft.

Hall and Eligh, Ltd., the incorporation of which we announced in our July issue, has been formed to take over the business of Hall and Eligh and the steamboat Roberval, which operates between Chicoutimi, Que., and the Great Lakes, in a general forwarding business. The Roberval is a screw driven vessel with engine of 27 n.h.p., built at Toronto in 1907. Her dimensions are:—length 128 ft., breadth 24 ft., depth 9 ft.; tonnage, 344 gross, 157 register. The provisional directors are, J. H. and W. J. Hall, P. and E. W. Eligh, Ottawa, and E. A. Hall, L'Orignal, Ont.

The Marquette and Bessemer Dock and Navigation Co.'s car ferry Marquette and Bessemer no. 2, which is being built to replace the one lost in Lake Erie last fall, was launched at Cleveland, O., Sept. 3. Her dimensions are, length 350 ft., breadth 56 ft., depth 19 1/2 ft., with capacity for 30 loaded cars. She will be equipped with two triple expansion engines, with cylinders 19, 35 and 52 ins. diam., by 40 ins. stroke, supplied with steam by four Scotch boilers 13 3/4 ft. diam. by 12 ft. long. The cost is quoted as \$400,000, and she is expected to be ready for service between Conneaut and Port Dover, by the end of October.

The vessel which the Inland Lines Ltd., has under construction at Collingwood, is stated to be the largest Canadian built freighter. She will have a capacity of 10,000 tons, or 400,000 bush. of wheat, and be about 525 ft. long. It is intended to utilize her in the ore, coal and grain trades on the upper lakes. It is anticipated that she will be launched in December, and be ready for the re-opening of navigation. The company also has

another vessel under construction, for use in the combined passenger and freight trade on the lower lakes. She will have accommodation for about 200 passengers.

The ratepayers of Owen Sound have passed a bylaw granting a bonus of \$50,000, empowering the corporation to take \$50,000 of stock and to provide the money by the issue of debentures, for the construction and operation of a dry dock, ship building and ship repairing plant, and structural steel works, at a minimum expenditure of \$800,000. In the agreement for such construction, entered into with E. Box, C.E., of Tynemouth, Eng., the corporation agrees not to enter into negotiations with any other party for the construction of such works within six months from May 18, provided the plans are submitted to the Department of Public Works within that time, and the work commenced within 12 months. The bonus is payable on completion of the work, and it is understood that application will also be made for a Government bonus under the act granting aid for the construction of dry docks. E. Box, is at present in England, arranging for the organizing of the company and the financing of the work.

The Ontario and Quebec Navigation Co., Ltd., has been incorporated under the Dominion Companies Act with a capital of \$1,000,000, and office at Picton, Ont., to carry on a forwarding, passenger and transportation business, and to own and operate steam and other vessels and other transportation facilities. The provisional directors are, B. R., J. de C., and R. G. K. Hepburn, A. Leslie, Picton; J. F. Chapman, Deseronto, and H. Dempsey, Trenton. The company, which has been re-incorporated, owns the steamboats Aberdeen, Alexandria, Lloyd S. Porter, and Water Lily, and is reported to have absorbed the Quinte Navigation Co., Picton, which owns the steamboats Aletha, Brockville and Varuna. Press reports from Picton, state that A. W. Hepburn has sailed for Great Britain to superintend the construction of a steel vessel, to be built on the Clyde, at a cost of about \$140,000, which, it is said, will reach Canada in time for the re-opening of navigation, and be placed on the Toronto, Charlotte, Montreal and Quebec route. The new vessel, will it is said have capacity for 250 passengers and about 450 tons of freight.

SAULT STE. MARIE CANALS TRAFFIC.

The following commerce passed through the Sault Ste. Marie Canals in August:

ARTICLES.	CANADIAN CANAL	U. S. CANAL	TOTAL
Copper..... Eastbound..... Net tons	653	18,392	19,045
Grain..... "..... Bushels	603,006	818,635	1,421,641
Building stone..... "..... Net tons	.....	5,113	5,113
Flour..... "..... Barrels	257,461	574,790	832,251
Iron ore..... "..... Net tons	4,619,300	2,339,297	6,958,597
Pig iron..... "..... ".....	.....	5,546	5,546
Lumber..... "..... M. ft. B.M.	3,647	85,390	89,037
Silver ore..... "..... Net tons	.....	.....	.....
Wheat..... "..... Bushels	2,974,884	1,991,234	4,966,168
General merchandise..... "..... Net tons	6,734	12,539	19,273
Passengers..... "..... Number	3,031	5,999	9,930
Coal, hard..... Westbound..... Net tons	61,800	183,389	245,199
Coal, soft..... "..... ".....	489,678	1,382,680	1,872,358
Flour..... "..... Barrels	.....	.....	.....
Grain..... "..... Bushels	.....	.....	.....
Manufactured iron..... "..... Net tons	8,465	24,301	32,766
Iron ore..... "..... ".....	.....	.....	.....
Salt..... "..... Barrels	5,026	67,637	72,663
General merchandise..... "..... Net tons	77,871	85,720	163,591
Passengers..... "..... Number	5,659	5,502	11,161
Vessel passages..... Number	1,045	2,116	3,161
Registered tonnage..... Net	3,251,851	4,433,837	7,685,688
Freight—Eastbound..... Net tons	4,759,443	2,660,345	7,419,788
" —Westbound..... ".....	638,532	1,686,236	2,324,768
Total freight..... ".....	5,397,975	4,346,581	9,744,556



**Manitoba, Saskatchewan and Alberta.**

H. P. Naylor and Co., Ltd., has been incorporated under the Manitoba Companies Act, with a capital of \$20,000 and office at Winnipeg, to carry on lumbering, and other business, and in connection therewith to own and operate steam and other vessels, for the transportation of passengers and freight.

