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## Improvements in the Modern Locomotive.

By George Black, Road Foreman of Locomotives, G. T. R., Stratford, Ont.

In preparing this paper I have endeavored to give a review of the most important improvements in the modern locomotive brought about by the varying conditions and requirements from the time of its first appearance to the present time. In doing this I have been unable, in the limited time at my disposal, to give the exact dates of the introduction of the various improvements, but have trusted chiefly to my memory.

The first idea of steam navigation was set forth in a patent obtained in 1736 by Jonathan Hulls, for a machine for carrying vessels against wind and tide. In 1778 Thomas Paine proposed in America this application of steam. In 1781 the Marquis de Jouffray constructed one on the Seine, and in 1785 two Americans published descriptions of it.

In 1789, W. Symington made a voyage in one on the Forth and Clyde canal, and soon after Fulton visited Mr. Symington, took notes and then went to America and in 1807 started a steamboat on the Hudson River and made a success of it. In June 1819, the Savannah of 350 tons went from New York to Liverpool by steam. Steam power to convey coal on a railway was first used by Blenkinsop at Hunslet near Leeds, and afterwards for passengers and goods on the Stockton and Darlington Railway, the speed was from five to eight miles an hour.

In the trial of locomotive steam carriages at Liverpool, in October, 1829, Braithwaites' carriage, including water and fuel, weighed 8,220 lbs. Stephenson's weighed 9,216 lbs., and ran from 14 to 18 miles an hour. Braithwaites' ran 22 miles an hour, the size of the cylinder was six ins., the stroke 12 ins., and the load hauled was 10 tons. These figures are in striking contrast to the modern machines weighing 225 tons, and having cylinders of 36 ins. diameter, and 34 ins. stroke, and capable of hauling 4,000 tons or more, but it is a great tribute to Stephenson that we find on the great majority of the locomotives in service today the link motion for steam distribution invented by him, and not as yet found anything to beat it. Stephenson also saw the advantage of added weight to increase the traction power of an engine, and engines were made heavier and wheels were coupled in series to bring about this result.

Then we find another important matter to be considered, viz., the power to control and stop the engines and trains at the required time and place. This brought about the introduction of brakes, the first of these was of the crudest type and consisted of a block of

wood attached to a long lever which, when not in use was hung on a hook, and when required was let down off the hook and exerted a retarding force on the wheel. The next thing was a brake operated by a crank, and a series of levers which did the service for a great many years until the introduction of power brakes, the first of which I believe was the vacuum brake which consisted of a series of suitable levers and a cylinder on each car and engine, and a pipe connecting all to an ejector on the engine. This ejector was capable of

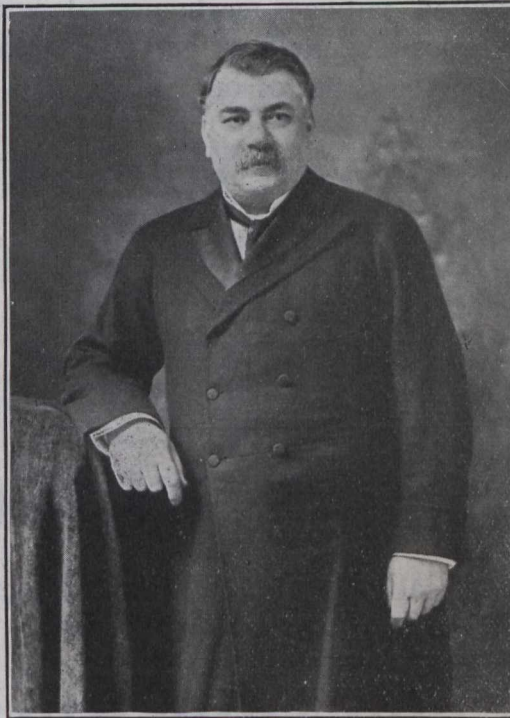
some by steam and some by compressed air, but it remained for Geo. Westinghouse to give to the world the brake that has made possible the controlling of heavy trains at high speeds, and added the element of safety in handling the commerce of the country and the enormous amount of passengers that travel over the great railways of today. The first of these brakes, as I said before, was rather crude, but as time went on, the requirements were noted and met on all sides, so that from the beginning, with the brake only on the engine, and then applied to a few passenger cars, we now have brakes on every wheel of the train, whether passenger or freight.

When the Westinghouse automatic brake was first introduced we had the old style plain triple valves operated by a three way cock on the engine, and it was found that the operation on long trains was slow on the rear cars and quicker on the cars next to the engine, than when the flow of air from the train pipe was suddenly cut off by the abrupt closing of the three way cock by the engineer, the air would surge from the rear of the train and release the brakes on the front of the train and engine, and sometimes cause damage to draft gear. This brought about the introduction of the equalizing discharge valve, which, by its gradual opening and closing, made the brakes operate uniformly. Then again on longer trains with plain triples, the brakes in an emergency were too slow to apply on the rear of trains and this brought about the introduction of the quick action triples which operate so quickly that the brakes on the last cars are set before the slack has time to run in. Pump governors have also been put on to govern the pressure of air in main reservoirs, feed valves to regulate the pressure in train pipes and auxiliaries and reducing valves to regulate the brake cylinder pressures in the operation of high speed brakes, so that trains running at high speeds can be brought to a stand in the shortest possible distance without shock or the skidding of wheels.

The improvements which have been made to the modern locomotive, are of two classes, those which have been adopted on account of their mechanical advantages, and those which have been adopted to effect economy in steam consumption. The piston valve, the Walschaert valve gear, and the mechanical stoker belong to the first class, and will be considered in the above order. To the second class belong the compound engine and the superheater. These are, without doubt, the most important improvements made in the locomotive and have, with one exception, the Walschaert valve gear, been successfully developed within the last 15 years.

### THE WALSCHAERT VALVE GEAR.

The real test which should be applied to every detail which is assumed to in-



H. B. Spencer,  
Superintendent, District 4, Eastern Division, C.P.R.

creating a partial vacuum in the cylinders, and the pressure of the atmosphere acting on the opposite side of the piston caused it to move and exert a force through the levers, etc., to the wheels, and thus bring about the desired result, but this had the great disadvantage that when the pipe connection got broken or leaked or the train broke in two the brakes could not be operated. This condition brought about the introduction of the automatic vacuum which would overcome this difficulty, for when the train broke in two or the pipes of the brake were disconnected, the brakes would automatically apply and stop the train. The name of the inventor of this brake was Smith. About this time there were other brakes operated about in the same manner,



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crease the cylinder power of a locomotive, concerns its effect on the steam consumption of the engine. Will its use produce a horse power upon less steam than the device which it supersedes. If it will, then, when the boiler is supplying all the steam it can make, it will permit the cylinders to deliver more power than they were able to do without it. If it does not increase the efficiency of the cylinder action it cannot really increase the power.

This suggests the inquiry as to whether the distribution of steam in the cylinders of simple engines is satisfactory, whether, for example, we ought to persist in efforts to secure square cornered cards. The reply is, that in most cases wherethe gear is sufficiently heavy and stiff, to do the work for which it is designed, the distribution as obtained from present gears is satisfactory. The typical locomotive card, displaying the wire-drawing action throughout the cycle, which, especially at high speed, is strongly marked, is, after all, a card of high efficiency. The steam consumption of the locomotive is less than that of most other forms of high speed steam engines employing atmosphere exhaust, even when the speed is increased to limits which far outstrip those common to stationary engines. Its work is to be regarded as highly efficient. So well do the better class of valve gears which are now in common use perform their work that anyone who attempts to increase the power of a modern locomotive by improving its steam distribution will find but a narrow margin on which to work. The Stephenson link motion has been used on locomotives for very many years, almost since its first development. However, on large power, the Walschaert gear, on account of its important mechanical advantages, is displacing it to quite an extent.

The most suitable form of radial gear for locomotives is unquestionably the one invented by the Belgian engineer, Egide Walschaert, in 1844, and applied to locomotives a few years later, but it was not properly understood or appreciated during the first 20 years following its invention, and has ever since then made slow headway until a few years ago, when it took quite a sudden move forward and is at present the dominating valve gear throughout the continent of Europe, and is fast gaining ground in this country. This gear may be said to be based on a fundamental principle of its own, but has been subjected to a few modifications without any improvements over its original form. The motion of the valve is derived from two sources—namely, the main crank by connection to the crosshead, and from an eccentric placed approximately at right angles to the main crank. The crosshead connection imparts the motion of lap and lead at the extremities of the stroke of the piston at which moment the link is in its central position. Therefore in mid gear with the reverse lever in its centre notch, this will be all the motion imparted to a radius equal to the length of the radius bar. By moving the reverse lever forward the eccentric motion is brought into combination with the motion from the crosshead, producing a valve opening for a forward motion of the engine, and by moving the reverse lever backward the link block is brought to the opposite side of link fulcrum, resulting in a valve opening governing the backward motion of the engine, in effect similar to that of the Stephenson motion. The action of this one eccentric is therefore the same as if there were two eccentrics, one for forward and one for backward motion placed diametrically opposite each other, and the angle of advance in the Stephenson motion is taken care of by the main crank in the crosshead connection. The latter motion being

constant, it follows that the lead remains constant at all points of cut-off.

The proportions of the various parts of the Walschaert gear cannot be determined experimentally, nor should any change in setting the valves be made unless the effect of the change is known in advance. It is, therefore, important that the different parts of the motion should be made and set correctly from the beginning, and there will be no need for changes when the original dimensions are maintained. The difference in this gear for outside and inside admission valves must be considered in setting the eccentric crank, and as the forward motion of the engine should preferably be taken from the lower end of the link, when the eccentric crank will follow the main crank for inside admission valve and lead the main crank for outside admission valve. For outside admission valve the radius bar is connected to the combination lever below the valve stem and for inside admission above the valve stem.

The motion is reversed by an arm connected to the radius bar. The sliding lifter, the best method of suspension of the radius bar but due to wheel arrangements of various designs of engines, this is not always applicable, but must be substituted by swinging lifters, which when properly placed give for all practical purposes equally good results.

Following are general notes for adjusting Walschaert gear:—

1. Ascertain by the following method

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J. G. Scott, ex-General Manager Great Northern Railway and Quebec and Lake St. John Railway, writes from Quebec:—

"I have much pleasure in enclosing my renewal subscription to the Railway and Marine World. I am ashamed to send so small a trifle for so valuable a publication. It is replete with the most interesting information, and is worth ten times the subscription. I do not see how any railway man in Canada could be without it."

the position of the eccentric crank. Mark the position of the link relative to its middle position on both of the dead centres of the main crank. If the position of the link is the same in both cases the eccentric crank position is correct, if not, the eccentric crank should be lifted until this occurs, or as near so as possible.

2. After the eccentric crank has been correctly set, the eccentric rod should be lengthened or shortened, as may be required to bring the link in its middle position, so that the link block can be moved from its extreme forward to its extreme back position without imparting any motion to the valve.

3. The difference between the two positions of the valve on the forward and back centres of the engines is the lap and lead doubled, it is the same in any position of the link block and cannot be changed by changing the position of the reverse lever.

4. The train marks of the opening moments at both ends of the valve should be marked upon the valve stem and the latter lengthened or shortened until equal leads at both ends are obtained.

5. Within certain limits this lengthening or shortening may be made on the radius bar, if it should prove more convenient, but it is desirable that its length should be so nearly equal to the radius of the link that no apparent change in the lead should occur in moving the link block as stated in no. 2.

6. The lead may be increased by reducing the lap, and the cut-off points will then be slightly advanced. Increasing the lap produces the opposite effect on the cut-off and reduces the lead by the same amount. With good judgment these quantities may be varied to efface the irregularities inherent in transforming rotary into lineal motions.

7. The valve events are to a great extent dependent on the location of the suspension point of the lifter of the rear end of the radius bar, when swinging lifter is used, which requires that this point should be properly laid out by careful plotting.

The chief point of difference between the Walschaert and Stephenson gear, when both are in proper condition is, as previously stated, that the former gives to the valve a constant lead at all cut-offs, whereas the latter produces an increase of lead by linking up the engine and becomes excessive at short cut-offs. This very point has been the subject for much controversy, and has probably done more than anything else to retard the progress of the use of Walschaert gear, as it has been argued that in full gear, when the speed of the engine, generally is low, only small lead is needed, but at a high speed more lead is required, which is accomplished by the Stephenson motion, though this admittedly becomes excessive at early cut-offs, causing considerable compression and pre-admission detrimental both to maintenance and smooth running, and in fact, to some degree counteracts the work done by the steam on the driving side of the piston, which thereby also affects the speed of the engine.

It was generally discovered that the required lead for short cut-off and high speed was of no practical detriment to the working of the engine in full gear, as the pre-admission at that point is disappearingly small. The proper amount of lead, however, is dependent somewhat on the service, and the port opening becomes larger with a larger lead, or in other words, when all other conditions are equal in a Stephenson or Walschaert gear, the openings differ by the same amount as the lead, so that one-sixteenth more lead gives one-sixteenth wider port opening, but it is hardly advisable to make this over one-quarter or five-sixteenths inch as a maximum, as the advantage of any additional port opening by means of a larger lead is more than offset by the increase in compression and pre-admission, the larger lead would bring about at early cut-offs, and would do no good in the later cut-offs even if it does no harm.

There is no fundamental reason why the Walschaert gear should produce any economy in steam consumption over the Stephenson motion when both are in the best condition, but an advantage in this respect comes to the former by the fact that it remains in its good condition if once made so, from one stopping to another and is, therefore, on an average more economical both in steam consumption and maintenance of the gear than the latter.

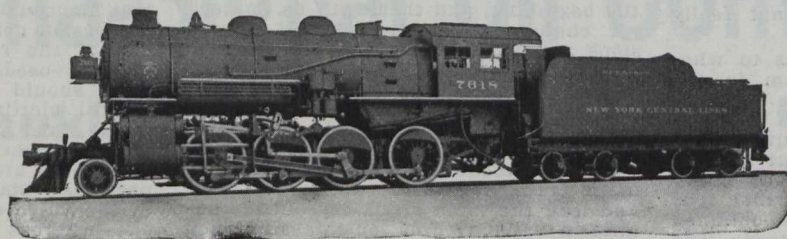
On one engine, no. 912, on the Lake Shore and Michigan Southern after making 39,000 miles, the total lost motion in the valves was one-sixteenth inch. Another engine, no. 5912, equipped with Stephenson link motion had five-sixteenths inch lost motion in the valve stem after making 32,000 miles.

Large eccentrics, besides occupying too large space, wear unevenly, and lubrication is difficult with the high surface velocities of the larger sizes. With hardened pins and bushings the Walschaert gear has not this disadvantage.

Stephenson links, under the influence of two eccentrics, move through wide angles, resulting in a wedging action of the link block, which strains the gear when working hard, and produces lost motion, whereas the Walschaert links



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Diameter of driving wheels 63 inches

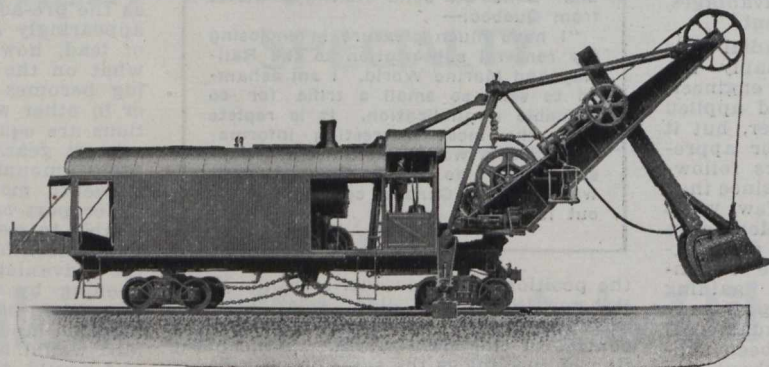
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Cylinders 23 x 32 inches

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oscillate through smaller angles, producing practically no wedging effect and less lost motion.

In many cases the gear can be designed so that the motion is transferred from the eccentric crank to the valve stem in one vertical plane so that practically all of the pins can be put in double shear and all tendency to twist the valve motion is avoided, a thing that is almost impossible in the Stephenson motion.

While it may not be possible to adjust the valve as readily with the Walschaert gear as with the Stephenson motion, for the reason that the parts and connections are not as susceptible to change, it is not as liable to become disarranged, and if correctly designed and fitted up will give accurate results.

Equal cut-offs in both ends of the cylinders are more easily secured than with the Stephenson motion, which requires an exact location of the saddle pin with regard to the centre line of the link, and the play of the engine on its springs has no more effect on the valve than has the Stephenson motion.

The constant lead of the Walschaert motion prevents the sidling of the cylinders by the piston valve when the piston is at the end of its travels or approaching it, whereas with the link motion either by derangement or excessive wear, the valve laps the ports at the end of the stroke, causing excessive compression and many other consequent troubles.

The accessibility for attention and examination of the Walschaert gear is a great point of undisputed advantage over the Stephenson motion. There is not enough room for the Stephenson gear under a very large locomotive. The eccentrics are crowded, and proper inspection, not to speak of proper care, is extremely difficult.

It will be borne out in the course of time that the lateral bracing between the frames permitted by the Walschaert gear will bring about a considerable reduction in the maintenance expenses by the less wear and tear this additional rigidity will impart to the entire engine.

Another very important advantage of the Walschaert gear over the Stephenson gear is the great saving of weight possible. A saving of 1,700 lbs. was possible by using the Walschaert gear in the case of a very heavy passenger locomotive built for the Lake Shore and Michigan Southern. Stephenson gear weighing as much as two tons is far too heavy to be satisfactorily reversed twice in every revolution on fast running locomotives.

And finally a feature which appeals particularly to the engineer is the ease of handling the reverse lever when the locomotive is running at a high rate of speed.

#### THE PISTON VALVE.

With the large increases of the power developed in one cylinder of the modern locomotive and the high steam pressure used, the ordinary and balance valves increase in size proportionately and while they are balanced in the same ratio as the valves on smaller engines the difference in the unbalanced surface increased with the size of the engine, and this combined with the additional weight of the valve and the yoke, increases the wear on the valve, the motion and the eccentric straps and also the work necessary on the part of the engineer to handle the engine.

For these reasons the piston valve, which is perfectly balanced, has been very extensively adopted. Another reason for its adoption is its adaptability for compound cylinders since one valve can be arranged to effect the steam distribution of two cylinders, one high and one low.

With the slide valve on a large engine

it will hardly exceed 25,000 miles before the valves need facing, which means the loss of the engine for a day, while if the piston valve were used and the rings were broken or needed attention the valve can be removed, new rings applied in from 30 to 40 minutes and the engine is ready for service. Of course the bushings wear, but they very rarely need renewing for less than 200,000 miles.

Another advantage to the piston valve over the slide valve is accessibility to its parts. When an engine needs its valves reset after running for some time, the port marks on the valve stems become obscured, and possibly the man, who is about to do the work, has a different train or wants to get new marks on the stem. With the slide valve, the machinist has to take off the steam chest cover before he can take his new port marks, while with the piston valves he simply has to remove one plug on each end of the chest leading directly to the edge of the steam port. With the piston valve there is a much larger port opening than with the slide valve, and this large opening gives a much better admission and release of the steam to and from the cylinder than can be obtained with the slide valve.

Since the piston valve is so perfectly balanced it is not necessary to have a small surface bearing valve, as it is with the slide valve. For this reason the ports can be brought up straight to the valve chamber, instead of curving up as they do for the D valve, resulting in a reduction in clearance loss for the piston valve due to the shorter ports.

There are two types of the piston valve, inside and outside admission. These are modified, some being solid and some hollow.

With the use of the inside admission piston valve, the metallic valve stem packing may be done away with, as there is only the exhaust pressure on the packing side, which results in an appreciable saving in maintenance cost, as the fibrous packing answers the purpose and lasts satisfactorily a long time.

Another feature of the inside admission valve is the protection to the live steam by being jacketed by the exhaust cavities, thus delivering the steam to the cylinder at a higher temperature than would be the case with the outside admission valves. For these reasons the inside admission valve is used much more than the outside admission.

Since the difference of pressure on the two ends of the inside admission solid valve often amounts to over a ton, for each exhaust, the valve acts as a piston and takes up the slack in the valve motion and increases the lead, which is very hard on the valve gear.

For the outside admission solid valve, the moment after exhaust takes place the valve becomes unbalanced on the admission side as the steam enters the cylinder and, the higher pressure on the opposite end takes up the slack and decreases the lead as the valve gear wears.

In the outside admission hollow valve the area of the valve stem unbalances this type to the extent of about 600 lbs. at 200 lbs. boiler pressure, and always in the same direction, which causes the engine to go lame as the gear wears.

With the inside admission hollow valve these defects are absent and the valve is so well balanced that it works very much more easily and does not get out of square so soon as the other types. For these reasons it is the type of piston valve most extensively used.

With the ordinary slide valve, when there is an accumulation of water in the cylinder, the piston in its movement forces the water through the ports to the valve seats, the valve lifts and lets the water pass into the steam chest and out the stack. This will also be true for any excess pressure, on the piston and

head, that may take place at the end of a stroke. With the piston valve, the valve sits solid in the bushings and will not admit any water or steam to pass over from steam port into steam chest when that port is closed by the valve. The pressure of this water would cause damage to the engine by the breaking of the cylinder head or the piston or bending the main rod if means were not taken to provide for it. This is done by a combined pops and by pass valve, the valve chamber being cast in one with the cylinder. This effectually eliminates the danger of any excess compression.

#### MECHANICAL STOKERS.

By the process which goes on within the firebox of the modern locomotive each pound of coal will, under favorable conditions, sustain one i.h.p. for from 12 to 15 minutes at the speed of 10 miles an hour, it will serve to carry six tons of freight per mile. Within certain limits the power developed is nearly proportional to the coal burned.

In the development of the modern locomotive, grates have been enlarged, and heating surface extended that larger amounts of fuel may be burned. In one direction only has the designer found his way blocked against his ingenuity. He has not been able materially to augment the strength of the fireman and consequently when running under constant conditions the power of the locomotive has not increased in proportion to its dimensions. A laborer is working at a fair rate when, in unloading coal from a gondola car, merely dropping it over the side, he handles 6,000 lbs. an hour. At the limit a locomotive fireman will handle an equal amount standing on an unsteady platform placing it upon some particular part of the grate and usually closing the door after each shovelful. This rate will serve to develop, approximately, 1,200 i.h.p. This rate cannot be exceeded under sustained conditions of running, though for short intervals the rate of power may outrun the rate of firing. Because of the limitations upon the strength of the fireman it is probable that further growth in locomotives will await the coming of an automatic stoker, which will remove its operation from dependence upon the physical condition and endurance of a single man.

In order to provide for this the following different makes of stokers have been developed: the Victor, Kincaid, Lucky, Straus, Crosby, Monarch, and Haydon. All of the stokers are very similar in operation, either by a series of pistons or plungers which produce longer or shorter exhausts or strokes, or steam jets, and tend to throw the coal closer to the flue sheets or the back end of the fire box and spread the coal very uniformly over the grate surface. Some of these use deflection plates to spread the coal.

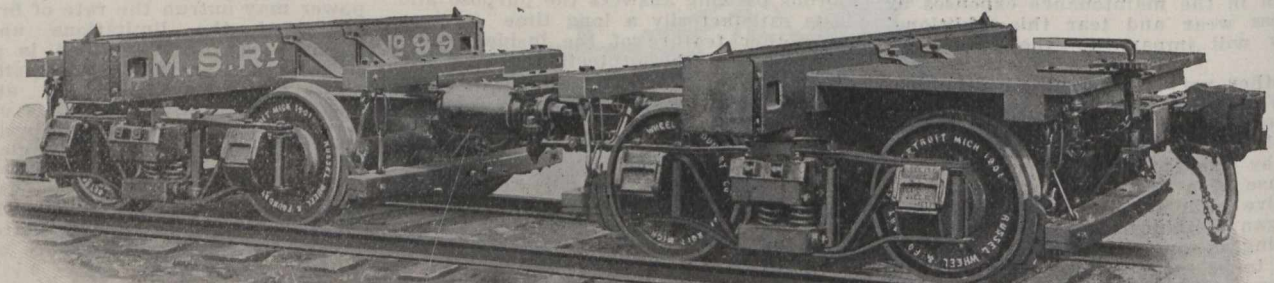
The Haydon stoker is a representative type of the steam jet design. The method of operation is as follows: The coal is taken from the tank through a grating with three inch openings by an elevator operated by a quadruplex engine, then it passes into a conveyor and is elevated to the conveyor located over the fireman's head and is dropped into a hopper over the firebox door by a worm screw and falls by gravity through a slide gate opening in the firebox door, on to a table located just inside the firebox door 24 ins. long and 7 ins. wide and is blown by a blast of steam varying in length as desired, by five separate nozzles or jets in the firebox door, which have a tendency to cool the table and prevent its burning out. The centre jet blows the coal towards the flue sheet. The two jets on either side are located to place the coal in the front corners of the firebox. The two outside jets are located so that the coal will be distribut-



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ed along the sides and back corners of the firebox. They are governed by separate valves to regulate the blast of steam through each valve by common steam valves and can be adjusted at will at any time.

The steam that furnishes the blast to place the coal is controlled by a quadruplex engine, located on the back end of the boiler butt, which has a crank movement actuated by a screw wheel, operating a control valve, which admits steam through a one inch pipe passing to the nozzles, which are regulated by means of a globe valve. The control valve, as a general proposition, is run only one turn open and varies with the weight and amount of coal to be handled. The length of the blast is governed largely by the raising or lowering of the latch on the trip valve and the speed at which the engine is run. The greater the speed the less coal is thrown at one blast. If desired the valve can be tipped by hand and all of the coal in the hopper can be blown into the firebox. In fact, the fire can be covered black inside of half a minute. The steam connection to the engine operating the stoker conveyor is by one inch pipes, that to the stoker connection is three-eighths inch pipe which is open probably only a quarter of a turn. This stoker has on various occasions fired a locomotive 30 and 40 miles and even farther without there having been any necessity to open the fire door, and on opening the door the fire was found to be absolutely level. Occasionally coal will pile up in some place in the firebox, making it a necessity that it be levelled down, and may be caused by a clinker forming or a little deviation in front of engine and holes in grate. All that is necessary is to close the hopper, blow the coal off the table, when the door can be easily opened and the fire levelled with a rake if desired. There is nothing to be removed and it is a very easy operation, nearly as much so as though the engine were being fired by hand.

The Victor stoker is of the plunger design, and consists of the following essential parts: 1. A main cylinder and a trough in which reciprocates a piston and plunger which, with a variable stroke, throws the coal to the different parts of the firebox. This variable stroke is given to the plunger by means of a rotary valve, three separate steam ports, leading from the said valve to the rear end of the cylinder, and three choke plugs—one for each of the said steam parts. 2. A small controlling engine. It has been found desirable to place the controlling engine on the boiler-head on the fireman's side. This removes the liability of condensation and consequent dryness of engine parts when placed on and below the stoker itself. The steam for the operation of this engine is taken directly from the dome. 3. A hopper with two spiral conveyors journaled in the bottom of the hopper pan. The conveyors carry the coal to the front of the hopper on to the apron of the plunger, which, upon the return of the plunger, falls by gravity in front of it, giving a regular and uniform feed. The speed of the conveyors can be increased or diminished by giving more or less steam as may be required, to the controlling engine. This also increases the number of strokes made by the plunger but does not affect its velocity, or in any manner affect the distribution of coal in the firebox, the latter being governed by the three choke plugs.

4. A smaller steam chest containing a rotary valve which regulates the number of strokes made by the plunger. The portion of the stoker forming this valve chest is cast on one piece with the main cylinder, and has three separate steam ports leading to the rear end of the cylinder for the admission of

steam behind the plunger or piston. These steam ports terminate in one common port before entering the rear end of the cylinder, the steam, after reaching this common port, communicates with the rear end of the cylinder, first through a small preliminary port at the end of the cylinder (which also acts in the form of compression by retarding the exhaust on the last portion of the return stroke), and after the piston has advanced a short distance it uncovers the main port, which also leads from the common port, giving free passage to the steam. A choke plug is placed in each of the steam ports between the valve sleeve and the common port. The function of the three choke plugs is to vary the amount of steam reaching the rear end of the cylinder through the various ports and thereby giving a variable stroke to the plunger. The valve operates in a rotary manner, each of the ports stopping full open in front of its corresponding steam passages in regular succession. Beginning with number three (the port nearest the rear end of the stroke) the steam, after leaving this valve passes through port number three into the common port and the rear end of the cylinder. By choking down this steam port until it is almost closed we get a very light stroke of the plunger, distributing the coal over the grate near the fire door. The other two operate in the same manner, each taking its respective turn. They are adjusted so that more steam is admitted on the second stroke than on the third, thus distributing coal over the middle portion of the grate, and more on the first than on the second, thereby scattering coal over the front end of the grate. By this adjustment of the choke plugs any range of distribution can be obtained that may be desired.

The rotary valve and cylinder are provided with suitable live steam exhaust ports for the return of the plunger and the exhaust steam from each end of the cylinder. In the front end of the main cylinder, is a very small live steam port, connected directly with the live steam supply, and its function is to return the plunger after its forward stroke, and also to add volume to the steam retained after the piston has passed over the forward exhaust port, this giving the desired compression to prevent the piston striking the front cylinder head. By means of a valve this port can be enlarged to give increased compression, necessary when expelling water from condensed steam in starting the stoker when it is cold.