The Government survey of the Saskatchewan River, is progressing satisfactorily, though some difficulty has been experienced, owing to men leaving the work. The engineer in charge is reported to have said recently, that everything is now running smoothly, and he hoped to complete the survey before the ice comes.

Coast Lumber Yards, Ltd., has been incorporated under the Manitoba Companies Act, with a capital of \$250,000 and office at Winnipeg, to carry on a general land and lumber business, and in connection therewith to own and operate steam and other vessels, wharves, docks, elevators, etc., and to conduct the business of an elevator and general transportation company.

The Governor General-in-Council has approved regulations for the operation of the St. Andrew's lock, on the Red River, providing that the Dominion De-

partment of Public Works shall have control of the operation, that the lock shall be open for navigation each day and night, except from midnight on Saturdays to midnight on Sundays, during the navigation season, except at any particular time or season an order in council be made to the contrary. All vessels when passing through the locks or approach channels, do so at the risk of their owners, and the Department is absolved from any responsibility for delay due to accident, etc., and no vessel shall be permitted to pass the lock, unless an agreement is signed by the person in charge, binding him to observe the rules and regulations in force, subject to penalties, as provided. Before passing the lock those in charge of a vessel shall receive a "let pass" at the lock statistical office, where they must supply on a form prepared for the purpose, the registered tonnage of the vessel, nature and quantity of cargo as set out in the bill of lading, and destination, and in the cases of rafts, the number of pieces, feet b.m., etc. The District Engineer, or Superintendent, has power to stop any vessel or raft for examination, and the permission to pass must be shown when required by such officer. No vessel drawing more than 9 ft. shall be allowed to use the lock, and no animal traction shall be used. Government

vessels shall have priority over all other vessels, vessels in passenger traffic, running on schedule time, and excursion steamers and market boats, coming next, followed by freight vessels, even though carrying passengers to a limited extent, private boats, etc. Other provisions of a general nature are made, and penalties arranged for infraction of the rules.

**B.C. and Pacific Coast Marine.**

The Barnet Lighterage Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of \$10,000, to carry on the business of ship builders and vessel owners, etc.

It is reported that the Balcom Steamship Co. has chartered a steamship, at present running between Liverpool, Eng., and Spanish ports, for service between Vancouver and Stewart.

The receipts of the North Vancouver city ferries for Aug., were \$9,151.65, an increase of nearly 50% over Aug., 1909. Owing to the successful operation of the ferries, the city has reduced the fares, now selling 30 tickets for \$1.

The British s.s. Bramley claims to be the first vessel to unload cargo at Powell River, a new B.C. port, opposite Comox. The captain is reported to have said that there is an excellent harbor, and that in a few years it will be a busy place.

The Canadian Arctic Whaling Co., has been incorporated under the B.C. Companies Act, to own and operate steam and other vessels, to engage in whaling, fishing and various other enterprises.

**THE GRAND TRUNK RAILWAY COMPANY OF CANADA.**

NOTICE is hereby given that the ordinary half-yearly general meeting of the Grand Trunk Railway Company of Canada will be held at the City Terminus Hotel, Cannon Street, London, E.C., on Monday, the 24th day of October, 1910, at twelve o'clock noon precisely, for the purpose of receiving a report from the directors, and for the transaction of other business of the company.

Notice is also given that the transfer books of the company in London and Montreal will be closed from Friday, the 23rd September, to the day of meeting, both days inclusive.

By order,

ALFRED W. SMITHERS, Chairman,  
H. H. NORMAN, Secretary.

Dashwood House, 9 New Broad Street,  
London, E.C., 10th September, 1910.

**AMALGAMATION NOTICE**

Pursuant to Section 361 of the Railway Act, and to the Order of the Board of Railway Commissioners for Canada, No. 11,511, dated September 1st, 1910, notice is hereby given that on the eighteenth day of October, 1910, at ten o'clock in the forenoon, or so soon thereafter as the application can be heard, an application will be made to the said Board, at its office in Ottawa, by the Canadian Northern Railway Company and the Edmonton and Slave Lake Railway Company, for a recommendation to the Governor-General in Council for the sanction of an agreement amalgamating the said companies.

Dated at Toronto this 6th day of September, 1910.

GERARD RUEL,

Solicitor for the said Companies.

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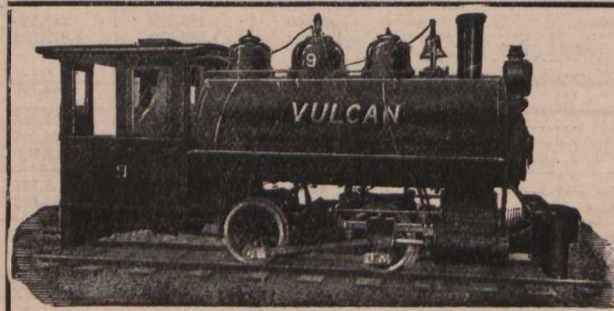
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The company's offices are to be in Vancouver, and its capital is fixed at \$500,000.

While on the Pacific coast, the Dominion Premier is reported to have said that, following a conference with Capt. Nicholson, Manager G.T.P. Steamship Co., the Government would install 15 lights on the northern route, and provide the necessary equipment for the safe and speedy navigation of the waters there.

E. J. Chamberlin, Vice President and General Manager G.T.P.R., is reported to have said, while in Vancouver, recently, in referring to the G.T.P.R. charter of the steambot Rupert City, that it was felt that a vessel for the exclusive purpose of transporting construction material was needed, and the Rupert City would be used for that purpose until Dec. 15, when the charter expired. The charter might be renewed for another year,

but the question of purchase had not been considered.

The London advertising agents of the Canadian Northern Steamships, Ltd., recently sent an item to the press to the effect that the company had decided to enter the Pacific coast trade, and that it was arranging for two passenger vessels of the most modern type for its proposed B.C. Coast Service, which, it was stated, would be inaugurated next May. We have been unable to obtain any confirmation of this, and we are disposed to regard such a statement, as, at least, premature. A prominent Toronto official of the company says that the information quoted is incorrect.

The Balcom Steamship Co., which has recently entered the northern B.C. trade between Victoria and Stewart, is operating three steamboats in the service, and is conducting negotiations for the establishment of a weekly passenger and

freight service between Victoria and northern B.C. ports. It is reported that next season the company will have an additional steamship of about 1,200 tons register, having a speed of 14 knots an hour, with accommodation for 200 passengers, brought out from England.

In response to a delegation, comprising members of the Nelson and Revelstoke Boards of Trade, Associated British Columbia Chambers of Commerce, and representatives from the States of Oregon and Washington, regarding the proposed opening of a waterway from the Rockies to the Pacific, part of which passes through Canada, the Premier, said recently, that he considered it the Government's duty to look into the matter, and he would ask the Minister of Public Works to have a survey made from Lake Windermere to the boundary, and determine what was required, and the cost.

# The Purchasing Agents' Guide

To the Manufacturers of and Dealers in Steam and Electric Railway, Marine, Grain Elevator, Express, Telegraph, Telephone and Contractors' Supplies, &c.

## Accumulators, Electric

Tate Accumulator Co. of Canada, Toronto

## Aerated Waters

E. L. Drewry .....Winnipeg.

## Air Brakes and Fittings

Allis-Chalmers-Bullock Ltd. ....Montreal.

Canadian Westinghouse Co. Hamilton, Ont.

## Alas

E. L. Drewry .....Winnipeg.

## Alloys

American Vanadium Co....Pittsburg, Pa.

## Angle Bars

Hamilton Steel & Iron Co. Hamilton, Ont.

Montreal Rolling Mills Co.....Montreal.

Nova-Scotia S. & C. Co., New Glasgow, N.S.

## Anti Rail Creepers

The Holden Co., Ltd.....Montreal.

## Automobiles

Preston Car & Coach Co...Preston, Ont.

## Axes

James Smart Mfg. Co....Brockville, Ont.

## Axles

Canadian Car & Foundry Co....Montreal.

Hamilton S. & I. Co., Ltd., Hamilton, Ont.

James Hutton & Co. ....Montreal.

Nova Scotia S. & C. Co., New Glasgow, N.S.

Pittsburg Forge & Iron Co., Pittsburg, Pa.

Jas. W. Pyke & Co.....Montreal.

## Babbit Metal

Tallman Brass & Metal Co., Hamilton, Ont.

## Beacons

International Marine Signal Co....Ottawa.

## Bearings, Side

Canadian Car & Foundry Co....Montreal.

Chicago Railway Equipment Co..Chicago.

## Blankets and Bedding

The Hudson's Bay Co. ....

## Boilers

Babcock & Wilcox, Ltd.....Montreal.

Polson Iron Works, Ltd.....Toronto.

Robb Engineering Co., Ltd..Amherst, N.S.

## Boilers, Portable

Babcock & Wilcox, Ltd.....Montreal.

Polson Iron Works, Ltd.....Toronto.

Robb Engineering Co., Ltd..Amherst, N.S.

## Boilers, Stationary and Marine

Babcock & Wilcox, Ltd.....Montreal.

John Inglis Co., Ltd. ....Toronto.

I. Matheson & Co....New Glasgow, N.S.

Polson Iron Works, Ltd.....Toronto.

Robb Engineering Co., Ltd..Amherst, N.S.

## Boiler Staybolt Iron or Steel Bars

Falls Hollow Staybolt Co..Cuyahoga Falls.

## Boilers, Steam

Babcock & Wilcox, Ltd.....Montreal.

John Inglis Co., Ltd. ....Toronto.

Polson Iron Works, Ltd.....Toronto.

Robb Engineering Co., Ltd..Amherst, N.S.

## Boilers, Water Tube

Babcock & Wilcox, Ltd.....Montreal.

John Inglis Co., Ltd. ....Toronto.

Polson Iron Works, Ltd.....Toronto.

Robb Engineering Co., Ltd..Amherst, N.S.

## Bolsters

Canadian Car & Foundry Co....Montreal.

Canadian Ry. Equipment Co., Welland, Ont.

## Bolts, Bridge

Montreal Rolling Mills Co.....Montreal.

Pittsburg Forge & Iron Co., Pittsburg, Pa.

## Bolts, Track

Montreal Rolling Mills Co.....Montreal.

Nova Scotia S. & C. Co., New Glasgow, N.S.

Pittsburg Forge & Iron Co., Pittsburg, Pa.

## Borers, Car Wheel

John Bertram & Sons Co....Dundas, Ont.

## Braces, Cross Arm

Montreal Rolling Mills Co.....Montreal.

## Brake Beams

Canadian Car & Foundry Co....Montreal.