5. The furnace door. Each machine is supplied with a furnace door made to fit the standard door frame of the locomotive to which the stoker is to be attached. This door has an opening to receive the stoker through, and is provided with suitable brackets for holding the machine in position. Cast upon its inner side are curved lugs, which serve the purpose of hinges for a deflector for spreading each charge of coal over the width of the firebox. The end of this deflector can be raised, if necessary, to aid in the distribution of coal by means of a set screw directly under its centre. It also has a small vertical sliding door for use when inspecting the fire, and the deflector can be turned vertically and held in place by a latch to close the opening when the stoker is removed. When using the stoker the smoke is very much lighter, indicating more thorough combustion of the gases. The darkest color when the stoker is used is not more than brown, while most of the time the emission from the stack is pure steam. This is a most important feature when it is taken into consideration that the smoke problem of railroads is becoming serious, now that the large cities are objecting so much to the smoke nuisance. There is no doubt

that with the stoker in use very much less trouble with leaky flues will be found, on account of its maintaining a more even heat in the firebox. The sheets of the firebox will last longer for the same reason. It has been proved that corrugation in fireboxes is largely due to the changes in temperature. When the stoker is used the steam pressure may be kept absolutely constant. This is due to the irregularity with which the coal is placed on the grates, the evenness of the distribution and also the fact that the furnace door being closed, the furnace is not cooled by the inrush of air. This should effect a great saving in coal, since it is estimated that 15 lbs. of coal is lost when a boiler pops. With a stoker properly installed and set up in a tank, using coal that it will handle properly, the fireman can operate the engine with a saving of 33 to 50% labor, at the same time maintaining a uniform pressure of steam with a large reduction of leaking of flues and furnishing steam under all conditions better than can be done by hand firing, and with a noticeable saving in fuel.

#### COMPOUND LOCOMOTIVES.

In endeavoring to secure efficiency in the utilization of the steam, thermodynamic reasons make it imperative to use high pressure steam and a long expansion. The high ratio of expansion required cannot—from the point of view of steam economy—be so efficiently carried out in a single cylinder as in two or more cylinders. If expanded in one stage only the condensation and piston leakage losses are too great for efficiency. In marine service, where efficiency is of first importance, single expansion engines have been altogether superseded by multiple expansion engines in the large sizes. In locomotive practice steam economy is of great importance, but the difficulties of maintenance make unnecessary complications undesirable, and thus practically limit the number of successive expansions to two. In order to take advantage of this economy in steam consumption, and consequently coal consumption, the following types of compound have been developed. The two cylinder cross over compound, the four cylinder tandem compound, the four cylinder balance compound, and the Mallet articulated compound.

The two cylinder compound can show practically the same efficiency of steam consumption as the four cylinder, and has fewer working parts. On the other hand, the power developed is not always equally divided between the two sides of the engine, for instance, when the high pressure cylinder is being worked at a long cut-off the steam exhausting from it and supplying the low pressure cylinder is at a much higher pressure than that exhausting from the high pressure at a short cut-off, causing more work to be done on one side of the engine than on the other. Also the excessive diameter of the lower pressure cylinder required for high power increases their liability to break and requires an excessive width of the locomotive, and this puts a limit on this class of engine.

The tandem compound gives equal power on both sides of the engine and economical steam consumption. The heavy reciprocating parts, due to both pistons being on the same rod, make the engine difficult to balance, making it very undesirable for high speed work, although at low speeds this is not a great disadvantage. The only factor limiting the growth of this locomotive is the rigid wheel base, the best that can be done being to get six axles in 24 ft. 7 ins. or five axles in 19 ft. 9 ins. Apart from the great internal resistance of a twelve coupled engine of this description the excessively long wheel base would render it extremely awkward on curves.



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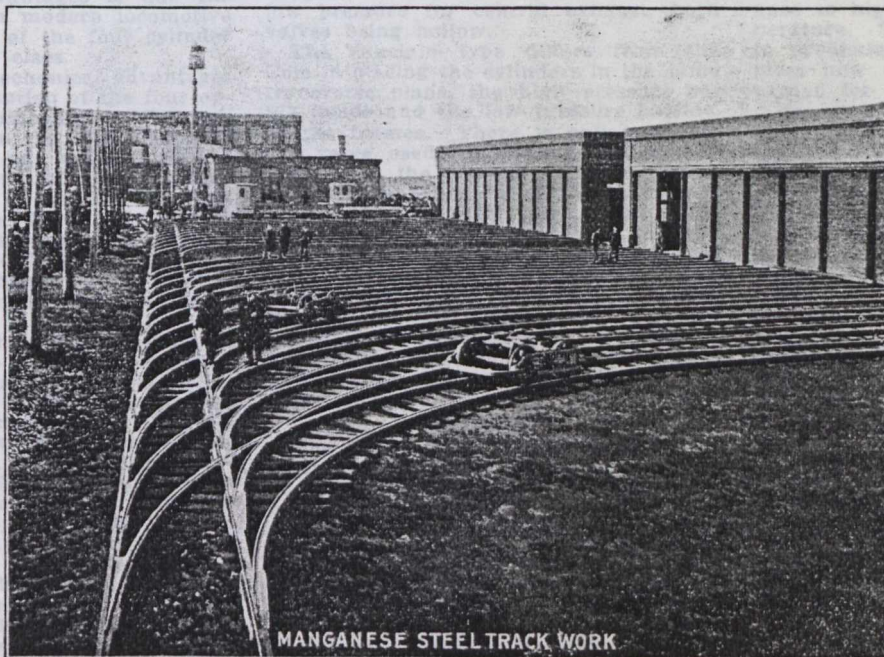
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If more tractive force is required, the Mallet type compound seems to offer the greatest facilities for development. The wheels are in two groups, and as these groups have a flexible connection between them, the locomotive can curve easily. The rear group of wheels is driven by two high pressure cylinders, and the front group by the two low pressure cylinders, so that the same power is developed on both sides of the engine. The double expansion of the steam gives economy in fuel and the whole construction of the locomotive is comparatively simple. These engines have been used almost altogether for taking heavy trains over very heavy grades, very little in road service, and altogether for low speed service.

The four cylinder balanced compound is, considering everything, the best of these types. By using four cylinders, two high and two low pressure, and placing them so that each high pressure moves in the opposite direction to the corresponding low pressure piston, both the internal and external forces can be largely balanced. Where only two cylinders are used, the moving parts of the engine must perforce be largely left unbalanced, and at high speeds the engine rocks itself to pieces and exerts a destructive influence on the track. With the perfect balance obtainable with four cylinders these difficulties may be largely avoided. The mechanical advantages of proper balancing are obtainable with four high pressure cylinders, but the four cylinder compound adds to the balancing, the economies resulting from the double expansion of the steam. To this combination of advantages is due the high place taken in modern locomotive practice by engines of the four cylinder balanced compound class.

There are also mechanical advantages which favor the adoption of the four cylinder balanced compound. For one thing, the weight on the driving wheels may be increased on account of the complete elimination of the hammer blow on the track. In the case of an engine built, it was decided in view of this fact to increase the weight per driving axle from 47,000 to 55,000 lbs., which would result in a greater tractive effort for this type of engine for the same number of wheels.

On account of the large amounts of steam which can be worked through the cylinders at long cut-off there is an increase in sustained horsepower at high speeds; without modification of the boiler. The original simple engine developed 1,400 to 1,500 indicated horsepower; the four cylinder balanced compound has developed from 1,900 to 2,000 i.h.p., actually realizing 1,638 at 67 miles an hour, and 1,980, at 75 miles an hour in service. (From results of a test of a four cylinder balanced compound on the Pennsylvania Rd. testing plant at the Louisiana Purchase Exposition at St. Louis in November, 1904.)

Also the power is divided between four cylinders and may be divided between two axles resulting in a reduction of bending stress on the crank axle, and the use of light moving parts which renders them easily handled, and which minimizes the wear and repairs of parts.

The De Glehn four cylinder balanced compound, which is used extensively in Europe, is characterized by an arrangement of cylinders, which divides the application of the power between two driving axles and provides a separate valve gear for each cylinder, so that high and low pressure cut-offs can be independently varied. The high pressure cylinders are placed outside, while the low pressure are inside between the frames. The Walschaert valve motion is used throughout. The gears for the low pressure cylinders are driven from eccentrics placed on the forward driv-

ing axle, while those for the outside cylinders are driven from the second pair of driving wheels by return cranks placed on the crank pins.

The outside, or high pressure cylinders are connected to the second pair of driving wheels, while the inside, or low pressure, are connected to the first pair, which has a cranked axle. In order to keep the main rods of as nearly the same length and weight as possible, the high pressure cylinders are set some distance in the rear of the low pressure.

In the Von Boiries type, also used in Europe, the cylinders are all in the same transverse plane, the high pressure cylinders being on the outside. There is only one valve motion for each side, but there are four valves, one for each cylinder. The main rods of both high and low pressure cylinders are connected to the front driving axle, resulting in a somewhat short main rod.

In America there are also two principal types in use, the Cole and the Vaucrain. In the Cole type, the low pressure cylinders are located outside of the frame and are connected to the second driving axle while the high pressure cylinders are inside the frames, and are set in advance of the outside cylinders so that the back head of the high pressure is even with the front head of the low pressure. The high pressure cylinders are connected to the leading pair of driving wheels, which has a crank axle. There are two piston valves, one for each cylinder, on the same valve stem, but there is only one valve chamber. The high pressure valve is arranged for central admission and the low pressure for central exhaust, both valves being hollow.

The Vaucrain type differs from the Cole in placing the cylinders in the same transverse plane, the high pressure being inside and the low pressure outside, of the frames. There is only one piston valve used for both cylinders.

In both the Vaucrain and the Cole types the connections of the main rods may be varied. By setting the high pressure or inside cylinder high and giving it an inclination all the main rods may be connected to the second driving axle and thus may be the same length. Where the first driving axle is far enough away from the cylinders all the main rods may be connected to the front driving axle.

#### SUPERHEATED STEAM AND SUPERHEATERS.

The necessity of greater economy in steam work is daily becoming a matter of increasing interest. The simple locomotive using saturated steam has been excelled by the compound four cylinder balanced locomotive, yet the fact remains that there is still room for improvement and that other and far more effectual means of obtaining an increase of power and economy lies in the use of superheated steam. It unquestionably constitutes the most important feature of modern times.

In the matter of the evident advantages resulting from the use of superheated steam, care must be taken to separate the increased efficiency of the boiler from the corresponding increase in cylinder efficiency, which does not depend, as in the case of saturated steam, upon an increase of pressure. On the contrary, superheated steam at a pressure of 90 lbs. per sq. in. can work as efficiently as the other at 180 lbs. The running has, up to the present, been done with a short cut-off ranging from  $\frac{1}{4}$  to 1-10 of the stroke, while the throttle is kept wide open or partially closed, dependent on the speed.

The reason for this is, that with a partially closed throttle, the absolute superheating rises. For example, if steam at a pressure of 180 lbs. per sq. in. is super-

heated to 575° F. the actual superheating is 575°—377, which is temperature due to pressure, =198°. At 75 lbs. per sq. in. with the same superheating we have an effective superheat of 575°—287 =288°, so that the excess is such that cylinder condensation does not take place, even with an early and economical point of cut-off. In this is to be found a great advantage of superheated steam.

This advantage is only slightly augmented with an increase of pressure, and any closing of the throttle is rather apt to be wasteful, because the rise of temperature, above that due to pressure by an excessive closing of the throttle, can scarcely be detected in the working of the cylinder.

It has been said by Peabody that the safe production of superheated steam at a temperature of 570° F., in a locomotive boiler, and its successful use in the cylinders was an impossibility.

Whenever superheated steam has been used to give a notable gain in economy the superheating has been accomplished in a separate apparatus which has taken the form of a coil of pipe exposed to the products of combustion beyond the boiler.

Plates and tubes, thin enough, endure long service in a boiler when exposed to the fire, because they are kept at a moderate temperature by the water in the boiler. If steam is to be superheated strongly in a coil of pipe or other device, which is exposed to hot gases, the metal of the superheater must be strongly heated, and is sure to waste away rapidly. There is no material that can stand long service when exposed at once to high pressure and a high temperature. There is little risk therefore in predicting that all superheating devices now used will eventually be discarded for this reason.

The best design by Schmidt was a superheater in the smoke box, directly connected to the boiler. Examination of one of these superheaters in an engine after it had been in service for two years showed it to be free from any defects, although with suitable coal it raised the steam to a temperature of 645° F. The valves, packing boxes and pistons were also in excellent condition. So that Peabody's prediction is not borne out in actual practice.

The development of the Schmidt idea and others has, however, demonstrated the great advantages of superheated steam for locomotive work, and tests show that the efficiency of the boiler will be increased about 25% by superheating the steam 180° F. Initial condensation in the cylinders can also be reduced by the use of superheated steam. There appears then to be a prospect of bringing the locomotive back to the construction of the simple engine, and at the same time increasing its efficiency.

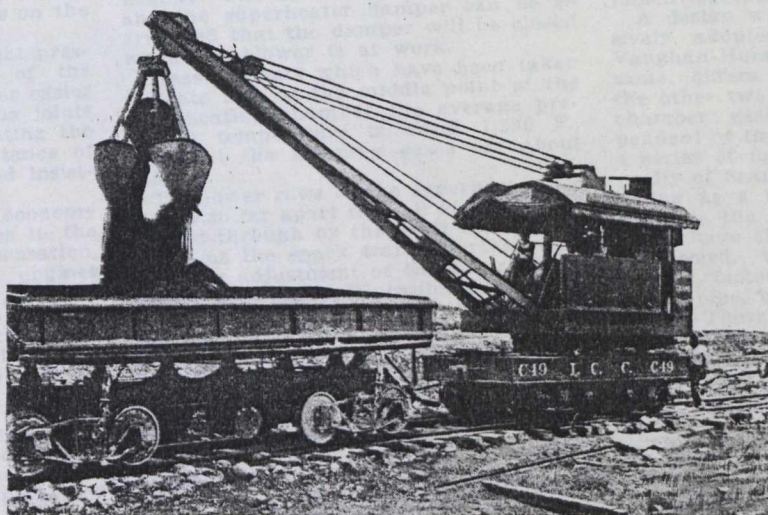
Schmidt defines superheated steam as steam having a temperature of at least 575° F. or in general a steam which at a pressure of 150—180 lbs. has been raised about 180° above the temperature corresponding to its pressure at saturation. Such a high degree of superheat absorbs about 10% of all the heat generated. Experiments made with stationary steam engines show that the efficiency of the boiler was increased about 25% when steam superheated about 180° F. was used. The saving in feed water averaged about 33%, and in coal 25%. This saving was in part due to the short cut-off which is possible when superheated steam is used.

The great value and advantage of using superheated steam lies not alone in the increase of power but also in the substantial reduction of steam consumption.

In American practice the steam is generally superheated about 150° F.,



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above its temperature due to pressure, while in European practice the superheat is raised 250° to 300° F., without impairing lubrication, when a high flashing lubricating oil is used.

The steam should be delivered to the cylinder at a temperature of about 600° F., in which case it may be defined as highly superheated steam. Its chief superiority over saturated steam lies in the fact that owing to the excess of heat over the point of saturation, it entirely prevents cylinder condensation, which is the most serious of all sources of waste. Apart from this advantage, superheated steam has a greater tenacity and increases in volume corresponding to the superheat applied from 25 to 40%, as compared with equal weights of saturated steam of equal pressures. But superheated steam will not only effect a direct saving in fuel and water, but a direct or indirect saving in other ways. Due to the prevention of condensation and the augmentation in the volume of steam the boiler capacity is increased. Very high steam pressures are not absolutely necessary without sensibly affecting the economy, as this depends on the degree of superheat.

A reversion to relatively normal pressures will ensure a longer life of the boiler and firebox, and will render easier the work of keeping the various joints and fittings tight, besides mitigating the staybolt difficulties. The importance of this point is too obvious to need insisting upon.

The principal reason for the economy of the compound locomotive lies in the fact that the losses due to condensation, which in ordinary simple engines amounted to as much as 35%, are reduced to about 20%. By the use of highly superheated steam these losses are entirely obviated. This phase of the question may be summed up as follows: By the consumption of one ton of coal it is possible to produce in a certain time 650 h.p. in a saturated steam simple engine, 750 h.p. in a saturated steam compound, 850 h.p. in a superheated steam simple engine, and 875 h.p. in a superheated steam compound.

It does not seem likely that the superheater will be extensively used upon the compound, as the composite saving of the two is not enough in excess of the superheater alone to make the combination of the two worth while. It seems very likely, therefore, that we will see a reversion to the simple engine, even to the exclusion and discarding of the compound.

In Schmidt's superheater the high degree of superheating averaging about 575° F. is obtained by bringing a portion of the hot firebox gases into direct contact with superheater. In order to do this a fire tube from 11 to 12 in. in diameter is placed between the regular tubes and the bottom of the shell of the boiler.

The superheater consists of 62 tubes from 1 3-16 to 1 5-16 inches inside and from 1 1/2 to 1 5/8 inches outside diameter. These tubes are placed about the smokebox in three concentric rings. They are arranged in groups set one behind the other. At their upper extremities these tubes are expanded into a long steam header which branches out to the right and left. The 21 tubes of the inner group are arched up at the bottom away from those of the other two groups so that an open space, called the superheating firebox, is found, into which the hot gases enter from the large fire tube. The inner jacketing of the body to the right and left of the smokebox up to the top of the exhaust nozzle, so that nearly the whole of the superheater is enclosed in an iron casing, which can be opened or closed on each side of the smokebox by small dampers operated by the engineer.

The distributing steam header is at

the right hand side of the smoke box and has a partition in the middle. When the throttle is opened the damp steam enters the back end of this steam chamber and flows through the rear to ten of the three-fold groups of tubes, and passes over to the left side being dried and superheated to some extent. In this steam box there is no partition, so that the partially superheated steam enters the forward tubes of the three groups and flows back to the right hand steam box and thence to the cylinders.

The hot gases from the firebox pass through the large fire into the arched chamber formed by the upward bending of the inner group of tubes thence upwards over the whole length of the tubes and escape at the stack. The action of this flow of the hot gases over and about the superheating tubes is in an almost exact ratio to the working of the locomotive and ceases almost entirely when the throttle is closed. This flow of gases can furthermore be regulated by the damper. This simple arrangement also makes it possible to easily avoid all overheating of the covering of the superheater. The connections to the blower and the superheater damper can be so arranged that the damper will be closed when the blower is at work.

Measurements which have been taken indicate that at the middle point of the superheating chamber the average prevailing temperature is about 1,290 F., and that the escaping gases are about 660° F.

The lower rows of the superheater are placed so far apart that all of the sparks carried through by the draft can be collected at the spark trap. Furthermore, a proper adjustment of the tubes of the superheater makes it possible to do away with the jacketing of the side sheets. The soot is removed by a jet of steam. The entire superheating arrangement occupies only a comparatively small part of diameter of smokebox.

Tests on the Berlin division show that in nine days' trial over a run of 102.5 miles, with a train weighing on an average 280 tons, to which 80 tons should be added for the engine, the following comparative results were obtained. For each train mile engine no. 74 using superheated steam burned 12.94 lbs. of coal and evaporated 78.1 lbs. of water, while the compound locomotives burned on an average 14.47 lbs. of coal, and evaporated 105.35 lbs. of water. The compounds consumed about 11.8% more coal and nearly 30% more water than the one with the superheater.

Following the Schmidt smokebox superheater came the Schmidt smoke tube superheater. In this design a double chambered niggerhead extends horizontally across the front flue sheet and at right angles to the dry pipe, to which one chamber is connected midway, while the other chamber is in connection at either end with a steam pipe leading to a cylinder. The under surface of this niggerhead is faced and in it are eight series of ports or openings, the alternate ports in each series leading to one of the two chambers. To this under surface are suspended by means of straps bolted to the niggerhead, square blocks into each of which are secured two sets or pairs of the circulating or superheating tubes. These circulating tubes extend downward at an angle to a point in line with their respective smoke tubes, where they turn and enter the smoke tube and extend to within 30 ins. of the back flue sheet. At the firebox end a return bend is applied to make a connection between the two circulating tubes, one leading from each of the chambers and secured to the same block. Thus the steam leaving the dry pipe, passes through one chamber of the niggerhead, out through one circulating tube and back through its complementary tube, thence through the other chamber of the niggerhead to the steam pipes and

on to the steam chests.

The front end opening to the smoke tubes can be entirely closed by a damper, so that there will be no flow of the hot gases from the firebox through the smoke tubes when the engine is not working, thus eliminating the danger of burning out the circulating tubes.

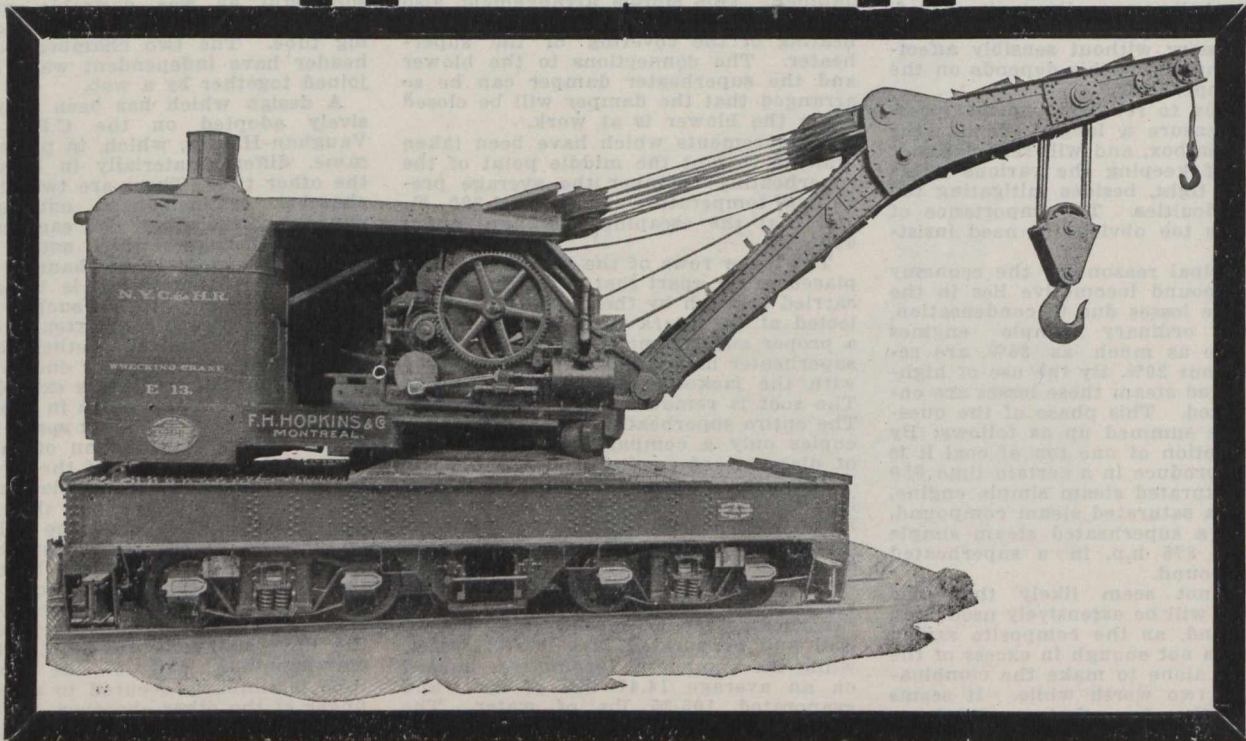
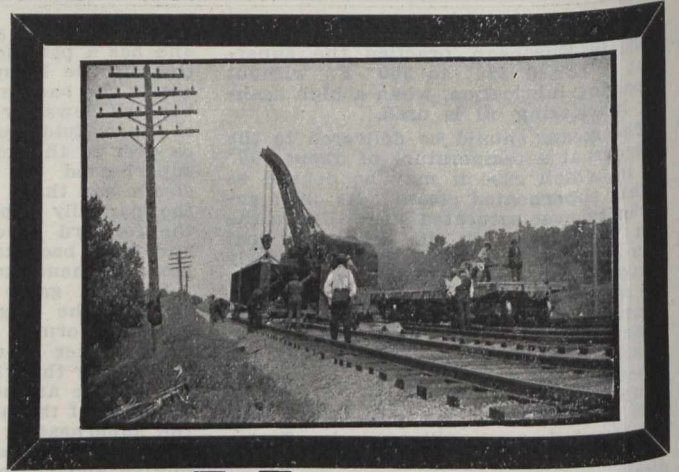
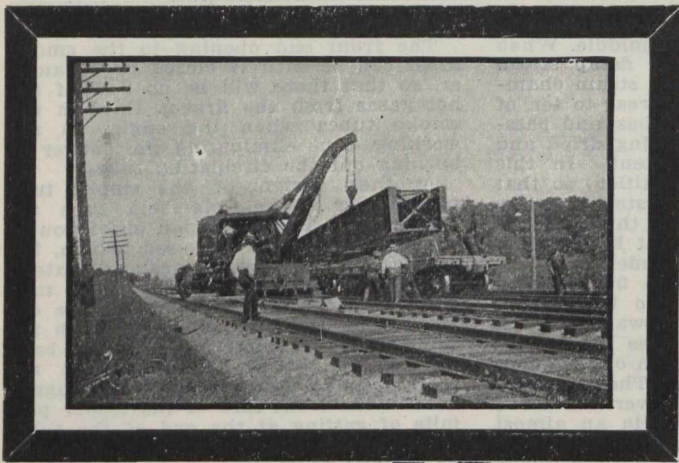
Another design of the smoke tube superheater is the Cole-Field tube arrangement. In this design eight double chambered headers are used, which, being secured to the niggerhead, extend vertically downward in front of the tube sheet, and the circulating tubes are entered from the back on a line with the smoke tubes through holes in the back wall of the header chamber and are therein made steam tight. A plugged hole in the front face of the leader permits of getting at the end of the tubes to expand and fasten them in the header as well as to plug or work on them in case of their becoming ruptured or leaking. The Field tube, not proving as successful as was desirable, was later superseded by the return bend circulating tube. The two chambers of each header have independent walls and are joined together by a web.

A design which has been very extensively adopted on the C.P.R. is the Vaughan-Horsey, which, in principle the same, differs materially in detail from the other two. There are two elongated chamber castings, each entirely independent of the other, and each cast with a series of fingers which act in the capacity of headers. One chamber casting, acting as a niggerhead, is bolted centrally to the dry pipe in such a manner as to have the fingers extend vertically downward, while the other chamber casting, fastened at either end to a short steam pipe, has its fingers extending upward. These fingers when in position interlace, but with sufficient space between to permit the introduction of the circulating tubes. One end of the circulating tube is jumped and a collar upset on it. The end of the tube is then so bent that the milled face of the collar will be parallel to the length of the tube. With a steel union nut the bent end of the circulating tube is secured to a drop-forged two or four way passage, which is screwed into the outer face of one of the fingers of one chamber, while the corresponding end of the companion tube is similarly secured to an adjacent finger of the other chamber. These passage-ways are in line with the smoke tubes and the circulating tubes enter the smoke tubes the same as in the Schmidt and Cole designs.

The Baldwin is another design of the smokebox type of superheater. It is much simpler than the Schmidt design, and consists only of two headers on either side of the smoke box, the two on either side, being connected by a series of circulating pipes which are bent to conform to the shape of the smokebox. Two methods for connecting the headers to the niggerheads and steam pipes are provided for, one with the steam entering the superheater at the top back end and emerging at the lower front end, and the other with the steam entering at the top front end and emerging at the bottom back end. The second arrangement would probably give the better results for the reason that the steam leaves the superheater at the point where the gases are the hottest. In this, as well as in the Schmidt type, diaphragms are employed to cause the gases, on their travel from the smoke tubes to the stack to circulate about the superheater pipes.

With the smoke tube type of superheater the number of circulating pipes employed in the several designs would depend largely upon the size of the boiler, but the common practice is to use 22 smoke tubes, placed in the upper part of the boiler, with two sets of circulating tubes in each. The smoke





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tubes are five inches outside diameter at the front sheet, into which they are expanded and beaded over. This diameter is maintained to within seven inches of the firebox end, where it is swaged down to four inches, and enters the sheet at that diameter. The hole in the firebox sheet is threaded, care being taken to make it perfectly true and parallel and in line with the corresponding hole in the front sheet and the tube is screwed into the sheet and then beaded over. The circulating tubes are of cold drawn steel, 1 1/4 inches outside diameter, and extend into the smoke tube to within 30 ins. of the firebox, where the return bend joins the two tubes together, and all four circulating tubes are separated as well as being supported in and held away from the walls of the smoke tube, to permit of the free flow and circulation of the gases, by means of lugs or feet cast on the return bends. These tubes, reaching as they do so near the firebox, and being subjected to very high temperatures, would be liable to burn off at the end when no steam was passing through them, were they not to receive attention.

This is afforded them by means of a damper placed in the front end immediately below the large smoke tubes and between the headers and flue sheet. The damper opens and closes automatically with the opening and closing of the main throttle by means of a cylinder piped to the steamway in the cylinder saddle, and piston and weight attached on the outside of the smokebox to an extension of the damper rod.