Chicago Railway Equipment Co..Chicago.

## Brake Shoes

Am. Brake Shoe & F'dry Co., Mahwah, N.J.

Canada Iron Corporation, Ltd..Montreal.

The Holden Co., Ltd.....Montreal.

## Brake Shoes, Locomotive Driver

Am. Brake Shoe & F'dry Co., Mahwah, N.J.

Canada Iron Corporation, Ltd..Montreal.

Railway Materials Co. ....New York.

## Brass and Copper Cloth

The B. Greening Wire Co..Hamilton, Ont.

## Brasses, Car

T. McAvity & Sons .....St. John, N.B.

## Bridge Numbers

Acton Burrows, Limited .....Toronto.

## Bridges

Canadian Bridge Co....Walkerville, Ont.

Dominion Bridge Co.....Montreal.

## Bronze

American Vanadium Co....Pittsburg, Pa.

## Buckets, Coal, Ore and Concrete

M. Beatty & Sons, Ltd...Welland, Ont.

Brown Hoisting Machinery Co., Cleveland.

Williams & Wilson, Ltd.....Montreal.

## Buildings, Steel

Canadian Bridge Co....Walkerville, Ont.

Dominion Bridge Co.....Montreal.

## Bumping Posts

Dominion Equip't & Supply Co..Winnipeg.

The Holden Co., Ltd.....Montreal.

McCord & Co. ....Chicago, Ill.

## Buoy Lighting

Safety Car Heat. & Light. Co..New York.

## Buoys

International Marine Signal Co....Ottawa.

## Cables, Electric and Feeder

Chapman & Walker, Ltd.....Toronto.

E. F. Phillips Electrical Works.Montreal.

The Wire and Cable Co.....Montreal.

## Car Furnishings

Guilford S. Wood.....Chicago, Ill.

## Car Loaders, Box

Mussens, Ltd. ....Montreal.

## Car Movers

F. H. Hopkins & Co.....Montreal.

Mussens, Ltd. ....Montreal.

## Cars

R. M. Burns & Co.....Chicago, Ill.

Crossen Car Mfg. Co....Cobourg, Ont.

Canadian Car & Foundry Co....Montreal.

J. T. Gardner .....Chicago, Ill.

Hart-Otis Car Co., Ltd.....Montreal.

Hicks Locomotive and Car Works, Chicago.

The Males Co., .....Cincinnati, O.

Ottawa Car Co., Ltd.....Ottawa.

Pay-As-You-Enter Car Co....New York.

Preston Car and Coach Co., Ltd..Preston.

Russel Wheel & Fdry Co..Detroit, Mich.

Silliker Car Co., Ltd.....Halifax, N.S.

## Cars, Logging

Peteler Car Co. ....Minneapolis, Minn.

Russel Wheel & Fdry Co..Detroit, Mich.

## Castings

Edgar Allen & Co., Ltd. ....Montreal.

American Vanadium Co....Pittsburg, Pa.

Canadian Car & Foundry Co....Montreal.

Crossen Car Mfg. Co....Cobourg, Ont.

John Inglis Co., Ltd. ....Toronto.

Lumen Bearing Co....West Toronto, Ont.

I. Matheson & Co....New Glasgow, N.S.

Russel Wheel & Fdry Co..Detroit, Mich.

Standard Steel Works Co..Philadelphia, Pa.

## Castings, Brass

Canadian Bronze Co. ....Montreal.

Canada Iron Corporation, Ltd..Montreal.

Kerr Engine Co. ....Walkerville, Ont.

Lumen Bearing Co....West Toronto, Ont.

I. Matheson & Co....New Glasgow, N.S.

Tallman Brass & Metal Co., Ltd.Hamilton.

## Castings, Car

Edgar Allen & Co., Ltd. ....Montreal.

Am. Brake Shoe & F'dry Co., Mahwah, N.J.

Canada Iron Corporation, Ltd..Montreal.

Russel Wheel & Fdry. Co..Detroit, Mich.

## Castings, Iron

Allis-Chalmers-Bullock Ltd. ....Montreal.

Canada Iron Corporation, Ltd..Montreal.

Kerr Engine Co....Walkerville, Ont.

Russel Wheel & Fdry. Co..Detroit, Mich.

## Castings, Iron and Steel

Edgar Allen & Co., Ltd. ....Montreal.

Am. Brake Shoe & F'dry Co., Mahwah, N.J.

## Castings, Malleable

Galt Malleable Iron Co.....Galt, Ont.

Taylor & Arnold .....Montreal.

## Castings, Manganese Steel

Edgar Allen & Co., Ltd. ....Montreal.

Lumen Bearing Co....West Toronto, Ont.

Montreal Steel Works, Ltd.....Montreal.

## Castings, Steel

Edgar Allen & Co., Ltd. ....Montreal.

American Vanadium Co....Pittsburg, Pa.

Canada Iron Corporation, Ltd..Montreal.

W. Kennedy & Sons, Ltd., Owen So'd, Ont.

Montreal Steel Works .....Montreal.

## Chains

B. J. Coghlin & Co.....Montreal.

Chisels for Pneumatic Chipping Hammers

Edgar Allen & Co., Ltd. ....Montreal.

Cleveland Punch & Shear Wks., Cleveland.

## Closets, Car

Duner Co. ....Chicago, Ill.

## Coal

Nova Scotia S. & C. Co., New Glasgow, N.S.

## Compressors, Air

Allis-Chalmers-Bullock Ltd. ....Montreal.

The American Well Works...Aurora, Ill.

Canadian Rand Co. ....Montreal.

The Holden Co., Ltd.....Montreal.

John Inglis Co., Ltd. ....Toronto.

Vandeleur & Nichols .....Toronto.

## Concrete Mixers and Rock Crushers

Edgar Allen & Co., Ltd. ....Montreal.

F. H. Hopkins & Co.....Montreal.

Mussens, Limited .....Montreal.

## Contractors' Supplies

F. H. Hopkins & Co.....Montreal.

Rice Lewis & Son.....Toronto.

Peteler Car Co. ....Minneapolis, Minn.

Russel Wheel & Fdry. Co..Detroit, Mich.

Williams & Wilson, Ltd .....Montreal.

## Conveyors, Coal and Ash

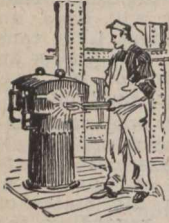
Babcock & Wilcox, Ltd.....Montreal.

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James Smart Mfg. Co....Brockville, Ont.





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 Northern Engineering Wks..Detroit, Mich.  
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 Babcock & Wilcox .....Montreal.  
 Dominion Bridge Co. ....Montreal.  
 Mussels, Limited .....Montreal.  
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 Canadian Rand Co.....Montreal.
- Drills, Flat Twisted**  
 Cleveland Punch & Shear Wks., Cleveland.
- Dry Goods**  
 The Hudson's Bay Co.....
- Dump Cars, Contractors'**  
 Dominion Equip't & Supply Co..Winnipeg.  
 F. H. Hopkins & Co.....Montreal.  
 Peteler Car Co. ....Minneapolis, Minn.
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 Russel Wheel & Fdry Co..Detroit, Mich.
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 Allis-Chalmers-Bullock Ltd. ....Montreal.  
 John Inglis Co., Ltd. ....Toronto.  
 Robb Engineering Co., Ltd..Amherst, N.S.
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 John Inglis Co., Ltd. ....Toronto.  
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 Polson Iron Works, Ltd.....Toronto.  
 Robb Engineering Co., Ltd..Amherst, N.S.
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 Vandeleur & Nichols .....Toronto.
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 Canadian Car & Foundry Co...Montreal.  
 Cleveland City Forge & Iron Co., Cleveland.  
 Crossen Car Mfg. Co.....Cobourg, Ont.  
 Hamilton Steel & Iron Co., Ltd., Hamilton.  
 Nova Scotia S. & C. Co., New Glasgow, N.S.  
 Pittsburg Forge & Iron Co., Pittsburg, Pa.  
 Standard Steel Works Co., Philadelphia, Pa.
- Foundry Appliances**  
 Goldschmidt Thermit Co. ....Toronto.  
 Ont. Wind Eng. & Pump Co., Ltd., Toronto.
- Frames, Steel for Cars**  
 Canadian Ry. Equip't Co., Welland, Ont.
- Frogs**  
 Canadian Ramapo Iron Wks.Niagara Falls.  
 Peteler Car Co. ....Minneapolis, Minn.
- Furnaces, Corrugated**  
 Continental Iron Works...Brooklyn, N.Y.
- Furnaces, Oil**  
 Railway Materials Co. ....New York.
- Furnaces, Shop**  
 Railway Materials Co. ....New York.
- Fuse Batteries**  
 Standard Explosives Limited...Montreal.
- Fuse Detonators**  
 Standard Explosives Limited...Montreal.
- Fuses, Electric**  
 Standard Explosives Limited...Montreal.
- Gaskets**  
 Franklin Mfg. Co.....Franklin, Pa.  
 The Holden Co., Ltd.....Montreal.  
 McCord & Co. ....Chicago, Ill.
- Gates**  
 Owen Sound Wire Fence Co., Ltd., O'n S'd.
- Gates, Crossing**  
 The N. L. Piper Ry. Supply Co..Toronto.
- Gauges, Locomotive**  
 Taylor & Arnold .....Montreal.  
 Utica Steam Gauge Co.....New York.
- Gears**  
 American Vanadium Co. ..Pittsburg, Pa.
- Generators, Electric**  
 Northern Electric & Mfg. Co....Montreal.
- Grates, Shaking**  
 Babcock & Wilcox, Ltd.....Montreal.  
 Polson Iron Works, Ltd.....Toronto.  
 Vandeleur & Nichols .....Toronto.
- Groceries**  
 The Hudson's Bay Co.....
- Hammers, Cast Steel**  
 American Brake Shoe & Fdry Co.Mahwah.  
 James Smart Mfg. Co...Brockville, Ont.
- Handcars**  
 Canadian Fairbanks Co., Ltd...Montreal.  
 Crossen Car Mfg. Co.....Cobourg, Ont.  
 Dominion Equip't & Supply Co., Winnipeg.  
 F. H. Hopkins & Co.....Montreal.  
 Mussels, Limited .....Montreal.  
 Rice Lewis & Son.....Toronto.
- Hardware**  
 The Hudson's Bay Co.....  
 Rice Lewis & Son.....Toronto.
- Headlights**  
 Commercial Acetylene Co.....Toronto.  
 The N. L. Piper Ry. Supply Co..Toronto.  
 Pyle National Elec. Headlight Co.Chicago.
- Headlinings**  
 Crossen Car Mfg. Co.....Cobourg, Ont.