One of the things that has given a great deal of trouble in the operation of superheater engines has been the difficulty experienced in getting oil to the valves and pistons, especially to the pistons, because of the erroneous idea, imported with the superheater, that a pump lubricator was necessary. A number of these pump lubricators have been tried, but with very indifferent results. Experience has demonstrated that the modern hydrostatic lubricator will deliver the oil in sufficient quantities at all times, and that the usual amount of the better grades of valve oil is sufficient for lubricating valves and pistons. It is noticeable with engines using superheated steam that the walls of the steam chests and cylinders take on a bright polish, but never get rough and cut as is so often the case with the cylinders of compound engines. While there have been some cases of excessive wear of piston packing rings when the rings have failed to make a mileage of 10,000 miles, due partly to insufficient lubrication and partly to soft material, the life of the rings ordinarily is very satisfactory.

While the Schmidt smoke box superheater produces a very high degree of construction and inaccessibility for repairs render it rather undesirable for general adoption.

The Schmidt smoke tube design has in the past required the least attention of any, and when once the equipment is made steam tight but very little trouble is experienced thereafter. However, the blocks into which the circulating tubes are assembled, being secured to the headers by straps, each strap holding a corner of two blocks, when repairs are required, such as inserting a new circulating pipe tube, and one of the blocks must be taken down, two other blocks are thereby loosened, and this means the taking down of all the blocks and a remaking of all the joints. A steam leak between the header and a block soon cuts grooves, entailing the refacing of the ports, which means a great deal of labor.

The Vaughan-Horsey design probably embodies the most successful arrangement of any. Owing to its peculiar construction not only is a higher degree of superheat obtainable, but defective parts

are more easily repaired or renewed. Should a circulating tube break and another one not on hand, all that is necessary to do is to remove the front plates, uncouple the defective tube, and screw a cap on the passage way. Also it is very little more work to insert a new tube. It is not advisable to plug too many of these tubes, for it reduces the total area, thereby restricting the flow of steam and weakening the engine.

In conclusion let it be understood that the addition of a superheater entails no extra expense or attention to be bestowed on an engine aside from that arising from the repairs of mechanical defects, the keeping of the large smoke tubes free from cinders, and the keeping of the damper working. It is not unreasonable to expect that the defects should in time be practically eliminated and an engine go from one stopping to another without having the front plates removed, as some of them are now doing. Unless the cleaning of the tubes is thoroughly and regularly done, a material deterioration in the efficiency of not only the superheater but of the engine itself will follow. With any kind of soft coal, cinders are bound to collect in the large smoke tubes and fill in around the circulating tubes, and it is found that the air blast usually applied is not always sufficient to remove them. A strong pressure of water is necessary to thoroughly cleanse the tubes, and this should be resorted to at least every washing out of the boiler. The results from this washing, in the better steaming of the engine and the higher superheat obtained, will more than repay for the work performed.

The foregoing paper was read before the Central Railway and Engineering Club recently.

#### June Birthdays

Many happy returns of the day to—

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

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

J. H. Boyle, Assistant Superintendent, District 4, Eastern Division, C.P.R., Ottawa, born at Waterloo, Que., June 26, 1869.

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

H. W. Brodie, General Passenger Agent, Lines West of Revelstoke, C.P.R., Vancouver, B.C., born at Fredericton, N.B., June 8, 1874.

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

A. E. Doucet, District Engineer, National Transcontinental Ry., Quebec, born at Montreal, June 9 1860.

E. W. DuVal, Superintendent, District 1, Saskatchewan Division, C.P.R., Moose Jaw, born at Toledo, Ohio, June 5, 1835.

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

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

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

F. M. Hawley, City Ticket Agent, G.T.R., Cobourg, Ont., born at Campbellford, Ont., June 22, 1874.

L. R. Johnson, Assistant Superintendent of Motive Power, C.P.R. Eastern

Lines, Montreal, born at Abingdon, Berks, Eng., June 22, 1855.

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

A. C. Lytle, Assistant Trainmaster, District 1, Eastern Division, C.P.R., Farnham, Que., born at Hemmingford, Que., June 6, 1854.

R. S. McCormick, Chief Engineer, Algoma Central and Hudson Bay Ry., and Manitoulin and North Shore Ry., Sault Ste. Marie, Ont., born at Quaker City, Ohio, June 22, 1873.

D. McDonald, General Manager, Montreal St. Ry., and President Canadian Street Railway Association, born at St. Thomas de Montmagny, Que., June 17, 1859.

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

J. V. McNab, Resident Engineer, C.P.R., Moose Jaw, Sask., born at Ayr, Ont., June 11, 1884.

C. E. McPherson Assistant Passenger Traffic Manager, Western Lines, C.P.R., Winnipeg, born at Chatham, Ont., June 7, 1861.

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

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

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

J. D. Morton, Assistant Comptroller, Canadian Northern Ry., Toronto, born at London, Ont., June 15, 1857.

L. Mulkern, District Freight Agent, C.P.R., London, Ont., born there, June 18, 1871.

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

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

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

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

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

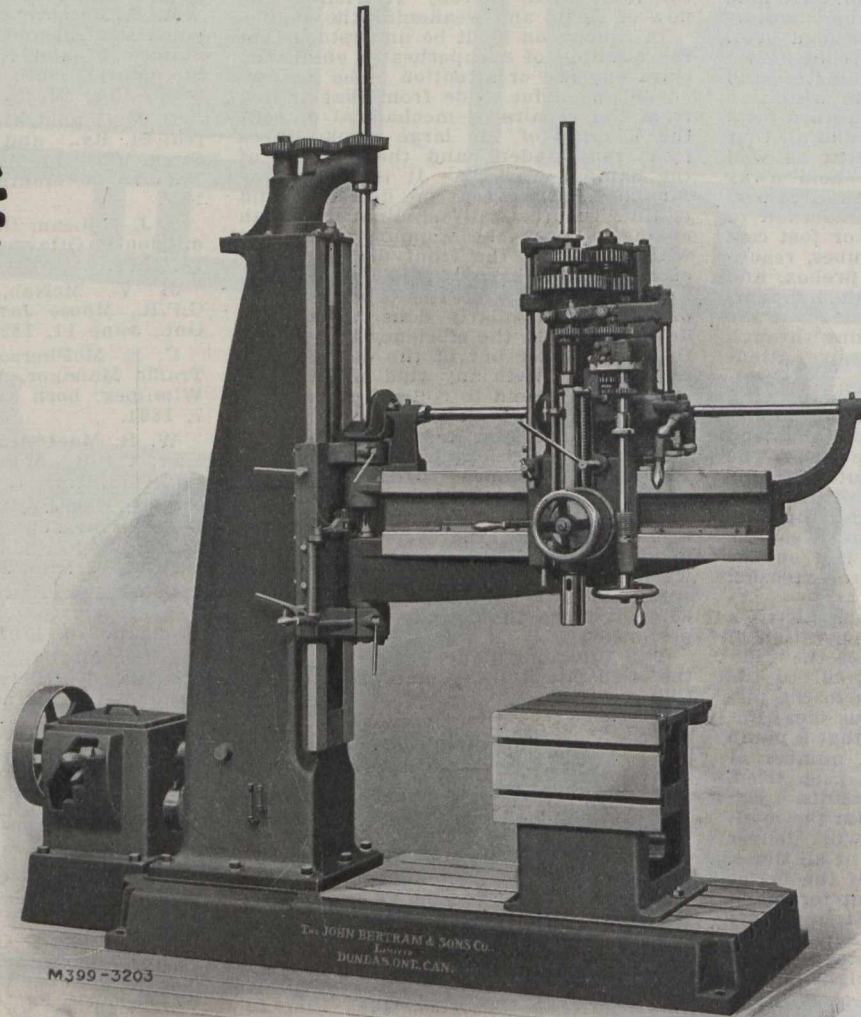
#### The C.P.R. Thirty Years Ago.

On April 25, 1881, A. B. Stickney, then General Superintendent of the C.P.R., at Winnipeg, issued the following circular:

"By agreement with the Government, the undersigned, as the General Superintendent of the Canadian Pacific Railway Co., will, on May 1, 1881, take possession of all that portion of the C.P.R. now constructed lying west of Telford station, and thereafter that portion of said railway will be operated by the C.P.R. Co. The following appointments have been made:— Gen. Thos. L. Rosser, Chief Engineer; W. R. Baker, Local Treasurer and Assistant to the General Superintendent; Wm. Harder, Assistant Traffic Manager; I. O. Ogden, Jr., Auditor; Geo. P. Nelson, Purchasing Agent and General Storekeeper; Joel May, Division Superintendent, in charge of the Red River division; J. Lynskey, Division Superintendent, in charge of the eastern division; John Elgar, Train Dispatcher; F. C. Butterfield, Mechanical Superintendent."



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**Index to The Railway and Marine World.**

A complete index to the matter contained in The Railway and Marine World for 1910, Jan. to Dec., both inclusive, has been mailed to subscribers who applied for it. The indexes for previous years met with much favor, and we have no doubt the one for the past year will be equally appreciated. A large portion of the matter we publish from month to month is of great permanent value for reference, and of course this value is much enhanced by a complete classified index. We were much gratified when we issued our first index for 1907 to find that a large number of subscribers file and bind the paper.

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

**G. T. R. Semi-annual Meeting.**

The half-yearly meeting was held in London, Eng., April 20, when the report for the half-year, ended Dec. 31, 1910, was presented. The following summary shows a comparison of the revenue of this period with that for the corresponding period 1909:—

	1909.	1910.
Gross receipts	£23,632,903	£23,699,898 10 10
Deduct—		
Working expenses, being at the rate of 75.43%, as compared with 75.78% in 1909	2,753,143	2,790,685 18 3
Net traffic receipts	£ 879,760	£ 909,212 12 7
Balance of income from rentals, outside operations, and car mileage.	39,953	38,436 17 9
Total net revenue	£ 919,713	£ 947,649 10 4
Add—		
Amount received from International Bridge Co.	16,013	16,012 16 7
Interest on bonds of Central Vermont Ry.	6,507	6,506 14 3
Interest on securities of controlled lines and on St. Clair Tunnel bonds acquired by the issue of G. T. R. 4% debenture stock	68,743	70,941 1 6
Balance of general interest account	27,631	40,146 0 3
Net revenue receipts	£1,038,607	£1,081,256 2 11
Following are the net revenue charges, for the half years 1910 and 1909:—		
	1909.	1910.
Rents (leased lines)	£ 77,603	£ 77,603 0 9
Interest on debenture stocks and bonds	508,572	525,749 8 7
Interest on debenture stock and bonds of lines consolidated with the company	36,589	32,331 17 4
Canada Atlantic Ry. deficit	17,368	40,079 17 5
Toledo, Saginaw and Muskegon Ry. deficit, 1908-9-10	640,132	23,390 0 8
Deduct—		
Detroit, Grand Haven, and Milwaukee Ry. surplus	12,067	£ 699,154 4 9
Leaving a surplus of	£ 628,065	£ 695,291 6 11
	410,542	355,964 16 0
Adding the balance of £12,552 16s. 0d. at the credit of net revenue account on June 30, 1910, to the above surplus of £385,964 16s. 0d., the amount available for dividend is £398,517 12s. 0d., from which the directors recommend the payment of the following dividends for the half year:—		
4% guaranteed stock	£204,958 7 8	
First preference stock	85,420 15 0	
Second preference stock	63,210 0 4	
1/2% on third preference stock	35,823 3 7	
	£389,412 6 7	

leaving £9,105 5s. 5d. to be carried forward.

Following is a comparison of receipts for the half-years ended Dec. 31, 1910 and 1909:—

Description	1910		1909		Increase
	£.	¢.	£.	¢.	
Passengers	1,127,908	86,482	1,091,426	86,482	
Mails and express	197,414	14,569	182,855	14,569	
Freight and live stock	2,254,619	2,513	2,252,106	2,513	
Other receipts	119,958	13,442	106,516	13,442	
	£3,699,889	£96,996	£3,632,903	£96,996	

**TRAFFIC STATISTICS**

Description	1910		1909		Increase
	Passengers carried	Average fare per passenger	Tons of freight and live stock	Average rate per ton	
Passengers carried	6,097,437	6,097,437	6,212,275	6,212,275	114,838
Average fare per passenger	44.40d	44.40d	42.17d	42.17d	2.23d
Tons of freight and live stock	8,880,164	8,880,164	9,265,763	9,265,763	375,599
Average rate per ton	60.87d	60.87d	58.33d	58.33d	2.54d
Tons carried one mile	1,588,361,407	1,588,361,407	1,622,699,284	1,622,699,284	34,337,877
Earnings per train mile	91.97d	91.97d	87.61d	87.61d	4.36d

The average rate per ton per mile on the entire freight business was 0.71c., compared with 0.68c. in the corresponding half-year.

The working expenses, including taxes, were £2,704,091, or 73.09% of the gross receipts, as compared with £2,675,662 or 73.05% in the corresponding half year, an increase in amount of £28,429, but a decrease of 0.56% in proportion to gross receipts.

Following is a comparison of revenue expenditure, including taxes, for half-years ended Dec. 31, 1910 and 1909:—

Description of expenditure	1910		1909		Increase
	£	¢	£	¢	
Maintenance of way and structures	592,719	35,979	628,698	35,979	
Maintenance of equipment	647,680	22,209	669,889	22,209	
Traffic expenses	116,768	18,883	97,935	18,883	
Conducting transportation	1,256,911	58,300	1,198,611	58,300	
General expenses	90,014	9,456	80,529	9,456	
Taxes	86,594	9,113	77,481	9,113	
Total	£2,700,686	£2,700,686	£2,743,148	£2,743,148	
Percentage of gross receipts	75.43	75.43	75.78	75.78	
Expenditure per train mile	68.37d	68.37d	66.40d	66.40d	

From the foregoing statements it will be observed that the gross receipts show an increase of £66,996, or 1.84%; the working expenses, including taxes, an increase of £37,543, or 1.36%; and the train mileage a decrease of 296,928 or 2.93%.

The total charges to capital account were £376,963 12s. 1d. Of this £12,502 12s 4d. was for the acquisition of \$6,500 of G.T. Western Ry. first mortgage bonds issued in respect of a similar amount of North Western G.T. bonds, which matured Jan. 1, 1910, and were paid off during the half-year, and \$51,700 D., G.

H. and M. Ry. consolidated bonds; and £59,292 6s. 2d. for discount and commission on 4% debenture stock and 4% guaranteed stocks sold during the half-year.

The expenditures on capital account in respect of new works, new rolling stock, double track and land purchased, was as follows:—

New works	£270,773 0 8
New rolling stock	23,272 19 9
Double track	1,119 3 11
Land purchased	10,003 9 2
	£305,168 13 7

No additions to rolling stock at the expense of capital have been made during the half-year, but £23,272 19s. 9d. has been charged to capital account for materials supplied on account of 1,000 additional steel coal cars, to be subsequently delivered. Five Pacific type passenger engines, 10 baggage cars, and 660 steel under-frame box cars have been purchased, and two dining, three parlor and 3 parlor buffet cars, and one snow plow have been built in the company's works on revenue account.

**CANADA ATLANTIC RAILWAY.**

The following shows the results for the half-year compared with the corresponding period of 1909:—

	1909.	1910.
£230,104 Gross receipts	£198,239	£198,239
188,480 Working expenses	179,763	179,763
41,624 Net traffic receipts	18,476	18,476
1,122 Balance of income from rentals, outside operations, and car mileage	4,474	4,474
£ 42,746 Total net revenue	£ 22,950	£ 22,950

The interest charges were £63,030, against £60,114 and there was a net revenue deficiency of £40,080, compared with £17,368 in 1909.

The number of passengers carried was 287,943, against 290,729, a decrease of 2,786, or 0.96%; and the passenger receipts, including mails and express, were £48,808, against £49,006, a decrease of £198, or 0.40%.

The quantity of freight moved was 720,415 tons, against 1,258,375 tons, a decrease of 537,960 tons, or 42.75%, and the receipts from freight traffic were £130,875, making £171,079, a decrease of £40,204, or 23.50%.

**GRAND TRUNK WESTERN RY.**

The following shows the results for the half-year compared with the corresponding period of 1909:—

	1909.	1910.
£637,166 Gross receipts	£640,798	£640,798
468,976 Working expenses	502,464	502,464
168,190 Net traffic receipts	138,334	138,334
Dr. 49,094 Balance of income from rentals, outside operations and car mileage	49,409	49,409
£119,096 Total net revenue	£ 88,925	£ 88,925

The net revenue charges were £92,150, against £93,307, and there was a net revenue deficiency of £3,225, which is carried forward, as compared with a net revenue credit of £25,789 in 1909.

The number of passengers carried was 1,079,337, against 1,052,197, an increase of 27,140, or 2.58% and the passenger receipts, including mails and express were £242,899, against £230,519, an increase of £12,380, or 5.37%.

The quantity of freight moved was 1,642,548 tons, against 1,740,216 tons, a decrease of 97,668 tons, or 5.61% and receipts were £379,704, against £391,015, a decrease of £11,311, or 2.89%.

**DETROIT, GRAND HAVEN & MILWAUKEE RY.**

The following shows the results for the half-year, compared with the corresponding period of 1909:—

	1909.	1910.
£219,978 Gross receipts	£215,501	£215,501
159,486 Working expenses	174,021	174,021
60,492 Net traffic receipts	41,480	41,480
Dr. 11,444 Balance of income from rentals, outside operations, and car mileage	Dr. 636	Dr. 636
£ 49,048 Total net revenue	£ 40,844	£ 40,844



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The net revenue charges were £36,981, the same as in 1909. There was a net revenue surplus of £3,863, as compared with £12,067 for the corresponding period of 1909.

The number of passengers carried was 478,246, against 487,122, a decrease of 8,876, or 1.82%; and the passenger receipts, including mails and express, were £74,673, against £75,032, a decrease of £359, or 0.48%.

The quantity of freight moved was 1,079,293 tons, against 1,116,699 tons, a decrease of 37,406 tons, or 3.35%, and the receipts from freight traffic were £120,432, against £125,074, a decrease of £4,642, or 3.71%.

GRAND TRUNK PACIFIC RAILWAY.

Track was laid to the western end of the Prairie Section at Wolf Creek last year, and has since been extended 63 miles beyond Prairie Creek, which is 185 miles west of Edmonton and within 50 miles of the summit in the Rocky Mountains through the Yellowhead Pass. During the winter construction camps were established from Prairie Creek westerly through the Yellowhead Pass to Tete Jaune Cache, 110 miles, and arrangements have been made for the vigorous prosecution of this work during the present year. On the western end of the Mountain Section from Prince Rupert on the Pacific coast, track has been laid easterly for 100 miles, and will be available during the coming season for the transportation of materials and supplies for the contractors, and also for the use of prospectors and settlers going into the interior of the country. From the present end of the track easterly to Aldermere, 145 miles, construction camps are established, and the work is being carried on as rapidly as the weather conditions and the supply of labor will permit. On this section of the line there is a considerable amount of rock cutting and tunnel work, and a large bridge will have to be constructed across the Skeena River near Hazelton. Every effort, however, will be made to complete the grading to Aldermere, and to lay a considerable portion of the track by the end of the present year.

Construction on the branch lines was continued from the date of the report presented in October to the end of the season in December, but work was almost entirely suspended during the winter. The contractors, however, have kept their forces organized, and every pressure has been brought to bear upon them to put on an increased force of men and teams at the opening of the coming season.

REPORTS OF OFFICIALS.

The Chief Engineer, H. G. Kelley, reports, the length of the G.T.R. maintained and operated during 1910 was the same as in 1909, viz., 3,536 miles. The work in connection with the terminal improvements at Ottawa is progressing favorably. The new hotel and station buildings have been erected and roofed in, and a fair proportion of the interior piping and electric wiring has been done. A new power house has also been built, and the equipment is now being installed.

The renewal of the Canada Atlantic railway bridge across the St. Lawrence at Coteau is practically completed. The bridge consists of the following:—4 fixed spans, each 219 ft., 10 fixed spans, each 213 ft., 2 fixed spans, each 171 ft., 1 fixed span, 135 ft., 1 swing span (river), 1 swing span (Soulanges Canal), and three short spans, making a total length of actual steel work, 4,085 ft. 3 ins.

The expenditure during 1910 for maintenance of way and structures was \$4,663,272.30, against \$4,384,252.58 in 1909, an increase of \$279,019.72, or somewhat over 6.36%. Total average cost per mile, \$1,318.80.

The outlay on track and permanent way, including ballast and ballasting, clearing snow, renewals of rails and ties, and also including their proportion of superintendence, was \$3,186,471.96 in 1909, or at the rate of \$901.15 per mile. In 1910 the amount was \$3,244,751.98, or at the rate of \$917.63 per mile, an increase of 1.83%.

For the renewal and repair of bridges, trestles and culverts, the expenditure during 1910, shows an increase of \$158,990.46, or nearly 46½% as compared with the outlay during 1909, the figures being \$501,352.55 and \$342,362.09 respectively.

The cost of repairs and renewals of buildings and fixtures was \$672,999.72, compared with \$564,230.08 in 1909, an increase of \$108,769.64, or almost 19.28%.

New stations were built at Danville Jct., Lacadie, St. Martine, Henrysburg, Moose Creek, Downsview, Malton, Waterloo, Vineland, Goderich, Bothwell, Nixon, Amagari, Ada and Fenton—15 in all.

The materials used for repairs and renewals of main tracks and sidings were:—

New steel rails	33,304.80 tons.
Partially-worn steel rails laid in branch lines and sidings	26,512.80 tons.
New ties placed in track	1,915,896
Ballast	401,356 cub. yds.

The Superintendent of Motive Power, W. D. Robb, reports the expenditure, mileage, etc., as follows:—

Half-year ended	Total expenditure	Train mileage	Rate of expense per mile		
			Train	Engine	Car
			Cents	Cents	Cents
Dec., 1910..	\$4,843,710	9,524,919	50.85	39.19	3.30
" 1909..	4,849,724	9,951,487	48.73	38.33	2.96

A decrease in expenditure of \$6,014 or 0.12% compared with a decrease in train mileage of 426,568, or 4.29%.

Passenger Freight Mixed The average number of cars moved per train was ... 5.0 25.3 7.1 And for the corresponding period ... 5.0 26.5 7.1

During the half-year six engines were scrapped, leaving 20 old light capacity engines set aside, to be scrapped. Five Pacific type passenger engines were purchased, and put into service. The actual stock at Dec. 31, 1910, was 929, against the official figure of 803, being a surplus of 126.

The comparative cost of repairs per train, engine and car mile was:—

Cost per mile	Repairs and renewals of locomotives		All repairing charges including shop machinery, tools and marine equipment, etc.		Total miles run by car		Cost per mile	
	1910	1909	1910	1909	Passenger	Freight	Car.	Train.
	Cents.	Cents.	Cents.	Cents.			Cents.	Cents.
Train	15.77	15.47	18.07	17.17	22,883,579	124,004,693	146,888,272	16.05
Engine	12.16	12.17	13.88	13.53	22,529,586	141,494,586	164,024,154	16.14
Car	1.02	0.94	1.17	1.04			0.979	

J. Coleman, Superintendent of Car Department, reports expenditure, mileage, etc., as follows:

A decrease in expenditure of \$77,386, or 4.82%, and a decrease in car miles of 17,135,882, or 10.45%.

	£	s.	d.
Freight	2,844,888	19	8
Less Carriage &c.	56,314	4	10
International Bridge tolls	12,665	1	4
St. Clair Tunnel tolls	20,790	18	6
Passenger	89,770	4	8
Less International Bridge tolls	1,143,055	4	3
St. Clair Tunnel tolls	15,147	9	1
Mail and Express	197,413	14	11
Other Revenue from Transportation	78,233	3	9
Revenue from Operations, other than Transportation	41,725	1	0
	£3,699,898	10	10

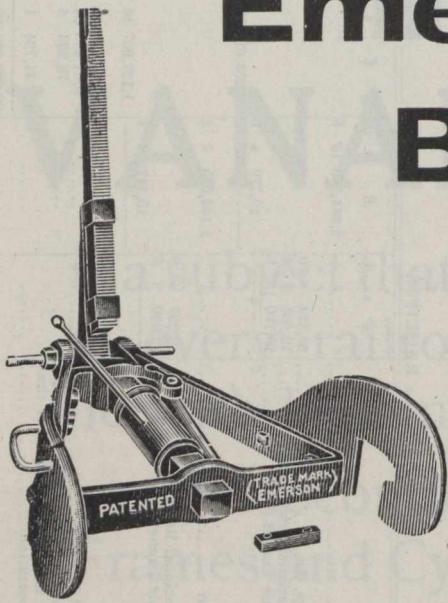
	£	s.	d.
Maintenance of way and structures	16.02/o	592,719	12 3 10
Maintenance of equipment	17.51/o	647,679	12 7
Traffic expenses	3.16/o	116,767	11 3
Conducting transportation	33.97/o	1,256,910	13 10
General expenses	2.43/o	90,014	8 2
Total operating expenses	73.09/o	2,704,091	9 8
Taxes	2.34/o	86,594	8 7
Net income from rentals	75.43/o	2,790,685	18 3
	Cr.	63,805	10 4
Dining car service balance		2,726,880	7 11
	Cr.	1,589	12 6
Hire of equipment balance		2,725,290	15 5
	Dr.	26,958	5 1
Balance to net income account		2,752,249	0 6
		947,649	10 4
		£3,699,898	10 10

The report was adopted without comment, and the following dividends authorized to be paid: 2% on the 4% guaranteed stock; 2½% on the first preference stock; 2½% on the second preference stock; and one-half per cent. on the third preference stock, for the half-year. A resolution was also adopted, assenting to the Grand Trunk Act, 1911, and authorizing the directors to guarantee the G. T. Western Ry. first mortgage bonds, as covered by the act, and to issue from time to time, additional 4% debenture stock, the aggregate interest on which shall not exceed £100,000 a year.

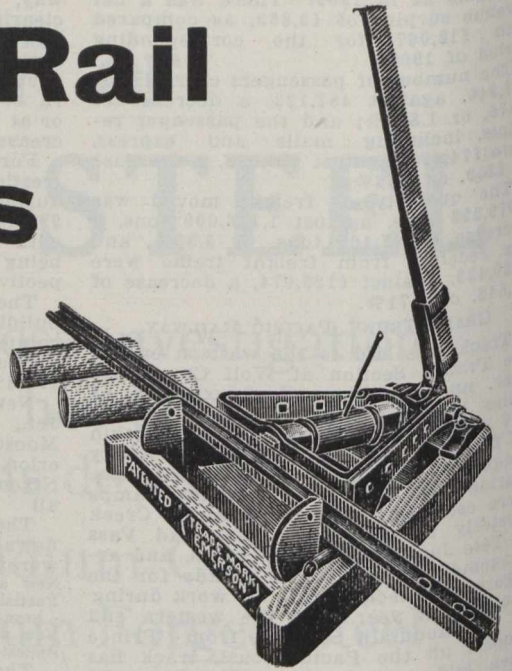
The Chairman stated that the five miles of the G. T. Western Ry., between Valparaiso and Sedley, is to be double tracked immediately, and other work, consisting of the installation of a new block-signaling system, additional siding accommodation and rolling stock, also undertaken, and in order that the company may be put in a strong position financially, powers have been taken to create a blanket mortgage of \$30,000,000 to be guaranteed as to principal and interest by the G.T.R. Of this \$15,000,000 will remain in the treasury to redeem the existing first mortgage bonds, at maturity, the remainder being issued as required for the work above mentioned, and also to complete payment for the Battle Creek shops, and to repay money advanced by the G.T.R. The act also



# Emerson Rail Benders

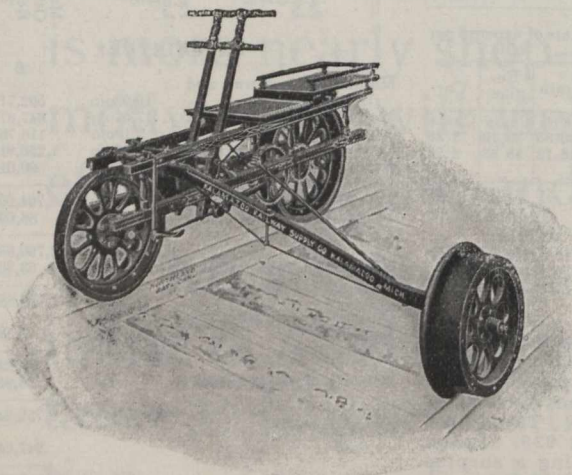


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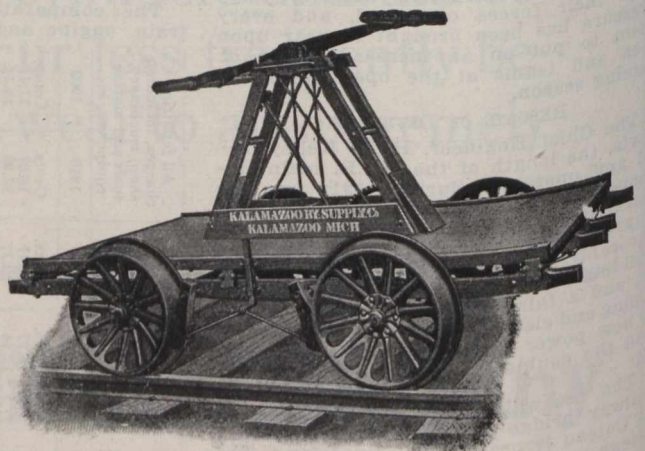


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tee, pledge and sell the securities of the Montreal and Southern Counties Ry., and to issue debenture stock to provide the necessary funds.