- Heaters, Feedwater**  
 Robb Engineering Co., Ltd..Amherst, N.S.
- Heaters, Oil-burning**  
 Tate, Jones & Co. Inc. .... Pittsburg, Pa.
- Heating, Car**  
 Canadian Gold Car H'g & L'g Co.Montreal.  
 Consolidated Car Heating Co., Albany, N.Y.  
 Safety Car Heating & L'ting Co.New York.
- Holsts, Pneumatic**  
 Taylor & Arnold .....Montreal.
- Hollow Staybolt Iron and Steel Bars**  
 Edgar Allen & Co., Ltd. ....Montreal.  
 Falls Hollow Staybolt Co.Cuyahoga Falls.
- Hoppers, Car, Wet or Dry**  
 Duner Co. ....Chicago, Ill.
- Hose, Air Brake and Steam**  
 Guilford S. Wood.....Chicago, Ill.
- Hydrants**  
 Canadian Fairbanks Co., Ltd...Montreal.  
 Kerr Engine Co.....Walkerville, Ont.
- Illustrations**  
 Acton Burrows, Limited.....Toronto.
- Injectors**  
 T. McAvity & Sons .....St. John, N.B.
- Inspections**  
 R. W. Hunt & Co.....Montreal.
- Insurance, Accident**  
 Can. Casualty & Boiler Ins. Co...Toronto.  
 Canadian Ry. Accident Ins. Co...Ottawa.  
 Imp. Guarantee & Acc. Ins. Co.Toronto.  
 London Guar. & Accident Co., Ltd.Toronto.
- Insurance, Boiler**  
 Can. Casualty & Boiler Ins. Co..Toronto.
- Interlocking Plant and Signals**  
 Montreal Steel Works, Ltd....Montreal.  
 Railway Signal Co. of Canada...Montreal.  
 Saxby & Farmer, Ltd.....Montreal.
- Iron, Pig**  
 Nova Scotia S. & C. Co., New Glasgow, N.S.
- Iron Signs**  
 Acton Burrows, Limited.....Toronto.
- Iron Staybolt Bars**  
 Falls Hollow Staybolt Co.Cuyahoga Falls.
- Jacks**  
 Canadian Fairbanks Co., Ltd...Montreal.  
 Dominion Equip't & Supply Co., Winnipeg.  
 H. & E. Lifting Jack Co., Waterville, Que.  
 F. H. Hopkins & Co., Ltd.....Montreal.  
 Montreal Steel Works, Ltd....Montreal.  
 Mussels, Limited .....Montreal.  
 A. O. Norton .....Coaticook, Que.  
 James Smart Mfg. Co...Brockville, Ont.  
 Williams & Wilson, Ltd .....Montreal.
- Japans**  
 The Dougal Varnish Co., Ltd...Montreal.
- Journal Bearings**  
 Canadian Bronze Co. ....Montreal.  
 Crossen Car Mfg. Co. ....Cobourg, Ont.  
 Kerr Engine Co. ....Walkerville, Ont.  
 Jas. W. Pyke & Co. ....Montreal.
- Journal Boxes**  
 The Holden Co., Ltd.....Montreal.  
 McCord & Co. ....Chicago, Ill.
- Lager Beer, &c.**  
 E. L. Drewry .....Winnipeg.
- Lagging and Covering, Locomotive**  
 Franklin Mfg. Co. ....Franklin, Pa.  
 Taylor & Arnold .....Montreal.
- Lamps, Arc**  
 Northern Electric & Mfg. Co....Montreal.
- Lamps, Incandescent**  
 Canadian Westinghouse Co..Hamilton, Ont.
- Lamps and Lanterns**  
 The Hudson's Bay Co.....  
 The Hiram L. Piper Co.....Montreal.  
 The N. L. Piper Ry. Supply Co.Toronto.
- Lamps, Switch**  
 The N. L. Piper Ry. Supply Co..Toronto.
- Lathes**  
 John Bertram & Sons Co....Dundas, Ont.  
 Williams & Wilson, Ltd .....Montreal.
- Lighting, Car**  
 Canadian Gold Car H'g & L'g Co.Montreal.  
 Safety Car Heating & L'ting Co.New York.
- Lights, Contractors' and Wrecking**  
 F. H. Hopkins & Co., Ltd....Montreal.  
 Mussels, Limited .....Montreal.
- Locomotives, Compressed Air**  
 Baldwin Locomotive Works..Philadelphia.  
 Canadian Locomotive Co..Kingston, Ont.  
 International Marine Signal Co..Ottawa.  
 Montreal Locomotive W'ks (Ltd.)..Montreal.
- Locomotives, Electric**  
 Baldwin Locomotive Works..Philadelphia.  
 Montreal Locomotive W'ks (Ltd.)..Montreal.
- Locomotives, Logging**  
 Baldwin Locomotive Works..Philadelphia.  
 Canadian Locomotive Co..Kingston, Ont.
- Locomotives, Rack**  
 Baldwin Locomotive Works...Philadelphia.  
 Canadian Locomotive Co..Kingston, Ont.  
 Montreal Locomotive Works....Montreal.
- Locomotives, Steam**  
 Baldwin Locomotive Works...Philadelphia.  
 R. M. Burns & Co. ....Chicago, Ill.  
 Canadian Fairbanks Co., Ltd...Montreal.  
 Canadian Locomotive Co..Kingston, Ont.  
 Dominion Equip't & Supply Co., Winnipeg.  
 J. T. Gardner .....Chicago, Ill.  
 Hicks Locomotive & Car Works.Chicago.  
 The Males Co., ..... Cincinnati, O.  
 Montreal Locomotive Works....Montreal.  
 Vulcan Iron Works .....Wilkesbarre, Pa.
- Lorries, Tracklaying**  
 Crossen Car Mfg. Co.....Cobourg, Ont.  
 F. H. Hopkins & Co.....Montreal.
- Lubricators**  
 McCord & Co. ....Chicago, Ill.  
 Taylor & Arnold .....Montreal.



**Lumber**  
 Parry Sound Lumber Co. ....Toronto.

**Machines and Plant, Contractors**  
 M. Beatty & Sons .....Welland, Ont.  
 R. M. Burns & Co. ....Chicago, Ill.  
 Canadian Fairbanks Co., Ltd. ....Montreal.  
 J. T. Gardner .....Chicago, Ill.  
 F. H. Hopkins & Co. ....Montreal.  
 Mussels, Limited .....Montreal.

**Machines and Tools, Prospecting**  
 The American Well Works...Aurora, Ill.

**Machines and Tools, Well Drilling**  
 The American Well Works...Aurora, Ill.

**Machines, Boring and Turning**  
 John Bertram & Sons Co. ....Dundas, Ont.

**Machines, Car Shop**  
 John Bertram & Sons Co., Ltd. ....Dundas, Ont.  
 Cincinnati Punch & Shear Co., Cincinnati.  
 Greenlee Bros. & Co. ....Chicago, Ill.

**Machines, Cement**  
 James W. Pyke & Co. ....Montreal.

**Machines, Drilling**  
 John Bertram & Sons Co. ....Dundas, Ont.

**Machines, Hoisting**  
 Brown Hoisting Machinery Co. ....Cleveland.

**Machines, Logging**  
 Russel Wheel & Fdry. Co. ....Detroit, Mich.

**Machines, Milling**  
 John Bertram & Sons Co. ....Dundas, Ont.

**Machines, Planing and Shaping**  
 John Bertram & Sons Co. ....Dundas, Ont.  
 Cleveland Punch & Shear Wks., Cleveland.

**Machines, Radial Drilling**  
 John Bertram & Sons Co. ....Dundas, Ont.

**Machines, Rivetting**  
 Long & Allstatter Co. .... Hamilton, Ohio.

**Machines, Slotting**  
 John Bertram & Sons Co. ....Dundas, Ont.

**Machines, Straightening**  
 Cleveland Punch & Shear Wks. ....Cleveland.

**Machines, Tire Welding**  
 Long & Allstatter Co. .... Hamilton, Ohio.

**Machines, Track**  
 Greenlee Bros. & Co. ....Chicago, Ill.

**Machines, Tracklaying**  
 F. H. Hopkins & Co. ....Montreal.

**Machines, Wood and Iron Working**  
 Canadian Fairbanks Co., Ltd. ....Montreal.  
 Williams & Wilson, Ltd. ....Montreal.

**Machine Tools**  
 John Bertram & Sons Co. ....Dundas, Ont.  
 Pratt & Whitney Co. ....Dundas, Ont.

**Manhole Frames and Covers**  
 American Brake Shoe & Fdry. Co. ....Mahwah.  
 Canada Iron Corporation, Ltd. ....Montreal.

**Marine Repairs**  
 Goldschmidt Thermit Co. ....Toronto.

**Marine Supplies**  
 Rice Lewis & Son. ....Toronto.

**Metal, Anti-friction**  
 W. Abbott .....Montreal.

**Metal, Babbit**  
 Tallman Brass & Metal Co., Hamilton, Ont.

**Metals**  
 Goldschmidt Thermit Co. ....Toronto.

**Metal Work, Structural**  
 Canadian Bridge Co. ....Walkerville, Ont.  
 Dominion Bridge Co. ....Montreal.  
 Montreal Locomotive Works. ....Montreal.  
 Jas. W. Pyke & Co. ....Montreal.

**Milepost Numbers**  
 Acton Burrows, Limited. ....Toronto.

**Motors**  
 Canadian Fairbanks Co., Ltd. ....Montreal.  
 McCord & Co. ....Chicago, Ill.

**Motors, Electric**  
 Allis-Chalmers-Bullock Ltd. ....Montreal.  
 Canadian Crocker-Wheeler Co. ....Montreal.  
 Chapman & Walker, Ltd. ....Toronto.  
 Northern Electric & Mfg. Co. ....Montreal.  
 Vandeleur & Nichols .....Toronto.

**Motor Generator Sets**  
 Allis-Chalmers-Bullock Ltd. ....Montreal.  
 Chapman & Walker, Ltd. ....Toronto.  
 Vandeleur & Nichols .....Toronto.