Following are the directors for the current year:—A. W. Smithers, Chairman; Sir Henry M. Jackson, C. M. Hays, President; G. Von Chauvin, J. A. Clutton-Brock, Col. F. Firebrace, Sir Felix Schuster, Lord Welby, Sir William H. White and Sir W. Lawrence Young.

### Nova Scotia Railway Report.

The Provincial Engineer of Nova Scotia, R. McColl, in his annual report for the year ended Sept. 30, 1910, states that the work of his department, so far as it refers to railways, consisted generally of the supervision of the subsidized railways, there being no railway construction during the year. The principal work otherwise has been the examination into the proposed Halifax and Eastern Ry. and its final location.

Business generally, especially as regards railway traffic, has been considerably affected by the labor troubles in the mining districts, causing a great falling off in the coal shipments. The returns as a whole show a considerable decrease for the past year, there being a falling off of over \$20,000 in the receipts, or about 2%, and as 1909 showed a decrease from 1908 of 8%, this makes a total decrease of 10% from 1908. This, however, is almost entirely accounted for by the labor troubles, as if the Sydney and Louisburg Ry., and the Cumberland Ry. and Coal Co. are excepted, there is an increase on the other lines of over \$60,000. The most gratifying increase is that of the Halifax and South Western Ry., which shows a total of \$39,000 increase for last year, or nearly 10%, and the net returns show an even greater increase.

There is no change in the railway mileage in the province, there being 634 miles of line under provincial jurisdiction, the Dominion Atlantic Ry. of 221 miles coming under the Board of Railway Commissioners, and the Intercolonial Ry. of 467 miles being under the Department of Railways. The total mileage is 1,322, or one mile of line for every 340 inhabitants, slightly less than the average for the Dominion. The construction of the Halifax and Eastern Ry. will increase this ratio considerably, so that considering there is no place in Nova Scotia more than 60 miles from navigable water, it may be said that practically all parts of the Province will be pretty well accommodated with railways.

The statistics given in the report are those for the year ended June 30, 1910, which were given in the tables published in our Jan. and Feb. issues. The receipts vary from \$400 a mile in the case of the Cape Breton Ry. and the Nova Scotia Steel Co.'s Ry., to \$80,000 a mile in the case of the Sydney and Louisburg Ry., and the operating expenses vary from \$540 to \$7,500 a mile, the net receipts varying from a loss of \$540 and \$443 a mile on the Cape Breton Ry. and the Nova Scotia Steel Co.'s Ry. respectively to a profit of \$1,445 a mile on the Inverness Ry. and Coal Co.'s line. The Dominion Atlantic Ry. shows gross receipts of \$2,855 a mile, and a net profit of \$1,069.41, while the Intercolonial Ry. shows a loss of \$309 a mile. This shows that the lines in Nova Scotia not under the jurisdiction of the province occupy a much better territory as regards revenue than those under provincial control, with the exceptions of the Sydney and Louisburg Ry. and Inverness Ry. and Coal Co.'s line. Leaving out the two lines reporting a loss, it is shown that the receipts per train mile are on an average about 30% lower than on the larger Canadian railways, and even allowing for the fact that the trains will be somewhat heavier on the larger railways, the figures show that the provincial railways give more service

in proportion to their revenue than do the larger railways. The difference in operating expenses is not nearly so marked as is the difference in the case of receipts. Notwithstanding the increase in the wages of trainmen, there is, with one exception, a decrease in operating expenses per train mile. In reference to net receipts, it is shown that the provincial railways are not getting as much for their shareholders as any of the large Canadian companies.

The traffic carried by most of the provincial railways, particularly the Sydney and Louisburg Ry., the Maritime Coal, Ry. and Power Co., and the Inverness and Richmond Ry. and Coal Co., is due to freight from mines owned by the owners of the railway, so the question of rates is not so important to the general public as it is on some of the other roads, such as the Halifax and South Western Ry. This line is of more interest to the province than other lines, not only on account of its length, but because it does only a general passenger and freight business. It is therefore very gratifying to find such a large increase, viz., 10%, in the annual traffic on that line, and at the same time a decrease in the operating expenses. The service given on this line during the summer of 1910 was without doubt the most convenient yet given, and the trains have shown a marked improvement as regards running

#### FROM AN ENGINEER OF SURVEYS.

H. M. Killaly, Engineer of Surveys, Canadian Pacific Railway, Montreal, in renewing his subscription to the Railway and Marine World, which he has taken for a number of years, writes:—

"Enclosed is another year's subscription for your valuable and interesting paper. It certainly keeps one well posted in regard to the latest news concerning railways, etc."

time. There has also been a very considerable improvement in the road-bed, and a great improvement as regards derailments. While there is considerable to be accomplished yet, and while the trains are so frequent as many would like during the winter months when the traffic is light, there is a general improvement in nearly every way, and not only has the company succeeded in increasing earnings, both gross and net, but it has reduced the freight rates in many cases. While the line has not yet proved much of an earner of dividends for the shareholders, it is pleasing to find such an improvement and advantage to the people of the south shore counties. Before the building of the line, the cost of travelling worked out at about 6c. a mile, and the cost of freight about 20c. a ton a mile. The passenger tariff on the railway is 3c. a mile, and the freight rate averages about 5c. a ton a mile. This works out to a saving of about \$1,000 a mile on the traffic as compared with conditions existing before the railway, to say nothing of the convenience and saving of time.

Six persons were killed and 13 injured by accidents on the provincial lines, as against 5 killed and 13 injured in the preceding year. The accidents to others than passengers and employes were unusually low, and were all due to trespassing.

L. J. Rouleau, Travelling Freight Agent, Grand Trunk Railway and National Despatch—Great Eastern Line, Montreal, writes:—"I always look forward to the receipt of the Railway and Marine World, every issue of which contains very valuable and reliable information."

### St. Clair Tunnel Locomotives Flange Wear.

Since electric operation of the G.T.R. St. Clair tunnel was begun the driving wheels of the locomotives have been subject to excessive flange wear. After 10 months' operation, when the locomotives had made only 80,000 miles, it was necessary to turn the driving wheels and form new flanges. To do this 5/16 in. of metal had to be cut off the treads and the operation was expensive owing to the cost of removing and replacing the wheels and the loss of good metal. Under normal conditions the tires should last six years. The following information regarding the nature and probable cause of the excessive wear has been furnished by W. D. Hall, Superintendent of Power Plant and Electrical Equipment of the tunnel.

The three locomotives in use each consists of two duplicate half-units. Each half-unit is mounted on three pairs of driving wheels 62 in. in diameter. No guiding wheels are used and the rigid wheel base is 16 ft.. The total weight of each half-unit is 67½ tons, which is evenly divided on the three pairs of driving wheels. The motors are each of 250 h.p., and are geared to the driving axles. The height of the centre of gravity of the locomotive is 51 in.

Almost all the flange wear takes place on the leading wheels at each end of the half-units, which are turned end for end at regular intervals to distribute the wear as evenly as possible. The flange wear on the interior wheels is very slight and wear on the tread of any wheel is barely perceptible. The depth of the flanges is 1¼ ins. and the minimum thickness allowed is 1 in. The steam locomotives which formerly were used for hauling trains through the tunnel did not show excessive flange wear on any wheels.

While some of the flange wear on the electric locomotives is due perhaps to the frequent application of the brake-shoes in descending the 2% grades in the tunnel, there is no doubt that it is mainly due to curve resistance encountered in the tunnel yards. Conditions have been improved very much since last June. Up to that time various wheel flange lubricators had been tried, but satisfactory results were not obtained, mainly on account of the heating of the tires due to the almost continuous braking which is necessary in descending the long approaches.

Mr. Hall designed an apparatus which would spray oil on the wheel flanges and one which would do this only when the tires required lubricating to enable them to take the curves with as little resistance as possible. By pressing an electric contact button at any controller, or, in the case of a steam locomotive, by opening a small air valve, oil is sprayed on the flanges of the leading wheels of each locomotive from one lubricator. The action of the combination of oil and air not only lubricates the flanges, but cleans them from grit as well, as the spray forces the dirt and grit to the outer edge of the flange. When two or more locomotives are coupled together the pressing of a button on any locomotive will cause the leading wheels of each locomotive to be lubricated. For steam locomotives, or where electric current is not available, the action of the lubricator is the same except that it is controlled by an air valve placed near the operator and controlled by hand. This device has been giving very satisfactory results since all the electric locomotives were equipped.

The first lubricator of this design has been in continuous operation since July 10, 1910, but a sufficient time has not elapsed to determine just what saving has been effected.



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**ARTHUR M. GRANT,**  
**MANAGER.**



**Carillon and Grenville Ry.**

A press report states that Mackenzie, Mann & Co. interests have acquired, or are about to acquire, this railway. It is the only broad gauge railway now in Canada, the gauge being 5 1/2 ft. It extends from Carillon to Grenville, Que., connecting at both ends with the steamers of the Ottawa River Navigation Co., and is operated only during navigation. The line is 13 miles long, and its construction was necessary in order to connect the upper and lower navigable reaches of the river. The line is owned by the Ottawa River Navigation Co. There is \$200,000 of common stock outstanding, which represents the entire capital obligations of the railway. No Government or municipal aid was given towards its construction. The gross earnings for the year ended June 30, 1910, were \$2,148,60, and the operating expenses \$4,701.21, showing a deficit of \$2,557.61. It carried in the same period 3,550 passengers, and 45 tons of revenue freight, and its trains ran a total of 2,418 miles. The rolling stock consists of two of the old Birkenhead locomotives, originally built for the G.T.R., five passenger cars, and three freight cars.

**Canadian Westinghouse Company, Ltd.**

The report for the year 1910 shows net profits of \$697,393.56, an increase of 40% over 1909.

From the year's profits quarterly dividends at the rate of 6% per annum and at the close of the year a bonus of 1% were paid, amounting to \$306,362; \$100,000 has been added to the general reserve for depreciation of property and plant, which reserve now stands at \$400,000 on the books; \$30,000 has been added to the reserve for inventory adjustment, increasing to \$50,000 the amount set aside for that purpose should fluctuation of value require; and following the same prudent plan as adopted last year \$70,522.21 has been written off items in property and plant account which are not directly productive from a manufacturing standpoint. The remaining balance of \$190,509.35 has been carried forward to the credit of profit and loss, which shows the total unapportioned surplus to be \$726,613.22.

A review of the physical activities for 1910 would closely resemble that of the previous year, except in the matter of volume. The sustained and increased demand for apparatus of all types in the electrical field, and the stability of orders for air brakes, have enforced a continual and cumulative growth of manufacture to satisfactory care for these desirable conditions, resultant in factory output aggregating an increase of approximately 44% over 1909. As the factories were operated in 1909 to almost their normal capacities, the results of 1910 were obtained under a condition of considerable congestion. The volume of business offered in the latter part of 1909 and in the early part of this year made it apparent that some additional space would be required to facilitate its handling. Extensive additions to the warehouse and detail buildings were undertaken and are about ready for occupancy, and an extension of the foundry building, about doubling its capacity, is under way and will be completed with the opening of spring. The probability of still further increased business raises the question of additional machine shop facilities at a not distant date.

The insistent demand for apparatus involving the highest development of engineering and manufacturing skill has continued, and the large share of business with which the company has been favored in standard and special lines, particularly in those fitted for the extensive generation and distribution of high voltage electrical energy and its economical ap-

plication to various industrial uses, demonstrates the standing accorded it throughout the Dominion. A new high record for sales was reached during the year, approximately an increase of 25% over 1909, the period of previous maximum. The larger volume has come from extensions to existing plants as well as from numerous new power developments, and has been well distributed geographically from ocean to ocean. Competition has been keen at the hands of home and foreign manufacturers, the latter having been reinforced by additional entrants attracted by the large developments undertaken in Canada. The established Westinghouse standards of design and construction have been fully maintained, along with continued efficiency in manufacturing costs. Appreciation is due the operating and directing forces in all departments.

**Canadian Northern Ry. Earnings, Etc.**

Gross earnings, working expenses and net profits from July 1, 1910, with increases over, or decreases from, those of 1909-10:

	Earnings.	Expenses.	Net.	Net.
			Earnings.	Increase.
July	\$1,225,100	\$876,900	\$348,200	118,600
Aug.	1,093,000	830,000	263,000	58,600
Sept.	1,279,900	898,700	381,200	69,700
Oct.	1,627,800	1,047,300	580,500	99,800
Nov.	1,565,400	1,006,500	558,900	11,500
Dec.	1,255,400	896,200	359,200	24,800
Jan.	822,600	720,900	101,700	20,800
Feb.	803,100	667,800	135,300	4,800
Mar.	1,270,600	915,800	354,800	82,500
	\$10,942,900	\$7,859,600	\$3,083,300	\$449,000
Inc.	\$1,728,300	\$1,279,300	\$449,000	.....

Approximate earnings for April \$1,345,000, and for two weeks ended May 14, \$704,700, against \$1,153,100, and \$579,000, for same periods 1910.

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

Gross earnings, working expenses, net profits, increases or decreases over 1909-10, from July 1, 1910:

	Earnings.	Expenses.	Net Profits.	Net Increase
				or Decrease
July	\$3,869,214.32	5,834,594.73	3,434,619.50	1,004,748.86+
Aug.	3,255,381.67	5,563,659.34	3,691,672.33	727,614.46+
Sept.	3,315,213.67	5,403,614.03	3,911,599.64	479,710.47+
Oct.	10,229,370.77	5,724,210.25	4,505,160.52	118,863.39+
Nov.	9,413,238.22	5,676,115.96	3,737,122.26	44,784.31+
Dec.	8,705,283.99	5,418,750.10	3,286,533.87	171,110.79-
Jan.	5,740,206.34	5,084,084.47	656,117.87	660,478.52-
Feb.	6,375,576.57	5,230,869.06	1,144,707.51	342,311.73-
Mar.	8,880,640.59	5,644,074.05	3,156,566.54	445,393.15+
	\$76,704,076.14	\$49,129,975.99	\$27,574,100.15	\$1,989,435.12+
Inc.	\$6,885,748.14	\$4,896,313.02	\$1,989,435.12	.....

Approximate earnings for April \$8,458,000, and for two weeks ended May 14, \$3,946,000 against \$7,830,000 and \$3,649,000 for same periods 1910.

**DULUTH, SOUTH SHORE AND ATLANTIC RY.**—Operating revenue for March, \$227,535.14; expenses \$187,022.24; net revenue \$40,512.90, against \$276,893.18 operating revenue; \$175,047.59 expenses; \$101,845.59 net revenue for March, 1910. Aggregate operating revenue for nine months ended Mar. 31, \$2,353,796.88; expenses \$1,671,434.19; net revenue \$682,362.69, against \$2,421,665.56 aggregate operating revenue; \$1,648,929.79 expenses; \$772,735.77 net revenue for same period 1909-10. Approximate earnings for Apr., \$231,261, and for two weeks ended May 14, \$118,493, against \$276,763, and \$134,889 for same periods 1910.

**MINERAL RANGE RD.**—Operating revenue for March, \$68,652.83; expenses, \$55,719.37; net revenue \$12,933.46, against \$68,453.92 operating revenue; \$64,115.66 expenses; \$4,338.26 net revenue for March 1910. Aggregate operating revenue for nine months ended Mar. 31, \$569,039.71; expenses \$547,485.49; net revenue \$21,554.22, against \$640,124.27 aggregate operating revenue; \$553,409.08 expenses; \$86,714.29 net revenue for same period 1909-10. Approximate earnings for Apr., \$57,469, and for two weeks ended May 14, \$27,783, against \$60,816 and \$28,279 for same periods 1910.

**MINNEAPOLIS, ST. PAUL AND SAULT STE MARIE RY.**—Operating revenue for March, \$1,015,732.71; expenses and taxes \$777,608.68; operating income \$238,124.03, against \$1,132,994.49 operating revenue; \$725,914.01 expenses and taxes; \$407,080.48 operating income for March, 1910. Aggregate operating revenue for nine months ended March 31, \$9,971,976.21; expenses and taxes \$6,831,021.14; operating income \$3,140,955.07, against \$11,781,611.73 aggregate operating revenue; \$6,635,588.88 expenses and taxes; \$5,146,022.85 operating income for same period 1909-10. Approximate

earnings for Apr., \$1,645,370, and for two weeks ended May 14, \$781,521, against \$1,827,945 and \$838,168 for same periods 1910.

**CHICAGO DIVISION.**—Operating revenue for March, \$728,031.50; expenses and taxes \$602,116.97; operating income \$125,914.53, against \$668,915.81 operating revenue; \$554,764.04 expenses and taxes; \$314,151.77 operating income for March 1910. Aggregate operating revenue for nine months ended Mar. 31, \$6,780,123.35; expenses and taxes \$5,279,288.02; operating income \$1,500,835.33, against \$6,522,178.89 aggregate operating revenue; \$4,554,449.90 expenses and taxes; \$1,967,728.99 operating income for same period 1909-10.

**Grand Trunk Ry. Earnings, Expenses, Etc.**

The following figures show the earnings of the G.T.R., C.A.R., G.T. Western Ry. and D.G.H. and M. Ry. separately, for Mar., as compared with Mar., 1910:—

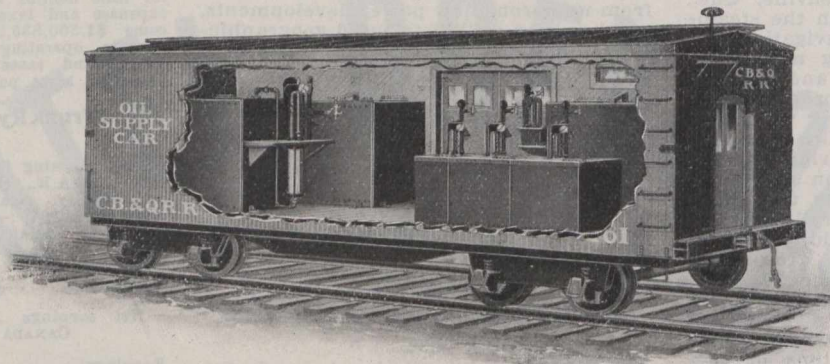
GRAND TRUNK RAILWAY.			
	1911.	1910.	
Earnings	\$3,027,000	\$2,887,400	
Expenses	2,181,000	2,088,200	
Net earnings	\$ 846,000	\$ 799,200	
CANADA ATLANTIC RAILWAY.			
	1911.	1910.	
Earnings	\$ 166,000	\$ 165,000	
Expenses	143,000	125,000	
Net earnings	\$ 23,000	\$ 40,000	
GRAND TRUNK WESTERN RY.			
	1911.	1910.	
Earnings	\$ 553,400	\$ 582,650	
Expenses	451,100	399,400	
Net earnings	\$ 102,300	\$ 183,250	
DETROIT, GRAND HAVEN AND MILWAUKEE RY.			
	1911.	1910.	
Earnings	\$ 163,000	\$ 158,100	
Expenses	160,200	122,600	
Net earnings	\$ 2,800	\$ 35,500	
Aggregate from Jan. 1 to Apr. 30:—			
TRAFFIC RECEIPTS OF THE SYSTEM			
	1911.	1910.	Increase.
Grand Trunk	\$2,202,838	\$2,097,064	\$105,774
Canada Atlantic	125,594	119,710	5,884
G.T. Western	443,870	427,198	16,672
D.G.H. & M.	133,492	125,756	7,736
Totals	\$2,905,794	\$2,769,728	\$136,066

**Transportation Conventions in 1911.**

- June 14-16—American Railway Master Mechanics' Association, Atlantic City, N.J.
- June 19.—Association of Railway Telegraph Superintendents, Boston, Mass.
- June 19-21.—Master Car Builders' Association, Atlantic City, N.J.
- June 20.—American Association of Freight Agents, Kansas City, Mo.
- June 20.—Train Dispatchers' Association of America, Baltimore, Md.
- June 20-21.—Association of Transportation and Car Accounting Officers, Cape May, N.J.
- June 21.—Freight Claims Association, St. Paul, Minn.
- June 22.—American Association of Demurrage Officers, Niagara Falls, N.Y.
- July 25-27.—International Railway General Foremen's Association, Chicago, Ill.
- Sept. 19.—American Association of General Passenger and Ticket Agents, St. Paul, Minn.
- Oct. 10.—Railway Signal Association.
- Oct. 17-18.—American Railway Bridge and Building Association, St. Louis, Mo.
- Oct. 19-21.—American Association of Dining Car Superintendents, Cincinnati, O.
- Nov. 17-18.—American Association of Freight Traffic Officers, Cincinnati, O.

During March, 18 employes were killed, and 26 were injured in the course of their work in connection with the construction and operation of Canadian railways. Of the fatalities, 12 were due to being run over, three to collisions, and one each, to a derailment, to being caught between cars and to a dynamite explosion, while of the other accidents, seven were due to collisions, six to falls, five to being caught between cars, three each to being run over and to falling material, and one each to flying material and to exposure.





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**Recent Nova Scotia Legislation.**

The following acts relating to the transportation interests were passed at the recent session of the Nova Scotia Legislature:—

ARISAIG AND COUNTRY HARBOR IRON, COAL AND RY. Co.—Amending powers.

ATLANTIC COAL Co.—Amending statutes of 1902, chap. 152.

BEAR RIVER AND CALEDONIA RY.—Amending statutes of 1907, chap. 144.

BLOMIDON RY.—Incorporation.

CAPE BRETON ELECTRIC Co.—Amending statutes of 1910, chap. 130.

DARTMOUTH AND COW BAY ELECTRIC RY.—Incorporation.

DOMINION COAL Co.—Amending statutes of 1903, chap. 145.

ELECTRIC RAILWAYS.—Authorizing aid for building electric railways.

HALIFAX AND GUYSBORO.—Amending act of 1906 to provide for building of railway between Halifax and Guysboro.

HALIFAX AND SOUTH WESTERN RY.—Amending charter powers.

INTERCOLONIAL RY.—Amending act of 1909 respecting cost incurred by North Sydney for extension of I.C.R. into the town.

LIVERPOOL AND CALEDONIA RY.—Incorporation.

LUNENBURG ELECTRIC RY.—Incorporation, and a second act authorizing Lunenburg municipality to make cash contributions in aid of purchase of right of way within the municipality.

MARGAREE COAL AND RY. Co.—Extending time for construction.

MARGARETVILLE STEAMSHIP Co.—Amending statutes of 1907, chap. 157.

MARITIME COAL AND RY. Co.—Extending time for construction.

MARITIME ENGINEERING Co.—Respecting company's powers.

NATIONAL COAL AND MINING Co.—Amending acts.

NOVA SCOTIA CAR WORKS.—Authorizing city of Halifax to assist company financially.

SHELBURNE AND BEAR RIVER RY.—Incorporation.

SHIPBUILDING.—An act to encourage the building of iron and steel ships at Halifax; and an act to enable city of Sydney to grant a bonus for purpose of establishing a shipbuilding, repair shop, wrecking plant and engine shop on Sydney harbor.

STREET RAILWAYS.—Relating to street railways.

SYDNEY AND LOUISBURG RY.—Amending statutes of 1910, chap. 171.

SYDNEY, NEW WATERFORD AND EAST BAY MONO RAIL Co.—Incorporation.

YARMOUTH YACHT Co.—Incorporation.

**Michigan Central Railroad Report.**

The annual report of the M.C.R. for the year 1910 shows a total of 1,803.29 miles of line operated, against 1,746.46 miles in 1909. The mileage includes 270.07 miles of main line owned, 345.05 miles of proprietary lines, 1,096.16 miles of leased lines, and 92.01 miles of lines operated under trackage rights. During the year 23.60 miles of a line in the U.S. were taken up, and there were added 78.01 miles of lines operated under trackage rights, and 2.42 miles in respect of the Detroit River Tunnel. The capital stock authorized and outstanding remained at \$18,738,000; the funded debt had been reduced from \$42,159,000 to \$41,870,578.68.

Referring to the double tube tunnel under the Detroit River, of which the entire capital stock is owned by the N.C.R., the directors say it has proved an entire success. It was put into experimental use for through freight traffic Oct. 9, 1910, and an order authorizing its use was issued by the Board of Railway Commissioners for Canada, after a thorough inspection, Oct. 14. Regular

freight and passenger service was inaugurated Oct. 16. There still remained some work to be done, consisting principally of the interlocking system and additional equipment for the electrical sub-station, which it is estimated will cost \$200,533, making the total cost, including interest on the money advanced from time to time by the M.C.R., \$8,922,165. The acquisition of terminal freight and passenger yards and station buildings by the Tunnel Co. will require a considerable sum in addition to the amount mentioned.

The gross receipts from operation were \$29,694,815.71, an increase of \$2,279,348.51, and the operating expenses \$21,628,906.26, an increase of \$3,129,378.02, leaving a net revenue from rail operation of \$8,065,909.45, a decrease of \$850,029.51. After deducting \$56,315.13 loss on certain outside operations, and \$1,357,019.92 for accrued taxes, and bringing in other accounts, the gross corporate income was \$7,746,254.32, a decrease of \$938,481.24. The fixed charges, etc., absorbed \$6,028,923.48, leaving a surplus of \$1,717,330.84, from which dividends of \$1,124,280 had been declared, leaving a balance of \$593,050.84 to be carried forward to the current year. In explanation of these figures the directors state part of the increase of \$763,609.44 in the deductions from income was due to additional rent paid to the Canada Southern Ry. in accordance with the terms of the lease.

The statistical tables annexed to the report show that the deductions from income included \$840,000 interest on the 6% first mortgage bonds, \$300,000 interest on the 5% second mortgage bonds of the Canada Southern Ry.; \$5,200 interest on the 4% Leamington and St. Clair mortgage bonds; \$450,000 rental of the Canada Southern Ry., being at the rate of 3% on a capitalization of \$15,000,000. The expenditures on betterment of the Canada Southern Ry. were \$599,344.15. The stocks owned or acquired under lease amount to \$20,924,529.17, including \$7,810,000 Canada Southern Ry.; \$3,000,000 Detroit River Tunnel Co.; Toronto, Hamilton and Buffalo Ry., \$446,400, and the bonds valued at \$1,190,000, include \$257,000 of the bonds of the Toronto, Hamilton and Buffalo Ry. These securities are carried in the books of the company at \$8,655,994.09.

**Machine Shop Primer.**—This is the title of a 148 page book prepared by F. H. Colvin, and F. A. Stanley, which, as its sub-title declares, is "an introduction to machine tools and shop appliances, with illustrations, names and definitions." The volume is intended primarily for the use of students and instructors in mechanical service. Section one contains sketches of 508 numbered machines, tools and appliances, which are named in section two, while in section three is an alphabetical reference to general information about shop matters, including concise definitions or bits of information about the tools or appliances named in sec. 1. Where cuts are used in sec. 3, they show machine tools with their parts numbered, the names being arranged in numerical order underneath. The book is issued at \$1 net, the publishers being the McGraw-Hill Book Co., New York. It can be obtained through The Railway and Marine World's Book Department.

The United Engineering and Construction Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$1,000,000, and office at Toronto, to build and equip, railways, tramways, telegraph and telephone lines, docks, harbors, piers, wharves, canals, etc., and carry on a general contracting business. The incorporators are, F. P. Metzler, W. J. Taylor, G. B. Taylor, J. M. Spinks, E. Gillis, Toronto.

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

**Midland Great Northern Ry.**—The proposed agreement as to the building of terminals in Winnipeg came up once more before the city council May 9, and was laid over for future consideration. The agreement submitted to the meeting was drawn up May 3, and provides for four subways south of the Assiniboine River, at Crescent Road on the north, at Wilkes Avenue, the south boundary of the city, and at two other crossing avenues that may be designated by the city. Special provision is also made for subways when required on the north side of the river at the crossing of Lavinia, Ellice and Sargent avenues. These avenues have not been opened up to the right of way of the M.G.N.R., but when they are and the city deems it necessary the railway will put in subways at its own cost. A. H. Hogeland, Chief Engineer, in an interview May 3, said it was the company's intention to begin work first on the terminals in the heart of the city. He could not state definitely whether the company would use its own tracks altogether at first, but work on the whole proposition would be pushed ahead. An agreement might be reached with the C.P.R. for the temporary use of its tracks to some point north of the river, but this would only be for a very short period. Notice has been given to the tenants of the property along Ross and Pacific Avenues west from Isabel to Nena St., to vacate the premises held by them by June 1, after which date the company will proceed to clear the site for the freight station and yards.

**Vancouver, Victoria and Eastern Ry. and Navigation Co.**—J. H. Kennedy, Chief Engineer, has been in Ottawa for the purpose of discussing with the Department of Railways the route of the company's line through the Coquihalla Valley, where it and that selected for the Kettle Valley Lines extension conflict. Mr. Kennedy also discussed the possible routes through the Hope Mountains, and the possibility of an arrangement being made for running rights over the Canadian Northern Pacific Ry. from Hope Summit to Sumas River. It is expected that an arrangement will be made for an early start on construction from Penticton to Hope Summit.

Good progress is being made with the building of the 20 mile section between Abbotsford and Chilliwack, B.C., by J. W. Stewart and Co. An arrangement has been made by which a new station is to be built at New Westminster this year.

A plan for the improvements in the bed of False Creek, Vancouver, B.C., in connection with the terminals there, has been approved by the Board of Railway Commissioners. An arrangement has been made by which the company obtains control of 290 ft. of water frontage on Burrard Inlet, which, added to the frontage already owned, will give about 700 ft. of frontage there. It is said that wharves and terminals will be built as soon as possible. (May, p. 427.)