**Motors, Turntable**  
 Taylor & Arnold .....Montreal.

**Nickel**  
 The Orford Copper Co. ....New York.

**Nickel for Nickel Steel**  
 The Orford Copper Co. ....New York.

**Numbers**  
 Acton Burrows, Limited .....Toronto.

**Nut Locks**  
 Positive Lock Washer Co. ....Newark, N.J.

**Nuts, Clevis**  
 Cleveland City Forge & Iron Co. ....Cleveland.

**Nuts, Square and Hexagon**  
 Montreal Rolling Mills Co. ....Montreal.  
 Toronto Bolt & Forging Co. ....Toronto.

**Oakum**  
 The Hudson's Bay Co. ....

**Office Fittings**  
 Can. Office & Sch'l Furn. Co. ....Preston.

**Office Signs**  
 Acton Burrows, Limited .....Toronto.

**Oils**  
 Galena Signal Oil Co. ....Franklin & Toronto.

**Packing**  
 The N. L. Piper Ry. Supply Co. ....Toronto.

**Paints**  
 R. F. Johnston Paint Co., Cincinnati, Ohio.

**Pile Drivers, Railway**  
 F. H. Hopkins & Co. ....Montreal.  
 Mussels, Limited .....Montreal.

**Pinch Bars**  
 The N. L. Piper Ry. Supply Co. ....Toronto.

**Pipe, Culvert, Cast Iron**  
 Gartshore-Thompson Pipe Co. ....Hamilton.

**Pipe, Gas, Cast Iron**  
 Gartshore-Thompson Pipe Co. ....Hamilton.

**Pipe, Sewer, Cast Iron**  
 Gartshore-Thompson Pipe Co. ....Hamilton.

**Pipe Stocks**  
 Butterfield & Co. ....Rock Island, Que.  
 A. B. Jardine & Co. ....Hespeler, Ont.

**Pipe, Water (Cast Iron)**  
 Gartshore-Thompson Pipe Co. ....Hamilton.

**Planers**  
 John Bertram & Sons Co. ....Dundas, Ont.

**Platforms, Steel**  
 Standard Coupler Co. ....New York City.

**Ploughs, Contractors'**  
 Meaford Wheelbarrow Co., Ltd., Meaf'd, Ont.  
 Mussels, Limited .....Montreal.

**Porter**  
 E. L. Drewry .....Winnipeg.

**Powder, Blasting**  
 Standard Explosives, Limited ..Montreal.

**Preservative for Hose**  
 Guilford S. Wood. ....Chicago, Ill.

**Printing**  
 Southam Press .....Toronto.

**Propellor Wheels**  
 W. Kennedy & Sons, Ltd., Owen So'd, Ont.

**Pumps**  
 Canadian Fairbanks Co., Ltd. ....Montreal.  
 S. F. Bowser & Co., Ltd. ....Toronto.  
 Ontario Wind Engine & Pump Co. ....Toronto.  
 James Smart Mfg. Co. ....Brockville, Ont.  
 Vandeleur & Nichols .....Toronto.

**Pumps, Centrifugal**  
 The American Well Works...Aurora, Ill.  
 M. Beatty & Sons .....Welland, Ont.  
 John Inglis Co., Ltd. ....Toronto.

**Pumps, Deep Well, Steam and Power**  
 The American Well Works...Aurora, Ill.

**Pumps, Fire Pressure**  
 The American Well Works...Aurora, Ill.

**Pumps, Irrigating**  
 The American Well Works...Aurora, Ill.

**Pumps, Reclamation**  
 The American Well Works...Aurora, Ill.

**Pumps, Sprinkler Systems**  
 The American Well Works...Aurora, Ill.

**Pumps, Underwriters' Fire**  
 The American Well Works...Aurora, Ill.

**Punches and Shears**  
 Cincinnati Punch & Shear Co., Cincinnati.  
 Cleveland Punch & Shear Wks., Cleveland.  
 Long & Allstatter Co. .... Hamilton, Ohio.  
 Williams & Wilson, Ltd. ....Montreal.

**Rail Benders, Roller**  
 Dominion Equip't & Supply Co. ....Winnipeg.  
 F. H. Hopkins & Co. ....Montreal.  
 Montreal Steel Works .....Montreal.

**Rail Drilling Machines**  
 A. B. Jardine & Co. ....Hespeler, Ont.

**Rails, new**  
 Dominion Iron & Steel Co. ....Sydney, N.S.  
 Drummond, McCall & Co. ....Montreal.  
 J. T. Gardner .....Chicago, Ill.  
 J. J. Gartshore .....Toronto.  
 F. H. Hopkins & Co. ....Montreal.  
 Peteler Car Co. ....Minneapolis, Minn.

**Rails, for relaying**  
 F. H. Hopkins & Co. ....Montreal.  
 J. J. Gartshore .....Toronto.  
 Mussels, Limited .....Montreal.  
 Provincial Steel Co., Ltd. .. Cobourg, Ont.  
 Jas. W. Pyke & Co. ....Montreal.

**Rail Joints**  
 Goldschmidt Thermit Co. ....Toronto.  
 The Rail Joint Co. of Canada...Montreal.

**Rails, Re-rolled**  
 Provincial Steel Co., Ltd. .. Cobourg, Ont.

**Railway Supplies**  
 Canadian Fairbanks Co., Ltd. ....Montreal.  
 Franklin Mfg. Co. ....Franklin, Pa.  
 T. McAvity & Sons .....St. John, N.B.  
 The Hiram L. Piper Co. ....Montreal.  
 The N. L. Piper Ry. Supply Co. ....Toronto.  
 Rice Lewis & Son. ....Toronto.  
 Russel Wheel & Fdry. Co. ....Detroit, Mich.  
 Williams & Wilson, Ltd. ....Montreal.

**Reamers**  
 Butterfield & Co. ....Rock Island, Que.  
 Cleveland Punch & Shear Wks. ....Cleveland.  
 A. B. Jardine & Co. ....Hespeler, Ont.

**Replacers, Car and Locomotive**  
 Alexander Car Replacer Mfg. Co. ....Scranton.  
 Dominion Equip't & Supply Co. ....Winnipeg.  
 The Holden Co., Ltd. ....Montreal.  
 F. H. Hopkins & Co. ....Montreal.  
 W. K. Kenly Co. ....Chicago, Ill.

**Rivets, Boiler, Bridge and Structural**  
 Montreal Rolling Mills Co. ....Montreal.  
 Toronto Bolt & Forging Co. ....Toronto.



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