The Michigan Central Rd. is now operating its trains by telephone, between St. Thomas and Windsor, Ont., and it is anticipated that the lines between St. Thomas and Buffalo, and between Bay City and Mackinaw will be similarly operated during the year. The company now operates its trains by telephone over its main line and divisions, as follows:—St. Thomas to Windsor; Detroit to Jackson; Jackson to Niles; Jackson to Grand Rapids; Jackson to Bay City; Detroit to Toledo and Detroit to Bay City. The work has been carried out under the supervision of J. J. Ross, Superintendent of Telegraphs, Detroit, Mich.



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**Albert and Moncton Ry.**—While the bill was passing through the House of Commons recently, the name of R. L. Johnston was substituted for that of C. MacKinnon, among the promoters, the latter having died. (April, pg. 319.)

**Alberta Central Ry.**—Large gangs of men, it is reported from Red Deer, Alta., have gone out to the construction camps, on the line being built to Rocky Mountain House, and it is said that grading is being pushed forward as rapidly as possible. (May, pg. 409.)

**Alberta Pacific Ry.**—Nothing is being done in the way of arranging for the building of the line at Pincher Creek, Alta., under this company's charter. (Feb., pg. 109.)

**Algoma Central and Hudson Bay Ry.**—The Board of Railway Commissioners has approved the location plans of the extension from Hawk Lake to Hobon, Ont., on the C.P.R. transcontinental line, between mileage 0 and 30.23.

We have been advised that it is expected to begin track laying early in June on the extension of the line from Hawk Lake, Ont., and that it is hoped to have the grading completed to Hobon, the junction with the C.P.R. transcontinental line, by the end of June.

The completion of the line from the present end of track near Pangassin northerly to Hawk Lake Jet., the junction point with the Michipicoten branch, is being proceeded with from both ends, in the expectation of reaching Montreal River from the south end before the end of May. Immediately after the track is laid to this point, the Canadian Bridge Co., will start work on the erection of a viaduct 1,500 ft. long and 125 ft. high across the river. It will be the largest bridge on the line, and is the only steel one being erected at present. There will, however, be some large bridge trestles to build, some of them containing about 1,000,000 ft. b.m. of lumber. The large trestles are generally over dry valleys, the only river crossings, aside from the Montreal River, are spanned with timber structures as temporary bridges. It is expected to replace these with steel bridges on concrete foundations.

At Sault Ste. Marie, Ont., it is expected to begin the construction of new terminal yards, including new roundhouses and shops, and the building of a new terminal station. Part of this work will be done during the current season. It is also intended to fill in some of the timber trestles on the first 69 miles of the line, between Sault Ste. Marie, and Pangassin.

The viaduct which is to be built across the Montreal River by the Canadian Bridge Co. will be 1,550 ft. long between parapet walls, and will consist of alternate tower and free spans. The tower spans will consist uniformly of 30 ft. deck plate girders, and the free spans of girders varying from 40 ft. to 85 ft. long, the majority being 60 ft. spans, although at the deepest portion of the viaduct these will, for economy's sake, be made 75 ft. An 85 ft. span will be used where a somewhat longer span will be necessary to extend from firm ground to firm ground over water. The distance from base of rail to masonry at the deepest point will be somewhat more than 122 ft., and the weight will be slightly more than a ton per lineal foot of viaduct. The feature of the viaduct will be a heavy curve, being eight degrees at one end and nine degrees at the other, with compensation. The plans for the viaduct were made by Boller and Hodge, consulting engineers, New York City, and the work of erection is

in the immediate supervision of R. S. McCormick, Chief Engineer of the railway.

**Brandon Transfer Ry.**—The route recommended by the Board of Railway Commissioners' engineer for this projected line is said to be along 29th St. south to Lorne Ave., thence east to 25th St., and south along that street to the Canadian Northern Ry. track. This line will connect up all the lines now entering the city. It is also said to be recommended that the line be built by the C.P.R., the Canadian Northern Ry., and the city, and that it be operated by the Great Northern Ry. The city is favorable to the acceptance of the report, and is awaiting the decision of the companies interested and the order of the Board. (May, pg. 409.)

**Burrard Inlet Tunnel and Bridge Co.**—An arrangement has been arrived at between the company and the Vancouver, Westminster and Yukon Ry., whereby the company will build its proposed bridge across the second narrows at the site chosen for a proposed bridge to be built by the V., W. and Y. Ry. This will enable the company to secure a bridge subsidy of \$200,000 which had been voted by the Dominion Parliament. The agreement also provides that the V., W. and Y. Ry. shall construct the approaches to the bridge and the connecting lines. The site of the bridge as now arranged will be 600 ft. west of that originally proposed. (April, pg. 319.)

**Canada and Gulf Terminal Ry.**—We are advised that it is expected that further construction on this line, from the present track end at Matane Que., towards Gaspé Basin, will be gone on with as soon as possible. Some detail matters in connection with construction have yet to be arranged. (May, pg. 409.)

**Chicago, Milwaukee and St. Paul Ry.**—Chicago, Milwaukee and Pacific Ry.—The latter is the title under which the C.M. & St. P. Ry. is extending its line to the Pacific Coast, and is associated with certain charters for railway construction in Alberta and British Columbia. Press reports stated that the C.M. and St. P. R. has secured options on considerable property in the vicinity of Lipton St., just south of Portage Ave., Winnipeg, for terminal purposes, and that a line will shortly be built into the city from Grafton, N.D. The report further states that the Lipton St. property will be utilized for freight terminals, and that running rights will be secured into the Fort Garry union station for passenger traffic.

From Vancouver, B.C., it is reported that a general office for the company's western business is to be opened immediately, and that additions will be made to the staff. The western extension of the C.M. and P.R. is being pushed forward to Everett, Wash., and press reports state that a branch line will be built from near Seattle into Vancouver. (Feb., pg. 111.)

**Essex Terminal Ry.**—The Board of Railway Commissioners has approved location plans for the line from lot 75, con. 2, Sandwich West tp., and the Saginaw Salt and Lumber Co.'s property, Sandwich, Ont. The Board of Railway Commissioners has authorized the company to carry its line across Becker St., Huron Church Line, Felix Ave., Chipewa St., Centre Road and Bedford St., Sandwich tp., Ont. (Feb., pg. 111.)

**Halifax and Eastern Ry.**—In connection with this projected railway, for the building of which the Nova Scotia Government has been offering considerable inducements, extending over the last ten years, the House of Commons has been asked by the Minister of Railways to vote \$2,000,000 towards the building of the following lines, each line being voted \$1,000,000:—From New Glasgow, or

from Sunny Brae (in the event of the branch line to that place—the Nova Scotia Steel Co.'s line being acquired, as it may under the appropriation), to Guysboro, and from Cross Roads Country Harbor to the deep water there; and from Dartmouth, via Musquodoboit Harbor and the valley of the Musquodoboit River to Dean Settlement. The proposal is to build these lines as branches of the Intercolonial Ry. (Feb., pg. 111.)

**Howe Sound and Northern Ry.**—This company, which was incorporated by the B.C. Legislature, is applying to the Dominion Parliament for a declaration that its undertaking is a work for the general advantage of Canada, for authorization of the construction of additional lines, as follows: From near Lillooet, northerly along the valley of the Fraser River to Fort George, and northerly to and along the Parsnip River Valley to the Peace River and thence easterly to Peace River Landing, and to build a branch line from Newport, at the head of Howe Sound to North Vancouver and Vancouver. Power is also being asked to build, own and operate telegraph and telephone lines, elevators, wharves, warehouses, steam and other vessels, etc.

Plans are said to have been deposited with the Department of Railways for the section of the line from the summit of Anderson Lake to Lillooet, B.C. This line as projected was to start from Newport, on the seaboard, and to run by Green Lake, thence to Pemberton Meadows and on to Lillooet, a distance of about 120 miles. Press reports state that track has been laid on the first 12 miles inland from Newport, and that a considerable quantity of lumber is being taken out over the line and that the plans for the route to the main divide near Anderson Lake were deposited with the department some time ago, and that the plans now deposited cover the remainder of the route to Lillooet. The plans, it is stated, show a maximum gradient of 1.6%, and that only for a short distance at the main divide. A McEvoy, the company's solicitor, in an interview May 1, is reported to have said, the company had 12 miles of its line built, and intended to add to it from time to time, the company had not been approached as to the purchase of its line by the G. T. Pacific Ry. or any other company. (April, pg. 319.)

**Hudson Bay and Pacific Ry.**—A Prince Albert, Sask., dispatch states that a communication has been received by the Board of Trade to the effect that a contract has been signed for the building of the projected line from Prince Albert, to Fort Churchill, and that work will be started right away. (May, pg. 409.)

**Hudson Bay, Peace River and Pacific Ry.**—Press reports from Winnipeg state that an engineering party is about to proceed to Fort Churchill to make a survey for the company's projected main line from that place towards Edmonton, Alta., and Port Simpson, B.C. The line as projected will run in a nearly straight line to the south of Lake Athabasca, by Peace River Landing, and on to Port Simpson, about 1,500 miles. Another party, it is stated, will make a survey from Winnipeg to Fort Churchill, running east of Lake Winnipeg, and a third party will work from Edmonton on a line to connect with the main line. (May, pg. 409.)

**High River, Saskatchewan and Hudson Bay Ry.**—A meeting of the provisional directors of this proposed new company, is reported to have been held at High River, April 28, when Dr. G. D. Stanley was elected President; N. H. Sheppard, Treasurer, and F. Crandall, Secretary. An executive committee was appointed to make arrangements for a preliminary survey of the route and an estimate of the cost of the line. (May, pg. 409.)





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**Intercolonial Ry.**—We were officially advised early in May with reference to the appropriation for locomotive and car shop equipment, the new freight yard and the proposed cut-off at Moncton, N.B., that nothing had been definitely decided as to what would be done nor when the work would be commenced.

In the supplemental estimates laid before the House of Commons May 8, provision was made for the following additional expenditures: Further amount required to strengthen bridges, \$45,000; further amount required for the general protection of highways, \$135,000; further amount required to increase accommodation and facilities along the line, \$25,000; docks and wharves at Halifax, \$600,000; towards the construction of a railway from Dartmouth to Dean Settlement, etc., N.S., \$1,000,000; towards the construction of a railway from New Glasgow to Guysboro, Country Harbor, etc., \$1,000,000; improvements at Mulgrave, N.S., \$30,000; further amount required to increase accommodation at Truro, N.S., \$42,800; towards the construction of a railway from Alba to Baddeck, on Cape Breton Island, \$200,000; further amount required for addition to general office building at Moncton, N.B., \$48,500; further amount required to increase accommodation at Fredericton, N.B., \$18,000; towards construction of spur line from Hampton station to Hampton village, \$15,000; further amount required to increase accommodation at Campbellton, N.B., \$27,000.

Tenders were received to May 20 for the construction of an addition to the general office building at Moncton, N.B. (May, pg. 409.)

**Inverness Ry. and Coal Co.**—Press reports state that the extension of the line to St. Rose, N.S., at an early date, is contingent upon the success met with in the development of the coal areas in that district. (Sept., 1910, pg. 727.)

**Kaslo and Slocan Ry.**—A public meeting was held in Nelson, B.C., recently, at which \$25,000 was subscribed to take up an option for the purchase of this line, and \$13,000 additional was subscribed as a sinking fund. Mine owners in the district are behind the project, J. L. Retallack being the most prominent in the negotiations. The railway, which has not been operated for a long time, is being acquired from the Great Northern Ry. Co., U.S. It is proposed to form a local company to rebuild the line, for which purpose, it is stated, the Provincial Government will guarantee a loan of \$200,000, no interest being payable by the railway for three years. It is proposed to put the line in first class condition to McGuigan, and put a tug and barge on Kootenay Lake, so that ore cars can be delivered for transit to the smelters by the C.P.R., or the Great Northern Ry. (May, pg. 411.)

**Kipp to Suffield, Alta.**—According to a statement attributed to A. M. Grace, Chief Engineer of the South Alberta Land Co., surveys have been completed for a line from Kipp, Alta., about eight miles from Lethbridge, to Suffield, about 26 miles west of Medicine Hat on the C.P.R. main line. No mention is made in the statement as to what company made the surveys, or whether immediate construction is proposed.

**Kettle Valley Lines.**—The Board of Railway Commissioners has approved of location plans for the extension of the line from Westbridge to Wolverine Creek, B.C., mileage 20.9 to 35.3; and also authorizing the company to carry its line across eight highways.

Speaking at a meeting of the Penticon Board of Trade, May 1, J. J. Warren, President K.R.V.R., said construction work would be started east and west from that town within two months, and that by the end of the year it was ex-

pected 125 miles of track would be laid—about half the mileage between Midway and Merritt. A wharf and a passenger station are to be built on the lake front at Penticon at once. (May, pg. 411.)

**Kootenay and Alberta Ry.**—The Chief Engineer, L. B. Merriman, arrived in Pincher Creek, Alta., April 30, from Winnipeg, to make an inspection of the work in progress. The branch line to Beaver Creek, which is under construction, is to be pushed forward with a doubled force of men, so as to be completed by Sept. (May, pg. 411.)

**Manitoulin and North Shore Ry.**—The Board of Railway Commissioners has approved of location plans for the extension of the line, now under construction, from mileage 46.73, to 80.49. (May, pg. 411.)

**Mattawa to National Transcontinental Ry.**—Press reports state that the Dominion Government proposes, in the event of the C.P.R. declining to extend its line along the east shore of Lake Timiskaming, to have surveys made to secure a route for an independent line from Mattawa, Ont., through Ville Marie, Que., and on to a convenient point on the N.T.R.

**Montreal Central Terminal Ry.**—Plans have been deposited with the Montreal city authorities showing that the company desires to enter the city by a bridge terminating near the Bonsecours market. The company is desirous of using Craig St., east and west, so that its lines can reach Maisonneuve and the Upper Lachine road, and wants to make connection with the Canadian Northern Quebec Ry. in the east, and with the C.P.R. and G.T.R. in the west. The plans show that the company wants to use the streets by sinking a cut in them on which trains will be operated. The city attorney said the council did not want to block the company from coming into the city, but it was useless for any company to think of occupying any open space in the streets for the purpose of operating cars. (April, pg. 321.)

**New Brunswick and Prince Edward Island Ry.**—Tracklaying has been completed on the branch line to the Fawcett foundry, and ballasting is being gone on with. The branch is being extended from the foundry to the quarries. (May, pg. 411.)

**Ontario and Abitibi Ry.**—In passing through the House of Commons, where the bill was read a third time, May 15, the title of the company proposed to be incorporated as the New Ontario and Quebec Ry., was altered as above. (May, pg. 411.)

**Prince Edward Island Ry.**—In addition to the amounts already voted for betterments on this line, provision was made in the supplementary estimates submitted to the House of Commons, May 8, for the following:—Original construction, \$1,000; branch line from O'Leary to West Point, \$50,000; branch line from Kensington to Stanley Bridge, via Long River and Clifton, \$100,000. (May, pg. 413.)

**Quebec and Saguenay Ry.**—The construction on the first section of this line to be placed under contract is in charge of H. Doheny of O'Brien and Doheny, contractors. Work has been started, and it is expected to have the 56 miles completed by Sept. 1912. The 7.5 miles which has been let to the Bishop Construction Co., Montreal and Toronto, extends from Pointe a Pic, at the end of the 56 miles section, to Keeler, the site of the East Canada Power and Pulp Co.'s works.

O'Brien and Doheny, general contractors, have let sub-contracts as follows:—Mileage 30 to 33, O'Brien and Martin; mileage 33 to 36, Ryan and McDonald; mileage 36 to 39, Doheny and Thomson; mileage 39 to 41, D. R. McDonald; mileage 41 to 43.5, F. C. Jackson; mileage

48 to station 2855 P. river, St. F. X., Gagnon and Massicotte, mileage 56 to 60, Jas. McDonald; mileage 60 to 62.5, J. O'Neill; mileage 62.5 to 67, Mitchell and Sutherland; mileage 72 to 75, Irvine and Morrison; mileage 83.5 to 85.5, J. H. Stewart.

There have been deposited in the office of the Register of Charlevoix county, in the Saguenay district, plans and profiles of the route of this line, now under construction, from mileage 85.6 to 92.8 in Charlevoix county. (May, pg. 445.)

**Reid Newfoundland Co.**—A cargo of 4,500 tons of steel rails arrived at St. John's, Nfld., May 2, for use on the branch line under construction to Trepassey.

The first sod of the new Trepassey branch was turned May 9. The branch starts at Waterford bridge and will run through the Ferryland district to Trepassey.

Grading on the South Shore branch has been started at Waterford Bridge, on the main line, H. Burton being in charge of the work for the company, with W. F. Joyce as engineer. About 20 miles of track remain to be laid on the Bonavista branch, and this, as it is expected, will be completed about the end of July. Surveys are in progress on the branch to Hearts Content, and it is expected that construction will be gone on with during the year. (April, pg. 321.)

**Saguenay River to Cape Charles Bay.**—A London, Eng., cable states that a syndicate is being formed for the purpose of building a railway from the Saguenay River, Que., to Cape St. Charles on the Labrador coast, some 650 miles from Quebec. J. N. Greenshields, K.C., of Montreal, who is interested in the matter, has been in London in consultation with representatives of the syndicate. It is stated that the proposal is to extend the Quebec and Saguenay Ry., as soon as it is completed to Saguenay River, to Cape St. Charles, and to construct there such works as will make it an all the year round trans-Atlantic port. In an interview, the Premier of Newfoundland said in New York, May 9, there were then in the city representatives of a British syndicate which had acquired rights in a railway running out of Quebec, with a charter to build a railway in the direction of Cape St. Charles. He saw no reason why such a railway should not be built and operated in connection with a line of fast steamers between St. Charles and Newfoundland. The Dominion Parliament and the Quebec Legislature, have both incorporated companies having powers to build lines in the territory named.

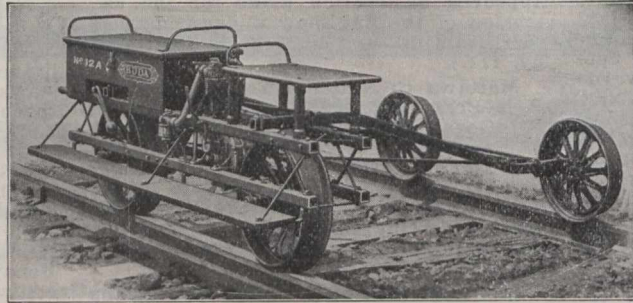
**Temiskaming and Northern Ontario Ry.**—We were officially advised May 6, in connection with the building of the branch to Porcupine Lake, that 28 miles of the branch had been definitely located and placed under construction. The grading of the first 17 miles was completed and ready for tracklaying, and the grading on the remaining 11 miles was well advanced and will, it is expected, be completed by June 1. Track had been laid on 12 miles, and the first lift of ballast had been given to the first nine miles. All the temporary bridging had been completed. There is but one steel bridge on the branch, at the crossing of Frederick House River. A temporary bridge will be put up so as to get the tracks across, when the concrete abutments will be put in, and the steel superstructure erected.

An engineering party will be sent out during the summer for the purpose of exploring the Moose River country, sloping from the height of land to James Bay. A special examination will be made of the shores of the bay with a view of selecting a suitable location for a harbor, to which the T. and N.O.R. gives the G.T.R. power to hold, guarantee may be extended.



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The party which will make the survey from Cochrane to James Bay, will be a small one, and will be in charge of C. S. Ellis.

J. L. Englehart, Chairman of the Commission, on his return to Toronto, May 13, said steel had been laid on the Porcupine branch as far as Frederickhouse River, about 15 miles. The temporary bridge across the river had been completed. It consists of 400 ft. of pier trestle, and 400 ft. of approaches. Arrangements were made so that passengers could be carried over the branch, beginning May 15. According to the progress being made, the entire branch should be ready for traffic July 1. On the main line it is proposed to build stations at Golden City, Thornloe, Iroquois River and Matheson. (May, pg. 413.)

**Toronto, Hamilton and Buffalo Ry.**—The Board of Railway Commissioners has ordered an overhead crossing of the Hamilton Radial Electric Ry. on the north side of Princess St., Hamilton, Ont. (April, pg. 323.)

**Vancouver to Fort George, B.C.**—A meeting of business men was held in Vancouver, May 15, to urge the Provincial Government to vote a subsidy in aid of a railway from Vancouver to Fort George, B.C.

The G.T. Pacific Ry., the Howe Sound and Northern Ry., the British Columbia and Alaska Ry., and other companies have authority under Provincial or Dominion acts, to build a line between these two points.

**Vancouver, Westminster and Yukon Ry.**—Construction on lines to connect with the proposed bridge over the Second Narrows, Vancouver, B.C., will, it is stated, be started shortly. (Sept., 1910, pg. 729. See also Burrard Inlet Tunnel and Bridge Co.)

**Rutland Railroad Report.**

The annual report for the year 1910, covers the operation of the system, a total of 468.11 miles, of which 18 miles are leased, and 53 miles operated under trackage rights for passenger trains only. The leased lines includes the Rutland and Noyan Ry. to Noyan Jct., Que., 3.39 miles, and the lines operated under trackage rights are:—Noyan Jct. to Iversville Jct., Que., 22.50 miles; Iversville Jct. to Montreal, Que., 30.50 miles. The gross corporate income was \$918,895.83, and after meeting fixed charges there was a surplus of \$313,011.97, which was appropriated as follows: Additions and betterments, \$21,029.03; improvements, \$270,000; carried forward to current year's accounts \$21,982.94. The amount at credit of profit and loss account is \$942,011.31. The total revenue from operation was \$3,339,833.83, and the operating expenses \$2,356,256.24. The fixed charges include \$4,000 interest on the 4% first mortgage bonds of the Rutland and Noyan Ry., paid as rental, and \$54,000 interest on 4% Rutland-Canadian first mortgage bonds; and the securities owned by the company, which are carried at \$1,698,380.17 in the books, include \$100,000 stock and \$100,000 first mortgage bonds of the Rutland and Noyan Ry., with \$25,000 of the \$1,330,000 bonds of the Rutland-Canadian Rd.

We are advised that it is the G.T.R. management's intention to put the standard code of operating rules, as approved by the Board of Railway Canada, into effect on its lines in Canada, as soon as the examination of the employees can be completed. The General Transportation Manager states that he hopes the examinations will be completed by June 18.

**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.

Taylor & Arnold, Limited, Railway Supplies, Montreal, have issued a post bound sectional catalogue devoted to locomotive and car specialties and compressed air devices.

The Hiram L. Piper Co., Ltd., has removed to 93 St. Remi Street, St. Henry Ward, Montreal, where it has built a commodious brick factory specially for the manufacture of railway lamps, signals, locomotive headlights, marine lamps, etc.

We are advised that the suit of the U.S. Light and Heating Company, vs. J. B. M. Electric Co., Gould Coupler Co., and John W. Jepson, involving patent applications serial 404,271 and serial 404,272, in the Western District of New York, before Judge Hazel, has been decided in favor of the U.S. Light and Heating Co.

The Orenstein Arthur Koppel Company, which is making extensive additions to its plant at Koppel, has ordered from Tate, Jones & Co., Inc., Pittsburgh, Pa., a contract for the complete oil burning equipment and furnaces, consisting of pumping system, large rivet forges, open forges, forging furnaces, and pipe bending furnaces.

The T. H. Symington Co., Baltimore, Md., has recently published an attractive booklet illustrating and describing the Farlow drait rigging which is so largely used on cars and locomotives in this country and abroad. The booklet, which is entitled "Two Yokes in Transportation," enumerates concisely thirty Farlow facts which are of interest to all motive power and transportation department railway officials.

Press reports stated recently that the Canadian Steel Foundries, Ltd., had contracted for additions to its Welland, Ont., plant, to cost about \$250,000. We are officially advised that the reports are very much exaggerated. Contracts have been given for the construction of two buildings at its Welland, Ont., plant. The one is a small oil house, the other will contain a chemical laboratory, a small emergency hospital and a storage room with office.

The Universal Vanadium Co. has been incorporated under the laws of the State of Delaware, with the following officers and directors: Ed. M. McIlvain, President, 30 Church St., New York City; Col. Millard Huneker, Vice President, 23 Rue de la Paix, Paris, France; J. C. Gray, Secretary and Treasurer, Frick Bldg., Pittsburgh, Pa.; J. W. DeWyckoff, European Representative, 64 Victoria Street, Westminster, London, England; E. Marshall Fox, Wetley Rocks, Stanfordshire, England; S. D. Townsend, Jr., Wilmington, Delaware; W. McIlvain, Reading, Penna. Ever since the formation of the American Vanadium Co. its entire product, consisting of vanadium alloys, has been marketed by the Vanadium Sales Co. of America. The offices of both companies have been in the Frick Building, Pittsburgh, Penna., and their products, especially ferro-vanadium, have been sold in every manufacturing country in the world. The Universal Vanadium Co. was formed for the purpose of acting as selling agents for the American Vanadium Co. in a more comprehensive and effectual manner, and it will act in a selling capacity in conjunction

with the Vanadium Sales Co. of America, both companies thus taking charge of the entire product of the American Vanadium Co.

**New England Connections with Canada.**

In a recent interview, E. H. Fitzhugh, First Vice President G.T.R., is reported as stating that the company had under consideration a proposition to extend its line to Boston, Mass. Within a few months it was hoped to begin work on building the Southern New England Rd. from Palmer to Providence, R.I.

The bill granting the S.N.E.R. access to the waterfront at Providence, either over or under the New York, New Haven and Hartford Rd. tracks, was signed by the Governor of the State, May 5. An agreement has been reached between the two companies, under which there will be a grade crossing at one point, and at another a tunnel under the tracks.

A conference was held in Boston, May 5, between the representatives of the two companies with a view of adjusting the differences as to the lines in the vicinity of Brattleboro and Bellows Falls, Vt. It is expected that a satisfactory agreement will be reached.

Notice has been given by the Boston and Maine Rd., cancelling a traffic agreement with the Central Vermont Ry., which has been in operation for some years. The N.Y., N.H. and H. Rd., controls the B. and M.R. (May, pg. 439.)

**Oil for Fuel for C. P. R. Locomotives.**

Elsewhere in this issue it is stated that W. Whyte, Vice President, C.P.R., had announced that crude oil would be used for fuel in the mountains. He recently stated that it had been decided to make an experiment and that he would recommend to the President the use of oil for fuel for the entire distance through the mountains, in order to remove the conflagration hazard. In reference to a reported failure of the large locomotives now in use, Mr. Whyte said: "It is not a failure of the locomotive. It is a failure of the fireman. A fireman shovelling coal on one of these locomotives for a distance of 130 miles, is physically completely exhausted before getting to the end of the run. When hiring firemen at present we look for broad chested, stalwart men. When we use oil, we will look not for physical strength but for intelligence. We will need men skilful enough to regulate the flow of oil to correspond with the use of steam. So far as men are concerned, it is estimated that three times as many employes are needed to handle coal as are required to handle oil. Oil is also much more efficient in the production of steam. So far as economy is concerned, we do not yet know what the result will be, but the experiment will be tried. None of the locomotives have yet been prepared for the change, but the alteration can be readily made. On our coast steamships, the test has already been made, and it has been quite successful."

**Railway Lands Patented.**—Letters patent were issued, during March, in respect of the following railway lands in Manitoba, Saskatchewan, Alberta and British Columbia:

	Acres.
Canadian Northern Ry. ....	516.89
Canadian Pacific Ry. ....	205.02
Canadian Pacific Ry. roadbed and station grounds .....	4.83
Grand Trunk Pacific Ry. ....	52.74
<b>Total</b> .....	<b>778.98</b>



# Fairbanks Track Scales

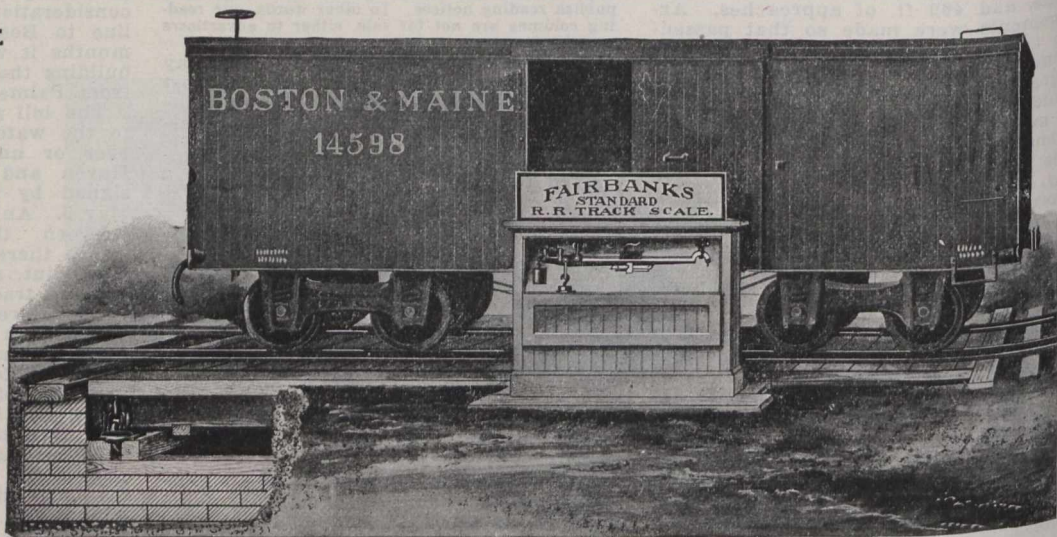
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**FOR ACCURACY AND SERVICE**

Valuable information that vitally concerns every manufacturer, can be obtained by the use of Fairbanks Track Scales.

You should have absolute evidence of delivery of **Quantity** as well as **Quality**—and there is no reason why you cannot secure it by the proper use of our Scales.

In our Suspension Platform Track Scales the shock is absorbed in the suspension bearings, and the Type Registering Beam absolutely eliminates all possibility of error in reading the weight. They meet the most exacting demands for a modern weighing machine.



## The Canadian Fairbanks Co., Limited

Montreal, Ottawa, Toronto, St. John, N.B., Winnipeg, Saskatoon, Calgary, Vancouver.

# Why the G. P. R. North Toronto Route to Ottawa and Montreal is the Logical One

The train leaves as follows:

Leave North Parkdale	- - -	9.15 p.m.	Arrive Ottawa, 6.50 a.m.
Leave West Toronto	- - -	9.30 p.m.	Arrive Montreal 7.00 a.m.
Arrive North Toronto	- - -	9.40 p.m.	Daily except Sunday.
Leave North Toronto	- - -	10.00 p.m.	Will Stop at Westmount.

- ¶ The residents of Toronto are adjacent to either North Parkdale, West Toronto or North Toronto stations, same being easily accessible and closer to residential districts.
- ¶ The North Toronto route is over an hour faster and overcomes a long hill climb for the train out of Toronto, obviating any inconvenience and ensuring early arrival at Montreal and Ottawa.
- ¶ The roadbed has been improved till it is unexcelled in Canada.
- ¶ The equipment is "Canadian Pacific Standard," a synonym for the "best" and attentive porters, non-obsequious, ensure efficient service.

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Toronto City Office, 16 King St. East

North Toronto Station

King Edward Hotel

West Toronto Station



## 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.

13463. Apr. 19.—Authorizing Central Electric and Gas Co., Portage La Prairie, Man., to erect wires across C.P.R. at Main St.

13464. Apr. 19.—Authorizing C.P.R. to build bridge 96.3 over Johnston Creek, Laggan sub-division, Alberta Division.

13465. Apr. 19.—Authorizing T.H. & B. Ry. to cross by overhead structure, the Hamilton Electric Radial Ry. on north side of Princess St., Hamilton, Ont.

13466. Apr. 19.—Authorizing Central Electric and Gas Co., to erect wires across C.P.R. at Tupper St., Portage La Prairie, Man.

13467. Apr. 20.—Approving C.P.R. plan of standard no. 1 freight shed.

13468. Apr. 20.—Approving C.P.R. plan of standard tell tale.

13469. Apr. 19.—Approving Manitoulin and North Shore Ry. location from mileage 46.73 to 80.49, Ont.

13470. Apr. 21.—Authorizing Central Ontario Ry. to open for traffic, its Whitney extension for 14½ miles from Maynooth station.

13471. Apr. 19.—Authorizing C.P.R. to build bridge 148.6 on its Portal sub-division, Saskatchewan Division.

13472. Apr. 21.—Authorizing Standard Natural Gas Co., Dunnville, Ont., to lay pipe under G.T.R. at Onondaga Road.

13473. Apr. 4.—Authorizing Central Ontario Ry. to take for better station accommodation, additional land in Hillier tp.

13474. Apr. 13.—Fixing time up to which C.N.Q.R., C.P.R., and G.T.R., shall receive freight in their Montreal warehouses. This order is given in full on another page.

13475. Apr. 19.—Ordering C.P.R. to divert public road in Ops tp., Ont., 2 miles south of Lindsay, at mileage 19.95.

13476. Apr. 22.—Approving G.T.R. plan for change of alignment in vicinity of Rideau canal and across Main and Elgin Sts., and Echo Drive, Ottawa.

13477. Apr. 22.—Authorizing G.T.P.R. to cross highway in n.w. ¼ sec. 15, tp. 53, r. 28, w. 2 m., Sask.

13478. Apr. 19.—Authorizing Temiscouata Ry. to install half-interlocker at level crossing of its main line with C.P.R. siding at Edmundston, N.B.

13479. Apr. 4.—Authorizing G.T.R. to install interlocking plant at C.P.R. expense, at crossing near Fergus, Ont., to be completed by Aug. 1.

13480. Apr. 15.—Authorizing Berlin, Ont., Sewerage Commissioners to lay two pipes under G.T.R.

13481. to 13483. Apr. 21.—Authorizing Seymour Power and Electric Co., to erect wires across Bell Telephone Co.'s wires in Port Hope, Ont.

13484. Apr. 22.—Approving plans of station to be erected by G.T.R. at Beauharnois, Que., as required by order 12504, Dec. 9, 1910.

13485. Apr. 19.—Declaring collection of interests of Atikokan Iron Co., Port Arthur illegal. This order is given in full on another page.

13486. Apr. 22.—Authorizing C.P.R. to build a no. 11 modified station at Osgoode, Ont.

13487. April 25.—Authorizing C.N.O.R. to divert public road on lot 6, con A, Tyendinaga, tp.

13488. April 25.—Authorizing C.P.R. to build additional track across road allowances in Medicine Hat, Alta.

13489. Apr. 21.—Approving Rutland Rd. Standard Passenger Tariff C.R.C. 339, at 3c. a mile.

13490. April 25.—Approving C.N.R. location through tps. 13-16, r. 24-26, w. 2 m., Sask., mileage 58.27 to 85.1.

13491. April 25.—Approving plan re improvements on bed of False Creek, Vancouver, B.C.

13492. April 25.—Authorizing C.N. Alberta Ry. to cross seven highways.

13493. April 25.—Authorizing Kettle River Valley Ry. to cross eight highways in British Columbia.

13494. April 19.—Standard regulations regarding pipe crossings under railways.

13495. April 25.—Ordering appointment of watchman at Montreal Rolling Mills siding, Montreal.

13496. Oct. 5, 1910. April 4.—Rescinding order 11880, Mileage Tariff, C.R.C. 7.

13497. April 25.—Authorizing Ontario

Hydro-Electric Commission to erect wires across Toronto, Niagara and Western Ry. at Hurontario St., Toronto tp.

13498. April 25.—Authorizing C.P.R. to build spur for Perfection Concrete Co., lots 43-44, St. James Winnipeg.

13499. April 25.—Ordering G.T.R. within 90 days to install improved electric bell at Gravel Road between Millbrook and Port Hope, Ont., 20% to be paid from railway grade crossing fund.

13500. April 25.—Approving Kettle River Valley Ry. location from Westbridge to Wolverine Creek, mileage 20.9 to 35.3, B.C.

13501. April 25.—Authorizing Jones, Sherwood, and Burns, municipalities, Ont., to build crossing over G.T.R. between cons. 4 and 5, Sherwood tp.

13502. April 25.—Authorizing C.P.R. to build four bridges on its Ontario and Alberta divisions.

13503. April 25.—Authorizing C.P.R. to build spur for Canadian Western Lumber Co., at Fraser Mills, B.C.

13504. Apr. 25.—Authorizing city of Toronto to erect wires across C.P.R. on Perth Ave.

13505 to 13507. Apr. 25.—Authorizing town of Dauphin, Man., to lay water pipe under C.N.R. at Main, First and Second Sts.

13508. Apr. 26.—Authorizing C.P.R. to build spur for Dominion Bridge Co., Toronto.

13509. Apr. 26.—Authorizing C.N.R. to take possession of certain C.P.R. lands in the western provinces.

13510. Apr. 27.—Authorizing G.T.P. Branch Lines Co. to cross with its Regina boundary branch, 17 highways in Saskatchewan.

13511 to 13514. Apr. 27.—Authorizing municipality of city and county of St. John, N.B. to build certain drainage works under C.P.R. at North St., Union Point Road, Main St., etc.

13515, 13516. Apr. 28.—Authorizing Vancouver Power Co. to erect wires across C.P.R. at Hazel St., and Essenden Ave., Abbotsford, B.C.

13517. Apr. 28.—Authorizing Saraguay Electric and Water Co. to erect wires across C.N.Q.R. at St. Leonard St., Pointe aux Trembles.

13518, 13519. Apr. 27-28.—Authorizing C.P.R. to build bridge 57.8 on its Brandon sub-division, Manitoba Division, and bridge 39.5 on its Havelock sub-division, Ontario Division.

13520. Apr. 27.—Extending to July 1, effective date of tariff of track-scale allowances filed by certain railways.

13521. Apr. 15.—Authorizing Windsor Gas Co. to lay pipe under Essex Terminal Ry. at Walker Road, Walkerville, Ont.

13522. Apr. 28.—Authorizing city of Hamilton, Ont., to lay water pipe under G.T.R. on Ferguson Ave.

13523. Apr. 28.—Authorizing Essex Terminal Ry. to cross Becker and Huron Sts., Church Line, Felix Ave., Chippewa St., Centre Road and Bedford St. Sandwich, Ont.

13524. Apr. 28.—Authorizing C.N.O.R. to divert public road on lot 7, con. 4, Tyendinaga tp.

13525. Apr. 29.—Authorizing C.N.R. to cross highway overhead at sec. 6, tp. 9, r. 32, and sec. 1, tp. 9, r. 33, w. p. m., Sask.

13526. Apr. 28.—Authorizing C.P.R. to operate its Quill Lakes Branch across 43 highways in Manitoba and Saskatchewan.

13527. Apr. 28.—Authorizing G.T.P. Branch Lines Co. to divert road on its Calgary Branch in s.e. ¼ sec. 6, tp. 26, r. 27, w. 4 m., Alta.

13528. Apr. 29.—Approving G.T.P. Branch Lines Co.'s Melville-Regina Branch from city limit, mileage 92.62 to west side of Albert St., mileage 97.57, Regina, Sask.

13529. May 1.—Granting railways leave to appeal to Supreme Court, re Regina rates case.

13530. Apr. 28.—Authorizing C.N.R. to build spur for Winnipeg Sandstone Brick Co., west of Pembina St., Fort Rouge, Winnipeg.

13531. May 1.—Authorizing Canadian Northern Western Ry. to cross with its Brazeau Branch, G.T.P.R. Tofield Branch, Alta.

13532. May 1.—Amending order 13492, Apr. 25, re location of Canadian Northern Alberta Ry.

13533. May 1.—Approving revised plan of C.N.O.R. bridge across Moira River, Belleville.

13534. May 1.—Authorizing C.N.O.R. to divert and cross public road on lot 25, con. 1, South Elmsley tp.

13535. May 1.—Amending order 1415, Aug. 30, 1906, re crossing of James Bay Ry. by Georgian Bay and Seaboard Ry. (C.P.R.), at mileage 41.8, near Brechin, Ont.

13536. May 1.—Authorizing Georgian Bay and Seaboard Ry. (C.P.R.), to cross G.T.R. Haliburton Branch overhead.

13537. May 1.—Approving plans of

C.N.O.R. subway at Division St., Cobourg, 13538. May 1.—Rescinding clauses 7 and 8 of order 13509, Apr. 28, which authorized C.N.R. to take certain C.P.R. lands.

13539. May 1.—Authorizing C.P.R. to build bridge 104.49 over Blind River, (west arm), on its Sault Ste. Marie Branch, Ont.

13540. May 1.—Ordering C.P.R. to provide graded access from roadway to farm gate for L. McArthur, Priceville, Ont.

13541. May 1.—Extending for six months from date, time for filing revised Standard Tariff of Maximum Freight Tolls of Esquimalt and Nanaimo Ry. (C.P.R.), as provided by order 12179.

13542. Apr. 26.—Dismissing complaint of Connecticut Oyster Co. re rates charged by express companies on returned empties to Toronto, from points in Western Canada.

13543, 13544. May 2.—Authorizing Seymour Power and Electric Co. to erect wires across G.N.W. Telegraph Co.'s wires and across C.P.R. at lot 12, con. 1, Hope tp., Ont.

13545. May 2.—Authorizing Trenton Electric and Water Co., to erect wires across C.N.O.R. at Brighton.

13546. May 2.—Authorizing city of Toronto to lay sewer under C.P.R. at Shaw St.

13547, 13548. May 2-1.—Authorizing town of Sault Ste. Marie, Ont., to lay sewer under C.P.R. at Pim and Superior Sts.

13549, 13550. May 2.—Authorizing Montreal Light, Heat and Power Co. to lay pipe under C.P.R. at Maguire and Hadley Sts., Montreal.

13551. May 2.—Approving plans showing layout of interlocker for new drawbridge over Welland Canal at Welland, Ont., including interlocker of M.C.R. and T.H. & B.R. by Niagara, St. Catharines and Toronto Ry.

13552. May 2.—Authorizing M.C.R. to build bridge at Mancell drain, Tilbury East tp., Ont.

13553. May 2.—Relieving G.T.R. from further protection of Talbot Road crossing, North Cayuga tp., Ont.

13554. May 2.—Ordering C.N.R. within 30 days under penalty of \$25 a day, to fence its right of way just west of Odessa town-site, Sask.

13555. May 2.—Approving Ottawa and New York Ry. bylaw respecting certain officials issuing tariffs of tolls.

13556. May 2.—Correcting error in C.N.Q.R. application re location of its St. Jacques branch, from St. Jacques to Rawdon.

13557. May 2.—Allowing correction in C.P.R. book of reference re spur line in Fort William, Ont.

13558. May 2.—Approving C.P.R. plans for station at Gleichen, Alta.

13559, 13560. May 2.—Authorizing C.P.R. to build three bridges on its Nipigon sub-division and to use six bridges on its North Bay subdivision, Lake Superior Division.

13561. May 3.—Authorizing C.P.R. to build extra track across road allowance between secs. 27 and 28, tp. 9, r. 17, w. 4 m., Alta.

13562. May 2.—Authorizing C.P.R. to cross with its Pheasant Hills branch, 44 highways and divert same between mileage 254.5 and 328.3.

13563. Apr. 24.—Approving portion of location of South Ontario Pacific Ry. from near Guelph Jct., to Hamilton, Ont.

13564. Apr. 24.—Authorizing C.N.O.R. to build overhead farm crossing on south half of lot 27, con. D, Scarboro tp.

13565. May 3.—Authorizing city of Strathcona, Alta., to build steel bridge or viaduct, as highway over Edmonton, Yukon and Pacific Ry.

13566. May 3.—Approving C.P.R. class A station at Bird's Hill, Man.

13567. May 2.—Authorizing C.N.Q.R. to build siding for Imperial Syrup Co., Montreal.

13568. Apr. 25.—Ordering C.P.R. and G.T.R. to file plans by Aug. 1, for viaduct and station at Toronto; work is to be completed in two years from that date.

13569. May 2.—Authorizing C.N.O.R. to divert highway in Tyendinaga tp.

13570. May 3.—Approving location of six G.T.P.R. stations in the western provinces.

13605. Apr. 24.—Authorizing C.P.R. to build three spurs for Canadian General Electric Co., Peterboro, Ont.

13606. May 6.—Authorizing Hamilton Cataract Power Co. to erect wires across N. St. C. & T. Ry., in Crowland tp., Ont.

13607. May 6.—Authorizing Michel Water, Light and Power Co. to lay pipe under C.P.R. at mileage 14.9, Cranbrook section, B.C.

13608. May 8.—Approving G.T.R. plans of steel work, east and west abutments and centre pier, Humber River bridge, Toronto.

13609. May 10.—Authorizing Shawinigan Water and Power Co. to erect wires across C.N.Q.R. near l'Épiphanie, Quebec.

13610. May 1.—Authorizing Canadian Northern Ry. to take for right of way certain C.P.R. land grants in the Calgary irriga-

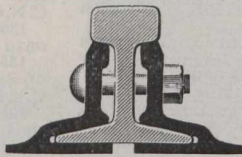


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has been proved by the use of Continuous, Weber and Wolhaupter base-supported rail joints—after fifteen (15) years' service, having a record of over **50,000 miles in use**—the extent of which is evidence of their excellence. Made in Canada.

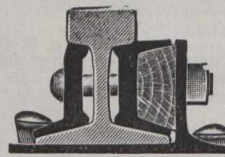
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Buffalo, 1901; St. Louis, 1904.



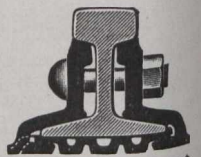
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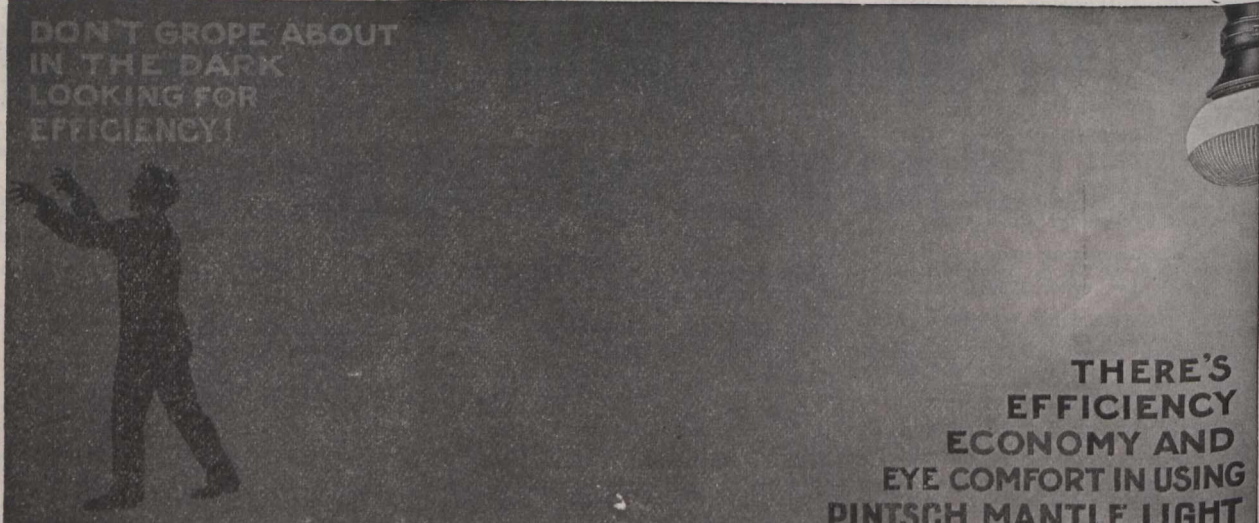
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tion district, compensation to be settled by an arbitrator to be appointed by the Board, in default of agreement.

13611. May 9.—Authorizing Essex Terminal Ry. to cross Oak, Elm, Campbell and Bridge Aves., Sandwich West tp., Ont.

13612. May 10.—Approving agreement between Bell Telephone Co. and G.T.R. re telephones in Chateau Laurier, Ottawa.

13613. to 13615. May 11.—Authorizing C.N.O.R. to cross public roads in cons. 1 and B, Chatham tp., Que.

13616. May 9.—Authorizing C.N.O.R. to build bridge over creek at station 1179, Brighton tp.

13617. May 9.—Authorizing C.N.R. to cross nine streets in Rapid City, Man.

13618. May 10.—Authorizing C.N. Western Ry. to cross with its Stettler-Brazeau branch the C.P.R. Calgary-Edmonton Branch in s.e. ¼ sec. 15, tp. 39, r. 27, w. 4 m., Alta.

13619. May 9.—Extending for 60 days from June 1, time within which C.P.R. shall install power brakes in accordance with order 10462, May 3, 1910.

13620. May 9.—Authorizing C.P.R. to build spur for Beatty Bros., Fergus, Ont.

13621. May 10.—Extending to Aug. 1 time in which C.P.R. may build spur for Hamilton Powder Co., near Barnett Station, B.C.

13622, 13623. May 10.—Approving plans of C.P.R. Standard no. 3 engine house and standard freight car shop.

13624, 13625. May 10.—Relieving G.T.R. from further protection at crossings ¼ mile east of Kearney station, and at mileage 56.30, Coteau Landing, Que.

13626. May 10.—Approving plans of subway crossing at Windermere and Ellis Aves., Toronto.

13627. May 10.—Authorizing G.T.P.R. to cross highway with its main line at n.w. ¼ sec. 30, tp. 53, r. 9, w. 5 m., Alta.

13628. May 9.—Approving G.T.R. bylaw 26, authorizing J. W. Loud, F.T.M., J. Pullen, A.F.T.M., and C. A. Hayes, G.F.A., to issue tariffs of tolls in respect to freight traffic.

13629. May 9.—Authorizing G.T.R. to build siding into premises of Alexander Bremner, Ltd., St. Henri Ward, Montreal.

13630. May 9.—Approving location of G.T.P.R. Standard no. 1 station at Leaman, Alta.

13631, 13632. May 10.—Authorizing city of Winnipeg to lay water pipe under G.T.P.R. and C.N.R. at Hugo St.

13633. May 11.—Authorizing Ontario Pipe Line Co. to lay pipe under G.T.R. at Hilliard St., Hamilton.

13634. May 11.—Authorizing Shawinigan Water and Power Co. to erect wires across Bell Telephone Co.'s wires near Three Rivers, Que.

13635. May 11.—Authorizing G.T.R. to build spur into Carroll Bros' premises, Humberstone tp., Ont.

13636. May 12.—Authorizing G.T.R. to build spur into Longford Quarry Co.'s premises, Rama tp., Ont.

13637. May 12.—Ordering C.P.R. to build station at Markinch, Sask., before Aug. 1.

13638, 13639. May 11.—Authorizing city of Nanaimo, B.C., to lay pipe under Esquimalt and Nanaimo Ry. at Franklin and Wentworth Sts.

13640. May 11.—Authorizing city of Edmonton, Alta., to lay extension of Rat Creek sewer near junction of Riverview Ave. and Eastern Boundary of Dominion Government reserve.

13641. May 11.—Authorizing Rev. A. Coineau, St. Hilaire, N.B., to lay water pipe under Temiscouche Ry.

13642. May 11.—Authorizing New Brunswick and P.E.I. Ry. to build branch to Sackville Freestone Co.'s premises, Sackville, N.B.

13643. May 12.—Extending to July 1 time for G.T.P.R. road diversion in n.e. ¼ sec. 34, tp. 45, r. 21, w. 4 m., Alta.

13644. May 12.—Approving C.N. Alberta Ry. location through tp. 53, r. 7-10, w. 5 m., mileage 62.47 to 82.62, Alta.

13645. May 12.—Authorizing J.T.P.R. to divert road through the n.w. ¼ sec. 13, tp. 35, r. 23, w. 4 m., Alta.

13646, 13647. May 12, 13.—Authorizing Seymour Power & Electric Co. to erect wires across Bell Telephone Co.'s and G.N.W. and at Kingston Rd., Northumberland county, Ont.

13648. May 15.—Ordering C.N.R. to fence its right of way through s.w. ¼ secs. 35, 36 and 34, tp. 50, r. 6, w. 4 m., Vermilion District, Alta., before June 1, under penalty of \$25 a day.

13649. May 15.—Authorizing C.P.R. to build bridges 117.8, Bow River, Alberta Division; 75.6, Cascade subdivision, B.C. Division; 104.9, Grand Coulee, Moose Jaw subdivision, Saskatchewan Division.

13650, 13651. May 15.—Approving C.P.R.

standard enclosed tank and standard No. 1 enclosed water tank.

13652. May 15.—Authorizing C.P.R. to build industrial spur for Western Supply & Equipment Co., Lethbridge, Alta.

13653. May 15.—Authorizing G.T.R. to build extension to siding into M. Beatty & Sons' premises, Weiland, Ont.

13654. May 15.—Authorizing National Transcontinental Ry. Commissioners to lay sewer under C.N.R. at mileage 246.5 near St. Boniface, Man.

13655. May 2.—Authorizing C.N.O.R. to cross overhead, public road on lot 29, Nepean tp.

13656. May 2.—Approving amended location of Vancouver, Victoria & Eastern Ry., from mileage 0 to 12 and mileage 16 to 17 from Coquihalla summit, B.C.

13657. May 2.—Authorizing C.P.R. to build spur to Dominion Government military camp near Farnham, Que.

13658. May 16.—Authorizing C.P.R. to build bridges 124.9, Cataract Creek, and 121.2, Bath Creek, Laggan subdivision, Alberta Division; 6.2 and 129.3, Brandon subdivision, Manitoba Division; 75.0, Old Man River, Crow's Nest subdivision, Alberta Division; 108.6, Cascade subdivision, B.C. Division.

13659. May 16.—Authorizing C.P.R. to build two additional tracks across road allowance between secs. 23 and 24, tp. 10, r. 12, w. 4 m., at Burdette station, Alta.

13660. May 16.—Authorizing G.T.P. Branch Lines Co. to build bridge over Red Deer River on its Calgary branch, Alta.

13661. May 16.—Authorizing G.T.P.R. to carry traffic between Edmonton and Prairie Creek, Alta., at a speed limit of 15 miles, west of Edson.

13662. May 16.—Authorizing Central Ontario Ry. to build station at Hillier.

13663. May 16.—Authorizing G.T.P. Branch Lines Co. to cross C.P.R. Bulyea branch with its Melville-Regina branch in n.w. ¼ sec. 32, tp. 17, r. 19, w. 2 m., Sask., and ordering interlocker to be installed.

13664. Apr. 26.—Dismissing Bell Telephone Co.'s application for order to amend joint tariff for service with Michigan State Telephone Co. by raising rate for long distance messages from Sarnia, Ont., to Detroit, Mich., and from Windsor, Ont., to Port Huron, Mich., from 40c. to 50c. per three-minute conversation.

13665. May 4.—Authorizing A. Frazer, Lucknow, Ont., to use as cattle pass, opening under G.T.R. at m. p. 53.87 on lot 1, con. 4, Huron tp.

13666. May 5.—Extending to Aug. 1, time for carrying G.T.P. Ry. over Norton St., Edmonton, Alta.

13667. May 18.—Authorizing G.T.P. Branch Lines Co. to cross C.N.R. spur with its Melville-Regina branch, in s.w. ¼ sec. 26, tp. 17, r. 20, w. 2 m., Sask., and ordering interlocker to be installed.

13668. May 18.—Authorizing C.N.O.R. to build bridge over Rideau River, Gloucester and Nepean tps.

13669. May 16.—Authorizing C.P.R. to join Georgian Bay & Seaboard Ry. with Lindsay, Bobcaygeon and Pontypool Ry. near junction at mileage 72.91.

13670. May 18.—Authorizing Ontario Pipe Line Co. to maintain gas pipe under G.T.R. at Sherman Ave., Hamilton, Ont.

13671 to 13673. May 17, 19.—Authorizing Seymour Power & Electric Co. to erect wires across G.N.W. Telegraph Co.'s wires and G.T.R. at three points in Ontario.

13674, 13675. May 18.—Authorizing city of Winnipeg to erect wires across C.P.R. at two points on McPhillips St.

13676. May 18.—Authorizing town of Edmundston, N.B., to maintain pipe under C.P.R. at Victoria St.

13677. May 18.—Authorizing Canadian Coal Consolidated, Ltd., to maintain water pipe under C.P.R. Crow's Nest branch, Alta.

13678 to 13680. May 18, 19.—Authorizing C.N.R. to divert three public roads on its Hallboro branch, with consent of Blanshard, Miniota, and Saskatchewan municipalities, Man.

13681, 13682. May 19.—Authorizing C.P.R. to build bridges at mileage 106 and 112.2, Sherbrooke subdivision, Que.

13683. May 19.—Authorizing H. B. Johnston & Co. to maintain water pipe under C.N.O.R. and C.P.R. at Toronto.

13684. May 19.—Authorizing G.T.R. to build siding for Oneida Lime Co., near Nelles Corners station, Ont.

13685. May 19.—Authorizing G.T.R. to build siding into Laprairie Brick Co.'s premises, Laprairie, Que.

A Winnipeg press report, April 18, stated that the Great Northern Ry. was arranging to run a through express train from St. Paul, Minn., to Edmonton, Alta., using the Canadian Northern Ry. from Brandon, Man., the terminus of its own line in Canada. We are officially advised by a C.N.R. official that the report is unfounded.

## A Railway to Hudson Bay.

The Minister of Railways has asked the House of Commons to vote \$2,000,000 on account of the construction of this projected railway from Pas Mission, Sask., to either Port Nelson or Fort Churchill, on Hudson Bay.

A party of engineers under F. P. Moffatt recently completed 10 months work in the field between The Pas and Split Lake, in preparation for construction. In connection with construction work it is reported that supplies will be shipped from Halifax, N.S., to York Factory, and taken inland by canoe and trail route, instead of as at present overland to The Pas via Winnipeg, and thence by canoe and trail route. The present route is said to result in considerable delays in getting provisions and other supplies through.

An announcement was made in Ottawa, May 22, that tenders will be invited next month for the construction of the first 120 miles of the proposed line from The Pas in the direction of Hudson Bay. This will cover the mileage in regard to which there is no question whether the ultimate terminal on the Bay is Fort Churchill or Port Nelson. It is expected that construction will be well in hand in the beginning of 1912, and that the section will be completed by the end of 1914. A full description of the projected route, with an estimate of the cost, was given in our Feb. issue, pg. 97.

## Orders for Steel Rails.

The Canadian Pacific Ry. has this year so far ordered 107,200 tons of steel rails. By far the larger portion has been ordered from the Algoma Steel Co., and nearly all the balance from the Dominion Iron and Steel Co.

Particulars of orders placed by Mackenzie, Mann & Co., for 90,000 tons of steel rails, for the Canadian Northern Ry. and allied lines, were given in our April issue. The orders have since been increased to 115,000 tons, 10,000 tons 80 lbs., and 10,000 tons 60 lbs., having been ordered from the Algoma Steel Co., and 5,000 tons 80 lbs., from the Dominion Iron and Steel Co.

As stated in our last issue, the Grand Trunk Pacific Ry., has ordered 18,000 tons 60 lbs. rails from the Algoma Steel Co., for use on branch lines. We have since been advised that 12,500 tons of these were to be rolled during May, and the balance will be rolled a little later in the year.

The s.s. Hans B., has been chartered to sail from Sydney, N.S., early in June, for Prince Rupert, B.C., with 6,100 tons 80 lbs. rails on the Grand Trunk Pacific Ry.'s 1909 contract with the Dominion Iron and Steel Co.

The National Transcontinental Railway Commissioners have ordered 34,927 gross tons from the Algoma Steel Co., and 26,273 tons from the Dominion Iron and Steel Co., all 80 lbs.

The Grand Trunk Ry. has ordered 37,500 tons of 100 lbs. rails, divided between the Algoma Steel Co. and the Dominion Iron and Steel Co.

The Canadian Railway Club held its annual meeting and smoking concert, at Montreal, May 3. Following are the officers for the current year:— President, A. A. Goodchild, Auditor of Stores and Mechanical Accounts, C.P.R.; First Vice President, J. Coleman, Superintendent of Car Department, G.T.R.; Second Vice President, R. W. Burnett, General Master Car Builder, C.P.R.; executive committee, C. Murphy, Superintendent of Transportation, C.P.R.; W. McNab, Principal Assistant Engineer, G.T.R.; C. Kyle, General Master Mechanic, C.P.R.; P. Webb, F. Ditchfield, Canada Car Co., and R. M. Hannaford, Chief Engineer, Montreal St. Ry.



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

**Dominion Atlantic Ry.**—D. McNicoll, Vice President C.P.R., is reported as having stated May 4, that the question of taking over the D.A. Ry. by the C.P.R. was under consideration. Legislation necessary to enable this to be done has been passed by the Dominion Parliament. Considerable work in the way of betterment is being done, as described in our last issue, and local reports state that when the line is taken over by the C.P.R., still more extensive betterments will be made. (May, pg. 409.)

**Branch Line at Farnham.**—The C.P.R., exercising the franchises of the Atlantic and North West Ry., is applying to the Board of Railway Commissioners for authority to build a branch line from chainage 437+20 on the main line of the Farnham section, St. Brigid parish, Que., to the military camp grounds on lot 341, West Farnham parish.

**The Orford Mountain Ry.** was practically completed from Mansonville, Que., to the International boundary, 3.5 miles, during 1910, and the line is now being extended from the boundary to North Troy, Vt., 5,000 ft. The work is being done by the company's own forces, and it is expected that it will be completed by June 4.

**Windsor St. Station, Montreal.**—Rapid progress is being made with the steel work for the addition to the Windsor St. station, and it is expected that this part of the work will be completed early this month. The stone work has been completed to the second story, and a start has been made with the brick work, and with the concrete floors.

**Place Viger, Montreal.**—While the Notre Dame St. viaduct has not been fully completed, vehicles and pedestrians are allowed to cross it from Berri St. to Montcalm St. Good progress is being made with the building of the bridge from the station building to Notre Dame St. Practically all the brick work on the station has been completed, the interior partitions put in, and the concrete floors laid. It is expected that the station will be ready for occupation about the end of the month.

**Mile End, Montreal.**—The new station at Mile End, has been completed, and the staff took possession May 12. It is a one story building with interior fittings of white ash. In the main building are the ticket offices, waiting rooms, baggage rooms, etc., while at either end are 75 ft. shelters. The main waiting room is 45 by 35 ft., and the ladies' waiting room 24 by 15 ft. Besides these there are smoking rooms, toilet rooms, and two large reservations for the baggage and express departments.

**Montreal-Toronto Second Track.**—A second track is being built from Smiths Falls to the point where the projected new lake shore line to Toronto will leave the present line at Glen Tay, 16 miles. The contract for this work was let some time ago to Jones and Girouard, Ottawa.

**Campbellford, Lake Ontario and Western Ry.**—Engineering parties are in the field making location surveys for the new line from near Glen Tay station to Leaside Jct. In a recent interview, D. McNicoll, the Vice President, said the location would extend from Glen Tay southerly to Belleville, and thence along the lake shore connecting with the present line into Toronto, at Leaside Jct. The new line will be a single track one, with gradients of 0.4%, and is expected to be within a mile or two as short as the present line between the same points. The surveys are being gone on with from both ends, and it is expected that construction will be started next year.

**Georgian Bay and Seaboard Ry.**—The Board of Railway Commissioners has

authorized the diversion of the public road in Ops tp., two miles south of Lindsay, at mileage 19.25, and the building of a bridge to carry the line across the G.T.R. Haliburton branch.

We are advised that a contract has been let to the John S. Metcalf Co., Ltd., Montreal, for building a wharf at Victoria Harbor, Ont., in addition to contracts for wharves previously awarded. The new order is for about a third of a mile of wooden crib structure, below water, with reinforced concrete superstructure. This will bring the total length of wharves which have been built for the C.P.R. at Victoria Harbor, by the John S. Metcalf Co., up to a mile and a quarter.

Rapid progress is being made with the construction of this line, which will join the Montreal-Toronto line at Bethany Siding. Track laying will be started, it is expected some time in July, and it is hoped to have the line completed before the end of the year. The line starts at Victoria Harbor, on Georgian Bay, and runs through Coldwater, and Lindsay to Bethany Siding.

Track was laid into Orillia, from Coldwater Jct., May 14, and is being proceeded with in the direction of Lindsay.

**South Ontario Pacific Ry.**—The Board of Railway Commissioners has approved location plans of a portion of this line between Guelph Jct. and Hamilton, Ont.

A small quantity of grading has been done at Guelph Jct., and in the way of getting in material, yard tracks, etc. The general contractors, the Toronto Construction Co., were advised May 15, expected to start in work on an extensive scale at an early date.

**London Station, Etc.**—Five sets of plans showing routes of the proposed new line in the vicinity of Pottersburg, Ont., have been sent by the engineers for the consideration of the management officials at Montreal.

**London Engine House.**—We are advised that the general contract for the 22-stall roundhouse with machine shop and boiler house, mentioned in our last issue, has been let to John Hayman and Sons, of London, Ont. The contract for the structural steel work has also been let.

**Eastern Lines Betterments.**—We are officially advised that the principal new works which will be started this year, or upon which work had been started last year, which will be carried out during this year include the following:—

**BRIDGES.**—The bridge over the St. Lawrence River at Lachine to be double-tracked; a new steel bridge across the Ottawa River at Mattawa to replace the present structure; the replacing of numerous wooden bridges on various lines by steel bridges, large sections of the structures to be filled by solid embankments.

**STATIONS, ETC.**—Large freight-shed and yard at St. John, N.B.; large freight and storage sheds at Montreal, and enlargement of yards; new passenger station at Place Viger, Montreal, enlargement of passenger station and head offices at Windsor St. station, Montreal; large concrete engine house and machine shop at Ottawa; new passenger stations at North Toronto, West Toronto, and enlargement of West Toronto yards; two subways at North Toronto; three subways at West Toronto; new freight sheds at West Toronto, north Toronto, and Cherry St., Toronto; large new engine house, machine shop and coaling plant at London, also enlargement of yard.

**NEW LINES, ETC.**—Completion of Georgian Bay and Seaboard Ry., from Coldwater Jct., to Bethany, Ont.; new line from Hamilton to Guelph Jct., Ont.; second track work between Smiths Falls and Glen Tay, Ont.; second track work, Mile End to St. Martins Jct., Que.; second track work South Jct., Montreal, to

Adirondack Jct., Que.; large new freight shed and flour shed; new station and the completion of new wharves at Victoria Harbor, Ont., the lake terminal of the Georgian Bay and Seaboard Ry.

**North Bay Shop Extensions.**—Plans and estimates are reported to have been prepared for extensive additions to the shops at North Bay, Ont., but it is said no decision has been reached as to when anything will be done.

**Lake Superior Division.**—The Board of Railway Commissioners has authorized the company to use six bridges on the North Bay sub-division; to build three bridges on the Nipigon sub-division, and to build a bridge over the west arm of Blind River at mileage 104.49 on the Sault Ste. Marie branch.

**Fort William Improvements.**—The new station at Fort William, Ont., has been fully opened.

Press reports state that plans for extensive improvements are being prepared, the new works to include, a coal dock, wharf and plant, capable of storing 1,000,000 tons of coal, and a new cleaning elevator.

A start has been made in the building of a second track between Port Arthur and Fort William, and it is expected to have the work completed by Sept.

The bridge over the Kaministikwia River, which was described in our August, 1910 issue, has been completed. The double track railway and highway bridge over the McKellar River, for the Fort William Terminal and Bridge Co., has also been completed.

**Western Lines Fencing.**—Contracts are reported to have been let for 730 miles of wire fencing in Saskatchewan, and for 270 miles in Alberta.

**Winnipeg Shops, Etc.**—Contracts are reported to have been let to Carter-Halls-Aldinger Co., Ltd., for the building of an upholstery shop, 100 by 40 ft., of brick on a stone foundation; to Jackson, Goldie & Co., for the construction of a turntable at the shops; and to R. J. Barber for the erection of two new freight sheds on Higgins Ave., one 260 by 40 ft., and the other 260 by 60 ft.

Press reports state that the company is purchasing considerable areas of property on the north side of Henry St., west of Main St., for the purpose of adding to the yard space.

**Winnipeg Beach Station.**—Press reports state that the company has purchased land between McPherson and Elm avenues, and between Stevens St., and the old Gimli road, Winnipeg Beach, Man., upon which to erect a new station

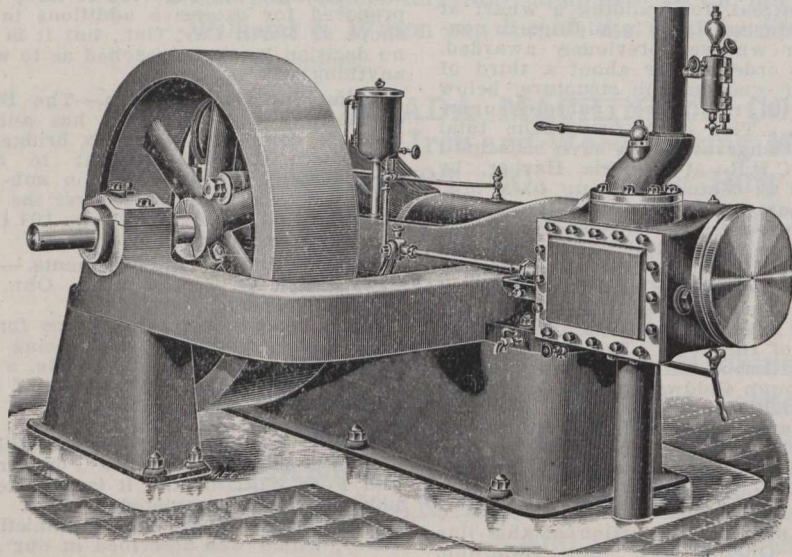
**Water Supply at Viriden.**—Plans are being prepared for the provision of a water supply for the company's use at Viriden, Man. It is said the water will be brought from the Assiniboine River, by a pipe line about five miles long.

**Union Station at Regina.**—In an interview at Regina, Sask., May 9, F. W. Peters, Assistant to the Vice President, said he had not the least idea what the cost of the proposed union station with the Canadian Northern Ry. would be. It would be erected a little southeast of the present building, between Hamilton and Broad streets. The main entrance would be directly opposite Rose St., and provision would be made on the ground floor for ticket offices, waiting rooms, etc., while on the second floor, there would be offices for the other departments. The C.N.R. would be provided with accommodation in the station, and would have running rights into it and over the yards. It is expected that construction will be started on the station this year.

**Regina Freight Shed.**—Foundations have been prepared for a freight shed about 400 by 25 ft., and the building is in course of erection by Smith Bros and Wilson. It is expected to have it completed by July 1.



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**Hawarden to Saskatoon, Sask.**—Press reports state that preliminary surveys are being made for a line from Hawarden to Saskatoon, Sask. The building of such a line would give Saskatoon direct connection with Moose Jaw and other points, which at present is only possible by way of Lanigan and Regina.

**Estevan to Forward, Sask.**—Work was started April 24, by J. D. McArthur & Co., on the construction of this 35 miles. It is expected that 25 miles will be ready in time for wheat traffic in the fall.

**Weyburn to Lethbridge.**—The Lethbridge, Alta., Board of Trade is desirous that construction shall be started in that town easterly towards the line from Weyburn, Sask., heading in the direction of Lethbridge. A letter was received May 8, from W. Whyte, Vice President, stating that full consideration would be given to anything the board had to say in favor of starting construction at the western end.

**Southern Alberta Irrigation District.**—The Southern Alberta Land Co. has been negotiating with the C.P.R. for the construction of certain lines through its irrigated property, and in this connection a press report said that a line from Kipp to Suffield had been decided on. We are officially advised that nothing definite has been decided so far as such a line is concerned.

**New Shops for Western Lines.**—W. Whyte, Vice President, was in Medicine Hat, Alta., May 3, in connection with the proposal for the location of some new shops for the western lines. A deputation pressed the claims of Medicine Hat, as a deputation from Calgary had done the claims of that city a few days previously. Mr. Whyte stated that the matter would be discussed with the President on May 26, and an announcement made shortly thereafter.

**Hotel at Calgary.**—The plans for the projected hotel at Calgary, Alta., were received by the city authorities from the C.P.R. architect's department, Montreal, May 9. The design of the building will conform to that of the Royal Alexandra at Winnipeg.

**Irrigation and Colonization Building at Calgary.**—A contract is reported to have been let to J. McDiarmid and Co., Winnipeg, for the erection of a building in Calgary for the company's irrigation and colonization staffs. The building will be 122 by 45 ft. and will be four stories high, with a basement. The structure will be of reinforced concrete, the outer walls of sandstone veneer, and partitions of hollow tile. It is expected to have the building completed in Oct.

**Cardston to Pincher Creek.**—The Cardston, Alta., Board of Trade appointed a committee. May 10, to confer with the C.P.R. officials relative to the building of the projected line to Pincher Creek, through Cardston. This projected branch is an extension of the Alberta Ry. and Irrigation Co.'s lines.

**Kaslo to Three Forks, B.C.**—A press report states that it is proposed to build a line from Kaslo to Three Forks, B.C., about four miles, in order to provide for some mines.

**C.P.R. Building in Vancouver.**—A press report states that the company proposes to replace its present telegraph building on Hastings St., Vancouver, B.C. by an eight story one at a cost of about \$200,000. The site has a frontage of 75 ft. and a depth of 120 ft.

**Westminster Jct.—Coquitlam, B.C.**—The general plans of the company with respect to terminal yards and shops for the Pacific coast were brought up for discussion April 26, at a conference between C.P.R. officials and the Coquitlam council, and approved by the latter body. The proposed work will cost several million dollars and will require several years to complete. Work

will be commenced as soon as the plans have been sanctioned by the Railway Commission. The proposed works comprise storage, sorting and shop yards, repair shops, and other buildings. The yards will contain 95 miles of sidings, and provision will be made for sites for manufacturing plants.

**Esquimalt and Nanaimo Ry.**—The contractors are pushing work on the extension of this line and expect to get it fully completed into Alberni by June 30.

R. Marpole, General Executive Assistant, returned to Vancouver from Montreal, May 15, after having discussed plans for the extension of the company's lines on Vancouver Island with Sir Thos. G. Shaughnessy. While no official announcement has been made, press dispatches state that the plans for the extension of the line to Comox have been approved, and that construction will be started at an early date.

Surveys are being made by a party under A. Stewart, for the location of a line from Port Alberni to Great Central Lake, via Sprout Lake, and another party is working a survey from Campbell River to Quatsino Sound. (May, pg. 421.)

### Railway Finance, Meetings, Etc.

**Alberta Ry. and Irrigation Co.**—Approximate net profits from all sources, exclusive of land sales, for March, \$31,335, against \$34,260 for March, 1910. Cumulative net profits for nine months ended Mar. 31, \$278,585.

**Carquet Ry.—Gulf Shore Ry.**—A meeting of shareholders of the Gulf Shore Ry. was held at Bathurst, N.B., recently to ratify an agreement of the amalgamation of the company with the Carquet Ry. Co. in accordance with the terms of the company's acts.

**Central Ontario Ry.**—The annual meeting was held at Toronto, May 17. Following are the officers and directors for the current year:—President, C. E. Ritchie, Akron, O.; Vice President, J. J. Warren, Toronto; General Manager and Secretary, G. E. Collins, Trenton, Ont.; other directors, E. B. Stockdale, and J. Moss, K.C.

**Cumberland Ry. and Coal Co.**—The Dominion Coal Co.'s report presented at the meeting of shareholders May 19, contains the following paragraph:—"During the year the Dominion Steel Corporation, Ltd., came under agreement to purchase the entire capital stock of the Cumberland Ry. and Coal Co., and an agreement for the lease of its property to this company was entered into under which its collieries are now being operated as collieries of the Dominion Coal Co. The Cumberland Co. owns large and valuable coal areas in Cumberland county and in Cape Breton; it has two collieries at Springhill, a well-equipped standard gauge railway from Springhill Jct. to Parrboro, 32 miles in length, a large area of timber lands, and other property."

**Detroit River Tunnel Co.**—The following directors were elected for the current year, at the annual meeting at Detroit, Mich., May 4:—W. K. Vanderbilt, F. W. Vanderbilt, H. B. Ledyard, W. C. Brown, W. H. Newman, N. Kingsmill, W. P. Torrance, H. Russell, W. K. Vanderbilt, Jr., L. C. Ledyard and G. F. Baker.

**Dominion Atlantic Ry.**—Gross earnings for Mar., \$67,600, against \$85,937 for Mar. 1910. Aggregate gross earnings for nine months ended Mar. 31, \$964,200 against \$1,049,935 for same period 1909-10.

**Grand Trunk Ry.**—A Grand Rapids, Mich., dispatch, May 17, says the Circuit Court Judge has given a decision denying the demurrer of the defendants in

the State of Michigan against the Detroit, Grand Haven and Milwaukee Ry., one of the companies owned by the G.T.R. in the U.S. The action is brought to recover \$2,000,000 alleged to be due for back taxes. It is announced that an appeal against the decision will be taken to the Supreme Court.

**Intercolonial Ry.**—The House of Commons, May 5, voted a further sum of \$353,000 on account of collection of revenue. The Minister of Railways explained that the vote was necessary for the adjustment of accounts, and did not provide for further expenditures. The only effect, he added, was that it would reduce the amount that would appear as surplus revenue of last year.

**Lake Erie and Detroit River Ry.**—At the annual meeting at Walkerville, Ont., May 2, the retiring directors were re-elected. The meeting was purely a formal one, the company's line being owned by the Pere Marquette Rd.

**Manitoulin and North Shore Ry.**—A meeting of shareholders was held at Sault Ste. Marie, Ont., May 29, to pass a bylaw reducing the number of directors from 12 to seven.

**Montreal and Vermont Jct. Ry.**—The annual meeting was held at Stanbridge, Que., May 10. Following are the officers and directors for the current year:—President, C. M. Hays; Vice President, E. H. Fitzhugh; A. H. Gilmour, Secretary Treasurer; W. H. Chaffee, Assistant Secretary Treasurer; G. C. Jones, Managing Director; other director, C. W. Aitkens.

**Michigan Central Rd.**—The annual meeting was held at Detroit, Mich., May 4, when the following directors were elected for the current year:—W. K. Vanderbilt, F. W. Vanderbilt, H. B. Ledyard, W. C. Brown, J. P. Morsan, C. M. Depew, W. Rockefeller, J. Stillman, W. H. Newman, G. F. Baker, W. K. Vanderbilt, Jr., L. C. Ledyard and M. Hughtitt.

**Napierville Jct. Ry.**—The annual meeting was held, May 8. Following are the officers and directors for the current year:—President, L. F. Loree; Vice Presidents, C. S. Sims and W. H. Williams; Secretary, L. J. Beique; other directors, G. Hartt, F. L. Beique, F. A. Beique and R. Adair.

**Quebec and Lake St. John Ry.**—Total earnings for April, \$45,508.58, against \$48,678.17 for April 1910. Aggregate total earnings for four months ended Apr. 30, \$163,656.18, against \$168,270.71 for same period 1910.

**Quebec Central Ry.**—Gross earnings for Feb., \$71,321.50; expenses \$58,231.52; net earnings \$13,089.98, against \$62,417.33 gross earnings; \$53,788.57 expenses; \$8,628.76 net earnings for Feb., 1910. Gross earnings for March, \$102,240.21; expenses \$65,997.49; net earnings \$37,242.72, against \$92,681.07 gross earnings; \$58,601.99 expenses; \$34,079.07 net earnings for March, 1910. Aggregate gross earnings for nine months ended Mar. 31, \$859,170.03; expenses \$594,046.83; net earnings \$265,123.20, against \$796,922.75 aggregate gross earnings; \$555,697.25 expenses; \$241,225.50 net earnings, for same period 1909-10.

**South Shore Ry.**—The Imperial Privy Council gave a decision, May 4, in the case of the appeal of the Attorney General against the Standard Trust Co., of New York, and the S.S. Ry., arising out of the decision of the Judge of the Exchequer Court as to the division of the money paid by the Delaware and Hudson Co., for the purchase of the S.S. Ry. The Government contended that a portion of the \$600,000 paid to the Standard Trust Co. should have been distributed among the other creditors of the old company. The Privy Council, by its decision upholds the decision of the Exchequer Court.



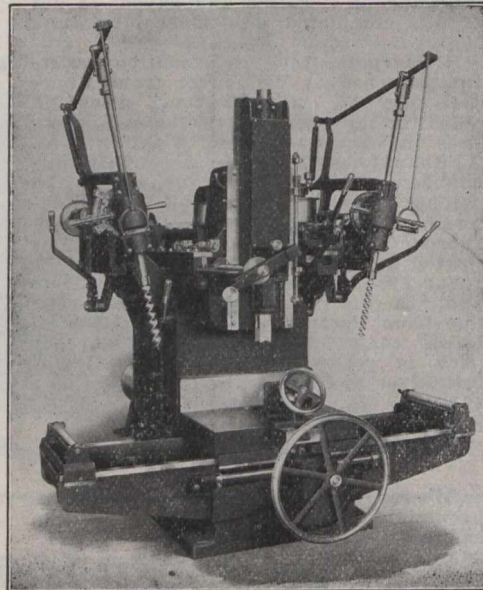
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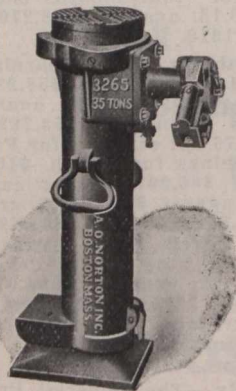


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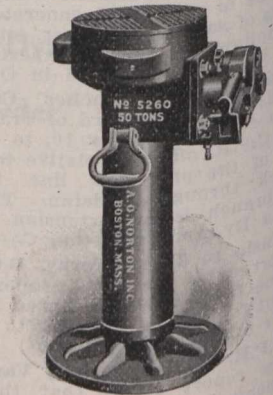


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**National Transcontinental Railway.**

Tenders will be received to June 14, for the erection of station and other buildings on the following sections:— From Plaster Rock, N.B., westward to the N.B.-Quebec boundary; from mileage 161.5 to 194 east of Quebec bridge; from mileage five to 105 east of Quebec bridge; from Quebec Bridge westward to mileage 45; from mileage 55 to 194 west of Quebec bridge; at Cochrane, Ont.; from the divisional yard at Graham, Ont., eastward for 60 miles.

The Chairman of the N. T. Commission, in an address to the Quebec Board of Trade, May 5, gave an explanation of the plans for the erection of the union station at the old Champlain market, and for the workshops which it is proposed to build on the Ste. Foye heights, near the Quebec bridge. He said the station will be a monumental structure, 250 ft. long, and three stories high, being 77 ft. from the ground to the highest point of the roof. A wharf 2,000 ft. long will be constructed alongside the station. This will later be prolonged to 6,000 ft. west. The extreme depth of these wharves will be 55 ft. at low tide, and will leave room for the location of the agency of the marine department and shipping. The workshops are to be erected at the western approach to the bridge which has been found the most practical location for them. It is at the limits of Ste. Foye, and permits the erection of big shops, which would be impossible anywhere else. The proposed shops will be second only to Winnipeg. Their site will cover 155 acres. The buildings proposed to be erected include the following:—Coach paint shop, 120 by 200 ft.; upholstering shop, 40 by 120 ft.; transfer table, 85 by 55 ft.; coach shop 120 by 200 ft.; cabinet shop 40 by 120 ft.; planing mill, 80 by 250 ft.; dry kiln, 35 by 70 ft.; lumber shed, 60 by 150 ft.; freight car shop, 80 by 400 ft.; power house, 100 by 125 ft.; store house, 70 by 150 ft.; oil house, 35 by 55 ft.; office, 60 by 60 ft.; boiler and tank shop, 150 by 150 ft.; erecting shop, 150 by 388 ft.; forge shop, 100 by 150 ft.; foundry shop, 100 by 150 ft.; pattern shop, 50 by 70 ft.; roundhouse, 20 stalls; water tanks, 50,000 galls., and 100,000 galls. capacity; boiler plate and tube rack, 25 by 150 ft.; coaling trestle, 950 ft. long; sand house, 46 by 19 ft.; asphalt and cinderhoists; iron rack, 20 by 100 ft.; ice house, 59 by 29 ft.; local station, 116 by 30 ft.; store house, 74 by 20 ft.; midway crane, 1,420 ft runway; wheel foundry and machine shop, 125 by 100 ft.; wheel storage, 105, by 100 ft. As soon as details in connection with the plans are worked out, tenders will be asked for the erection of the buildings. The route which will be followed by the line would be from Sillery Cove, into the Champlain market, and shunting grounds will be provided at Wolfe's Cove.

Reports from Cochrane, Ont., state that E. F. and G. E. Fauquier have completed their 70 miles of grading west of that point, and are engaged in ballasting the track. Further west, O'Brien, Mc-Dougall and O'Gorman, have large gangs of men at work, clearing the right of way and grading. East of Cochrane, about 40 miles of track have been laid, and the ballasting completed and the contractors, Foley, Welch and Stewart, are pushing their grading gangs further east.

We are advised that there is no foundation for the report that a contract has been let, or is about to be let to Haney, Quinlan and Robertson, for the erection of a coach and car shop at Transcona, near Winnipeg. At present, the commissioners are unable to say what further will be done in the way of building at the shops at Transcona.

**GRAND TRUNK PACIFIC RAILWAY.**

Replying to questions in the House of Commons April 24, the Minister of Railways said the estimated cost to Canada of the western division of the National Transcontinental Ry. is the interest for seven years on the bonds required to finance 75% of the cost of construction of the mountain section, and this interest is estimated at \$13,293,000. In addition the direct cost to the Government for inspection, auditing, etc., in connection with the western division is estimated at \$135,000. The details upon which these estimates are based are as follows:—

Estimated cost to complete, Mar. 31, 1914:—	
Cost of construction .....	\$58,520,000
Terminals, Prince Rupert .....	3,000,000
Interest during construction .....	6,000,000
<b>Total estimated cost .....</b>	<b>\$67,520,000</b>
Amount to be financed by 3% government guaranteed bonds, 75% of \$67,520,000 .....	50,640,000
Par value of government guaranteed 3% required to finance cost of construction, estimated to be sold at net price of 80% .....	63,300,000
Interest on \$63,300,000 at 3% for 7 years .....	13,293,000
Estimated direct expenditure by government for engineering, auditing, etc., in connection with western division .....	135,000

The above estimate is made on the assumption that the liability of the government as guarantor of the bonds, will be in accordance with the judgment rendered by the Supreme Court of Canada, as to the meaning of par. 5 of the agreement of Feb. 18, 1904, schedule to chap. 24 of the Acts of that year.

Following is the estimated cost of construction of the mountain section:—

Description of Service.	Amount.
Preliminary and legal expenses, engineering .....	\$ 3,200,000
Right of way and real estate .....	250,000
Grading and tunnels .....	33,000,000
Bridges, trestles and culverts .....	10,000,000
Ties .....	1,500,000
Rails, fastenings, frogs and switches .....	5,700,000
Tracklaying, surfacing and ballasting .....	2,390,000
Buildings and water stations .....	1,500,000
Fencing, crossings and cattle guards .....	20,000
Snow sheds .....	500,000
Docks .....	200,000
Telegraph line .....	260,000
<b>.....</b>	<b>\$58,520,000</b>
Terminals at Prince Rupert .....	3,000,000

The Minister added that the foregoing details of estimates are subject to revision. The fluctuating labor conditions prevailing, and the tendency to an increasing cost for labor, on the line of construction, renders this statement necessary.

A contract has been let to J. D. McArthur, Winnipeg, for the completion of the line from Regina, Sask., in a generally southerly direction to the International boundary. This contract will carry the line from the end of the section at present under contract, on which there is about 40 miles of grading to be completed.

The contract for building the first 50 miles of the projected branch from Biggar, Sask., to Calgary, has been let to Foley Bros., Welch and Stewart.

The contract for the new branch from the Alberta coal branch has been let to Foley, Welch and Stewart. This will be known as the Mountain Park coal branch.

We were officially advised May 1, that the location of the G. T. Pacific Ry. terminals in Calgary, Alta., had not been decided, and that all reports stating that particular properties had been acquired for that purpose were incorrect.

While land has been acquired at Edmonton, Alta., for the purpose of building an hotel thereon, we are advised that nothing has been definitely decided as to the size and character of the proposed building.

E. J. Chamberlin, Vice President and General Manager, is reported to have stated in an interview at Winnipeg, May 4, that it is doubtful whether a contract will be let this year for the building of the G.T.P.R. hotel at Winnipeg. The plans had not then been finally completed, and were not likely to be ready before June 1. It was impossible to say anything definite as to the accommodation, equipment, or cost of the building until all the plans had been approved.

Speaking of the proposed line into Brandon, Man., Mr. Chamberlin is reported to have said recently that the surveys would be begun almost immediately, but it was impossible to say when construction would be gone on with. This line would extend northerly from the G.T.P.R. to Neepawa.

Referring to the work on the lines which will centre in Regina, Sask., Mr. Chamberlin is reported as saying that everything is being done that could be done to have the line completed into Regina by July 31. The grading was well ahead, and the company was rushing the track laying and ballasting, with the object of having the branch in operation by the opening of the Exposition. The tracklaying gang reached Fort Qu'Appelle May 12. The question of the building of an hotel had been considered, but nothing was likely to be done this year. The Board of Railway Commissioners has approved of location of the Melville-Regina branch from the city limits at mileage 92.62 to the west side of Albert St., at mileage 97.57, Regina, Sask.

R. Hyland, of the contracting firm of Rigby, Hyland and Plummer, in a recent interview said the grading of the branch from Regina into Moose Jaw, would be completed by Aug. 1. Grading is being proceeded with west of Cottonwood Creek, four gangs being at work. A 1,500 ft. trestle bridge is nearly completed over the creek, and another bridge is being built across Wascana Creek. The course of the line is almost straight from Regina to close to Moose Jaw, where it deviates to the south, so as to secure the easiest possible entrance into the city. An agreement has been reached between the company and the city council as to the route by which the line will cross Moose Jaw. The agreement provides that the line is to be completed and in operation through the city by Jan. 1, 1912. A resolution was passed May 9, approving of some slight deviation from the original plans.

Plans were deposited with the Minister of Railways May 12, showing the route of the entry of the company's line into Calgary. The plan does not show that any provision has been made for terminal facilities in the city. E. J. Chamberlin, Vice President, stated at Winnipeg, May 5, that the company had never for a moment considered the idea of erecting an hotel in Calgary.

The plans for the proposed hotel at Edmonton, Alta., said Mr. Chamberlin, at Winnipeg, May 5, are expected to be ready about July 1, when tenders for the building would be asked.

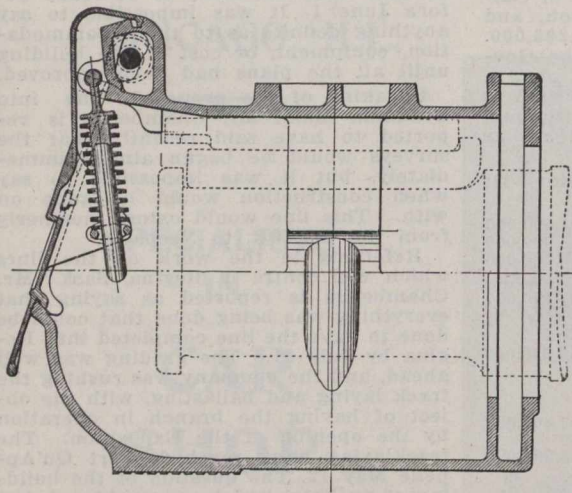
Construction work is being gone on with rapidly on the Alberta coal branch, which runs southerly from the main line at Edson, Alta., and it is expected that it will be ready to transport coal from the mine by Nov. 30. With Edson as a centre, a survey party under W. Silcox is making a survey for the location of a line to Grande Prairie, and on towards the Peace River country.

Construction on the main line west of Edson, is being pushed, and it is expected to have the track laid to Tete Jaune Cache by the end of the season. On the section being built easterly from Prince Rupert, a certain amount of rock work was done during the winter, and it was reported May 8, that over 2,000 men had gone in to take up work this season. (May, pg. 425.)

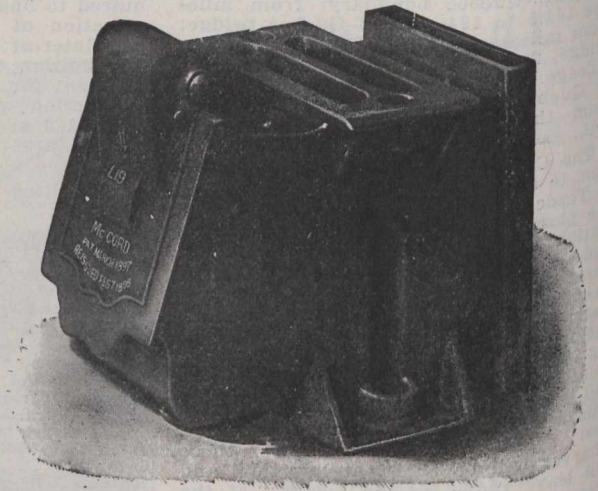


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**G.T.R. Betterments, Construction, Etc.**

**Richmond, Que.**—A fire which started in one of the offices at the Richmond, Que., station, May 11, did over \$5,000 worth of damage. The station was practically destroyed.

**Montreal Track Elevation.**—At a special meeting of the committee of aldermen and controllers having under consideration the plans for the elevation of the tracks from Bonaventure station to St. Henri, May 11, it was unanimously decided that if it were possible, from an engineering standpoint, the tracks should be depressed and not elevated, but that if this were not possible, the embankments should be of stone and concrete, and not of earth as proposed.

The company's plans for the work were submitted to the city council April 28, and have since been under consideration. In connection with the track elevation the work of building a new terminal station at Bonaventure is to be undertaken. This station building will have to be constructed so that entrance will be made to the platforms from the second floor, which will be level with the tracks. The new building will be 285 by 170 ft., with a long elevated platform extending all the way to Mountain St., at which point the first subway or viaduct will be built, the viaduct continuing over every thoroughfare to beyond the city limits. Thirteen passenger tracks will run into the new station and four freight lines into the new sheds. The plans show subways having spans of different widths, from 40 to 66 ft., and one estimate states that 1,300,620 cubic yards of embankments will be necessary. The estimated cost of the entire work was tab-

ulated for the city committee as follows:—

Rights of way .....	\$2,390,829
Excavations of foundations .....	96,833
Embankments .....	520,248
Concrete for abutments, piers and flooring .....	366,865
Concrete for retaining walls .....	66,713
Steel works .....	539,172
Paving .....	132,748
Tracks .....	247,633
Ballast .....	107,795
Station buildings .....	3,210,751
Miscellaneous .....	475,386

Total .....

A sum is added for superintendence and contingencies at 10%, \$815,497; with interest for a year and a half at 5%, amounting to \$448,529, making a grand total of \$9,419,000. Under an act of the Quebec Legislature, the city is authorized to contribute up to \$2,000,000 towards the cost of carrying out the work.

The G.T.R.'s application to the Board of Railway Commissioners for an order for grade separation, or the elevation of its tracks in order to provide for improvements in connection with Bonaventure station and terminals, came before the Board at the sittings, which opened in Montreal May 18.

**Ottawa Improvements.**—The Board of Railway Commissioners has approved plans for change of alignment in the vicinity of Rideau Canal, and across Main St., Elgin St., and Echo Drive, Ottawa.

In connection with the C.P.R. proposal to build a tunnel along a portion of the Rideau Canal in order to secure a new entrance to the centre of the city, the G.T.R. is said to have prepared a plan for submission to the city council. The proposition is said to aim at bringing all the railways in over intersecting

roads as far as the Deep Cut, to allow the Canadian Northern Ry. to run from there to the central station, and to have the C.P.R. tracks parallel those of its own line through Ottawa East, near the present union station.

The new station is expected to be ready for opening in Sept., about the same time as the new hotel. Other improvements planned include additions to the workshops, but it is not expected that these will be undertaken until the matter of the entrance of the various lines into the city is settled. However, new steel coal chutes will be erected, having a storage capacity of 350 tons, at a cost of about \$15,000, to replace the existing trestles.

**G.T.R. Cobourg Freight House, etc.**—The Board of Railway Commissioners has approved plans for the rearrangement of tracks in the yard, and for the erection of a freight house at Cobourg, Ont.

**G.T.R. Brock Ave. Subway, Toronto.**—The Board of Railway Commissioners has approved plans for a subway under the tracks at Brock Ave., Toronto.

**Niagara Falls-Paris, Ont.**—The replacing of the present 80 lb. rails with 100 lb. ones, between Niagara Falls and Paris, Ont., is being proceeded with rapidly. (May., pg. 431.)

**New Station at Stratford.**—The site chosen for the new station at Stratford, Ont., is on Shakespeare St., not far from Nile St. It is proposed to erect a two story building in which accommodation will be provided for the travelling public on the ground floor, and on the second floor, provision will be made for offices for the various operating departments. The company's plans also involve considerable re-arrangement of the yard.



G.T.R. STATION AND HOTEL AT OTTAWA.

The illustration made from a drawing, shows in the lower right hand corner a portion of the G.T.R.'s new central station at Ottawa, which will also be used by the C.P.R., for some of its Ottawa trains, and also by the Ottawa and New York Ry. The G.T.R.'s new hotel Chateau Laurier is shown across the street from the station. The new plaza across the Rideau canal, which is being created by the joining of the two bridges, will make a splendid thoroughfare. At the left of the illustration are the Parliament Buildings, and the eastern and western departmental blocks at the top, and lower down, facing the plaza, is the Post Office Building.



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**Railway Commissioners' Traffic Orders.**

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

**EXPORT RATES ON LUMBER.**

13436. April 15.—Re order 12301, Sept. 20, 1910, made upon the application of the Canadian Lumbermen's Association and the Montreal Board of Trade Transportation Bureau, directing the Canadian Pacific, the Grand Trunk, and the Canadian Northern Quebec Ry. Companies to publish and file tariffs effective not later than Jan. 1, 1911, reducing the export rates to Montreal on lumber from points in the Province of Quebec north and east of Montreal, so that the same difference shall exist between the present domestic rates on lumber to Montreal and the said rates for export, as existed between the old domestic rates and the old rates for export. A question having arisen as to the scope of the order, upon the report and recommendation of the Chief Traffic Officer of the Board, it is ordered that the Canadian Pacific, the Grand Trunk and the Canadian Northern Quebec Ry. Companies publish and file tariffs, to be made effective not later than May 1, 1911, reducing the export rates on lumber, in carloads, to Montreal, for export, from points in the Province of Quebec, east of the city of Montreal, and east of and including the C.P.R. Laurentian subdivision, between and including St. Lin Jct. and Nominig, and east of and including the Canadian Northern Quebec Ry.'s Montfort branch between and including St. Jerome Jct. and Huberdeau, so that the same differences shall exist between the present domestic rates on lumber to Montreal and the said rates on lumber to Montreal for export, as existed between the old domestic rates and the old rates for export. Order 12301 is rescinded.

**ACCEPTANCE OF FREIGHT AT SHEDS IN MONTREAL.**

13474. April 13.—Re application of Transportation Bureau of Montreal Board of Trade for an order requiring the G.T.R., the C.P.R. and the C.N.Q.R., to rescind their regulation that freight will not be accepted from their cartage agents or from the public, at their freight sheds in Montreal, after 5 p.m., and requiring them also to furnish a proper cartage service for handling freight traffic to their freight sheds. It is ordered that not later than May 1, 1911, the respondents receive into their warehouses all freight tendered to them for shipment from vehicles which have reached the said warehouses, or the approaches thereto, and are ready for unloading by 5 p.m. from Nov. 15 to March 14, both inclusive, and 6 p.m., from March 15 to Nov. 14, both inclusive, and so much later as may be reasonable in case of any vehicle delayed by breakdown or other unavoidable accident, or by open drawbridges, on its way to the said warehouses. Provided that this order shall not be construed by the respondents to prevent them from accepting shipments of freight, without discrimination, later than the said hours.

**INTERSWITCHING AT PORT ARTHUR.**

13485. April 19.—Re application of Atikokan Iron Co., Ltd., of Port Arthur, Ontario, complaining that the C.P.R. did not absorb the C.N.R. interswitching charges on pig iron shipments from Port Arthur to eastern points: It is declared that the General Interswitching Order 4988 applied to said shipments by the applicant on pig iron from Port Arthur east; that the proportion of the C.N.R. interswitching charges payable by the applicant was one-half cent. per 100 lbs. subject to a minimum charge of \$3 and a maximum charge of \$4 per car; and that the collection of interswitching

charges by the C.P.R. on the said shipments in excess of this amount was therefore illegal.

**ALLOWANCES FROM TRACK SCALE WEIGHTS.**

13520. April 27.—Re application of Canadian Stoves Manufacturing Association, the Jenckes Machine Co., of Sherbrooke, and others, for an order postponing the effective date of the tariffs of track-scale allowances filed by certain railway companies, it is ordered that the effective dates of the following schedules, namely, C.R.C. no. E.2312 and W.1684, C.R.C. no. E.2067, C.R.C. 390, C.R.C. 245 and supplement 1 to C.R.C. 149, filed by the G.T.R., C. P. R., Bay of Quinte, Canadian Northern Ontario and Temiscouata Railway Companies, be postponed until July 1, 1911, except that the provision in the said schedules that "An allowance of 500 lbs. weight per car will be made for standards, strips, stakes, supports and temporary racks, on flat or gondola cars, if loaded with carload shipments requiring their use," as required by order 13226, dated March 29, 1911, which is hereby declared to be an addition to the railway companies' present tariffs, becomes effective not later than May 1, 1911, as provided in the said order.

**RATES FROM EASTERN CANADA TO REGINA.**

13529. May 1.—Re application of the corporation of the city of Regina, Sask., under secs. 314 and 339 of the Railway Act, for an order directing a reduction in the rates on classes 1 to 10 on goods shipped from Eastern Canada to Regina, and re the application of the Canadian Northern Ry. and the C.P.R., under sec. 56 of the Railway Act, for leave to appeal to the Supreme Court of Canada from order 12520, dated Dec. 10, 1910. Upon the hearing of the application in the presence of counsel for the two railway companies, and for the respondents, and upon reading the notice of motion and the affidavit of E. W. Beatty, and what was alleged at the hearing, the appellants undertaking to get this case set down for hearing at the next sittings of the Supreme Court, unless, in the view of the Supreme Court, itself, or a judge thereof, the case should not be set down. It is ordered that the said railway companies be granted leave to appeal to the Supreme Court of Canada from the said order upon the questions hereinafter stated, which, in the opinion of the Board, are questions of law, subject to and upon the terms and conditions following: 1. That the applicant undertake to set the appeal down for and expedite the hearing thereof at the next sittings of the Supreme Court. 2. That if the appeal be not argued at the said sittings of the Supreme Court, for any reason for which the applicant may be to blame, then the appeal shall not operate as a stay of the order dated Dec. 10, 1910, unless this Board shall otherwise order. 3. That the questions for argument upon the said appeal arise out of the following facts: (The facts are then set out at length). That the order issued herein dated Mar. 15, 1911, be rescinded.

**RATES ON TRUNKS AND VALISES.**

13596. Feb. 21.—Re the application of Lamontagne, Limited, of Montreal, for an order directing that such a change in rule 2 of Canadian Classification 15 be made as will enable the applicants to ship mixed carloads of trunks, valises and saddletry between points west of and including Port Arthur, Ont., and from points east of Port Arthur, to Port Arthur and points west thereof, and vice versa. It is ordered that Canadian Classification 15. be amended by the addition to the saddletry list, page 66, of trunks and valises, as shown at page 72 as items 2, 3, and 5; excluding the note re trunks containing wearing apparel and personal effects; the said amendment to be incorporated in the first supplement to the said classification.

**THE REGINA RATE CASE.**

In the Supreme Court at Ottawa, May 15, in the appeal from the Board's order in this case. Mr. Larmonth applied to have the appeal set down for hearing at the present session. Mr. Orde, K.C., appeared on behalf of the Regina Board of Trade, and mentioned the possibility of constitutional points being raised on the appeal. The court ordered the appeal to be set down for hearing at the opening of the autumn session, and that notices should be given and served upon the Attorney General of Canada and the Attorney General for Manitoba.

**"Parisian Politeness" on the C. P. R.**

George Bury, General Manager, Western Lines, has issued the following circular to passenger conductors, agents, etc.:

"Politeness costs nothing, and gains everything."—Lady M. Wortley Montagu.

"A man has no more right to say an uncivil thing than to act one; no more right to say a rude thing to another than to knock him down."—Dr. Samuel Johnson.

Ever since this railway was opened for traffic, the courtesy of our employes has been proverbial. Through that, almost every passenger who has once honored us with his patronage has become a lifelong friend. Such friendship has contributed to the prosperity of the company, and the prosperity of the company has been shared in full measure with the employes. The politeness which in the first place was dictated by the natural good taste of the men, can therefore be justified on other grounds as an exhibition of enlightened selfishness.

Other railway companies have come to realize the advantage we enjoy in this respect, and it has become the fashion to send out circulars enjoining politeness on all those having direct relations with the public. No such circular is necessary in our case, but we cannot allow our position of proud pre-eminence to be endangered, and I offer a suggestion which I know will receive your acceptance.

The immense growth of our business in recent years makes it necessary for us to employ a number of new men. Many of these have not had all the advantages; none of them are fully seized of the traditions of our service when they start in. Is it not our duty to quietly and tactfully impress on them the advantages to themselves and to their employers of courtesy and consideration toward the public? If the reputation of the company is not maintained its popularity will diminish, and the loss of traffic must ultimately effect the interests of every one of us.

I am convinced that you are heartily with me in endeavoring to see that any patron, present or prospective, who addresses an employe of this company will receive a courteous and intelligent reply.

Please influence those about you.

**Dominion Railway Subsidy Contracts.**

The Department of Railways has entered into contracts April 25, with the Quebec and Lake St. John Ry. under the terms of the act granting aid to certain railways for the building of the following lines:—From Valcartier station to St. Catherine, Que., 3.8 miles, and from Valcartier station, towards Gosford, Que., 5.5 miles. Track was laid on these two lines in 1908.

A New Orleans, La., dispatch says stock in the New Orleans, Fort Jackson & Grand Isle Rd., which was owned by Representative C. D. Haynes, of New York and his associates has been transferred to C. D. Warren, of Toronto. The line extends from New Orleans to Buras, 59.6 miles. Mr. Warren was formerly President of the Lake Superior Corporation.

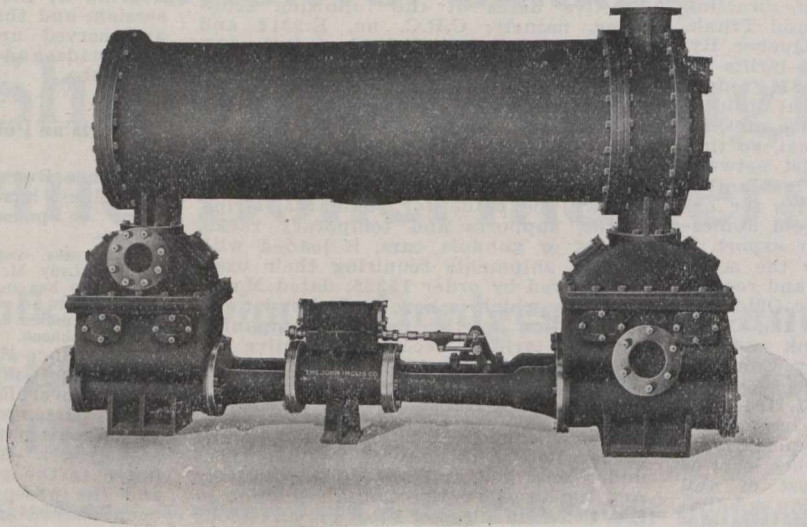


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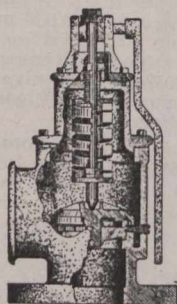
# T. McAvity and Sons, Limited

ST. JOHN, N.B.

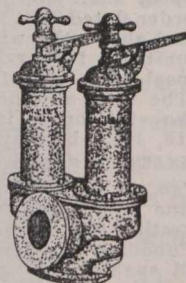
Manufacturers of  
Locomotive, Marine and Stationary  
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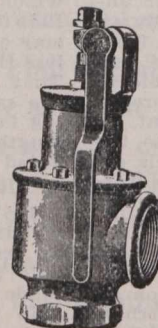
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**Canadian Northern Ry. Construction, Etc**

**Quebec and Lake St. John Ry.**—A contract was entered into April 25 with the company under the Dominion act granting aid to certain railways, in respect of the construction of a line from Valcartier station to St. Catherines, Que., 3.8 miles, and for the construction of a line from Valcartier station towards Gosford, Que., a distance of 5.5 miles. Track was laid on these two lines during 1908.

**Canadian Northern Quebec Ry.**—The Board of Railway Commissioners has issued an order correcting an error in the application for the approval of the location of the St. Jacques branch, from St. Jacques to Rawdon, Que.

The company has under consideration the question of terminals in Montreal, and reports in real estate circles in that city, credit the C.N.Q.R. and its owners, Mackenzie, Mann & Co., with being at the back of nearly all the large property changes in the centre of the city. The latest report is that the site of the Jesuit College, on Bleury St., which has just been sold, has been secured for the terminal station.

**Canadian Northern Ontario Ry.**—Contracts for the construction of the remaining portion of the C.N.O.R. between Toronto and Ottawa were let May 19. The line will have a total length of about 250 miles. Its building was started two years ago, when a contract was let to Angus Sinclair for a section of 100 miles from just outside Toronto to Trenton. Since then there have been acquired in the interests of the company, the Central Ontario Ry., the Bay of Quinte Ry. and the Brockville, Westport and North-western Ry., and these purchases necessitated some deviations from the route which had been originally laid out. As a result, certain portions of these lines will be taken in, and in course of time certain alterations and improvements will be carried out, notably on the Bay of Quinte Ry. from Deseronto to Sydenham. The contract held by Angus Sinclair was extended to cover work done beyond Trenton, and has now been extended to cover the construction of the line to Deseronto, where connection is to be made with the Bay of Quinte Ry., which is to be used from Deseronto to Sydenham. Mr. Sinclair will also build some four miles of line, in revision of location on the Bay of Quinte Ry. From Sydenham, mileage 163, a contract covering grading, fencing, bridges and culverts, tracklaying and ballasting, has been let to J. P. Mullarkey, to mileage 180, and from mileage 200 to mileage 250, and for the bridges, culverts and other work between mileage 180 and mileage 200, the grading and timber work on which will be done by Ewen Mackenzie.

The Board of Railway Commissioners has approved of the opening for traffic of the Whitney extension of the Central Ontario Ry. from Maynooth station to 14.5 miles northerly. It has also authorized the company to take, for better station accommodation, without the consent of owners, additional land in Hillier tp., Ont.

Representatives of the city of Hamilton were in Ottawa, May 10, in connection with the company's application for approval of the plans for its entrance into that city. The city council objects to level crossings and to the cutting into the park property. The plan submitted shows a route cutting through Harvey Park. The Minister said he would map out a route if the city and the company failed to agree.

**Canadian Northern Ry.**—The Minister of Railways had before him May 10 the company's application for approval of its proposed new entrance to the Union Station at Winnipeg. After hearing what

the company and the city had to say, the plans were referred to the Board of Railway Commissioners to decide as to the conditions which should be imposed.

The Dominion Engineer at Winnipeg has reported that the new bridge across the Assiniboine River has been built in accordance with the plans, that provision is made for a lift span, and that the girders already placed in position are part of the lift span. There has been a delay in the delivery of the lifting machinery.

The Board of Railway Commissioners has issued an order extending for three months from April 18, the time within which the branch line of the Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co., on Lauriston St., Saskatoon, Sask., may be built, as authorized by the Board's order of April 19, 1910.

The work of reballasting the line from Regina to Prince Albert, Sask., is being proceeded with, the section of the work at present in hand being that between Saskatoon and Hanley. It is reported that the present 70 lb. steel rails are to be replaced with 84 lb. ones at an early date.

An arrangement is reported to have been completed with the C.P.R. by which the Canadian Northern Ry. will secure an entrance into and the use of the new station which the C.P.R. is about to build in Regina, Sask.

The branch line which the company is building from Maryfield westerly, is rapidly approaching Moose Jaw, Sask., the grading gangs being reported, May 9, to be well beyond New Warren. The work is expected to reach about four miles from Moose Jaw by July 1, by which time the definite approach into the city will have been arranged for. Track is expected to be laid into Moose Jaw by the fall.

The Board of Railway Commissioners has approved of location plans for the Saskatoon-Calgary branch through tps. 13 to 16, ranges 24 to 26, west of the second meridian, Sask., mileage 58.27 to mileage 85.1.

Plans have been approved by the Minister of Railways for a line from Battleford, Sask., in the direction of its lines now under construction in Southern Alberta.

The building of the line from Vegreville to Calgary is being pushed rapidly forward. The grading gangs have reached the city limits of Calgary, but there are yet some points where there are steam shovels at work, notably at the Elbow, at the cement works, and at Valleyfield. Tracklaying is being proceeded with south of the Red Deer River, and steel is being laid at a rapid rate. Considerable property has changed hands of late in the city in the vicinity of First St. W. and Eighteenth Ave., the company being reported as having secured altogether 640 ft. of frontage on First St. and 150 ft. on the avenue. It is expected that this site will be utilized for station purposes.

In connection with the survey work which was started at Lethbridge, May 1, one of the staff is reported as saying that the line proposed to be built from Lethbridge will strike the Vegreville-Calgary branch east of the Bow River, near where the C.P.R. crosses, about four miles from Calgary.

Work is being pushed rapidly on the Stettler-Brazeau line. The Northern Construction Co. has had a large quantity of plant and material delivered at Red Deer, and is engaging all the men available. The line is being built under the charter of the Canadian Northern Western Ry., which company the Board of Railway Commissioners has authorized to cross the C.P.R. Calgary and Edmonton branch, in s.w. ¼ of section 15, tp. 39, range 27, west of the fourth meridian. Press reports state that the company has secured a section of land bord-

ering on Sylvan Lake, just west of Red Deer, on this line, which it is proposed to lay out as a summer resort.

A number of gangs of men are reported to be at work grading an extension of the line, now terminating at Stoney Creek, in the direction of Athabasca Landing, Alta. It is stated that there is a possibility of the line being completed to that point this year.

Notice has been given by the Government that the Dominion Parliament will be asked to consider, when it reassembles in July, an amendment to chap. 6 of the statutes of 1910, under which aid was given by guarantee of bonds to the C.N. Alberta Ry. The amendment proposes to substitute for the line then proposed to be aided, the following:—A line of railway of the C.N.A.R. from near Edmonton or St. Albert generally westerly to the coal areas, situate on the company's authorized line near Brule Lake in Jasper Park, and by providing that the aid granted by the act of 1910 shall be given to the new line, and that the securities shall be secured by a first mortgage upon the line to be built.

The Board of Railway Commissioners has approved of location plans for the C.N. Alberta Ry. through tp. 53, ranges seven to 10, west of the fifth meridian, mileage 62.47 to mileage 82.62.

The Cowan Construction Co. is reported to have started work on a 40 mile section of a line heading for the Peace River. This line leaves the line to Yellowhead Pass at Onoway, about 30 miles west of Edmonton, runs northwest to Pembina, to the Athabasca River, crossing at Habaska, about 30 miles below the mouth of the McLeod River. The surveys for about 80 miles of the projected line are reported completed, and it is stated that the surveys will be completed through to Dunvegan, on the Peace River, next year.

**Canadian Northern Pacific Ry.**—The route map for this railway shows a line from New Westminster to Yellowhead Pass, on the British Columbia-Alberta boundary, having a total length of 502 miles. The line runs along the south bank of the Fraser River, the C.P.R. being on the north bank, for just over 140 miles, and crosses both the river and the C.P.R. between Cisco and Lytton, continuing parallel to the C.P.R. to Kamloops, where it turns along the valley of the North Thompson River, and the northern branch of that river to Tete Jaune Cache, and then turning southerly reaches the Yellowhead Pass. An arrangement is being negotiated with the Vancouver, Victoria and Eastern Ry. and Navigation Co. (Great Northern Ry., U.S.), as to a portion of the route between Chilliwack and the Hope Mountain, and in the Fraser River canyon, some difficulties had to be settled with the C.P.R. There were no difficulties in regard to other portions of the route, except such as usually arise in securing the most feasible line for construction, and the work is well advanced between New Westminster and Hope, and tenders were received on May 12 for the 163 miles from Hope to Kamloops. The tenders were asked for in sections, as follows: from Hope to Boston Bar, about 40 miles; Boston Bar to Lytton, about 28 miles; Lytton to Ashcroft, about 44 miles; Ashcroft to Kamloops, about 51 miles. This distance covers the canyons of the Fraser and Thompson rivers, and includes the heaviest work on the whole line. It comprises about 25,000 ft. of tunnelling and a large number of bridges, crossing and recrossing the Fraser and the Thompson rivers. The location and size of these bridges are not yet sufficiently definitely located for particulars of them to be given. There are two long tunnels, one at Battle Bluff on Kamloops Lake, 2,740 ft., and another opposite Yale, 2,000 ft. The line is located on a



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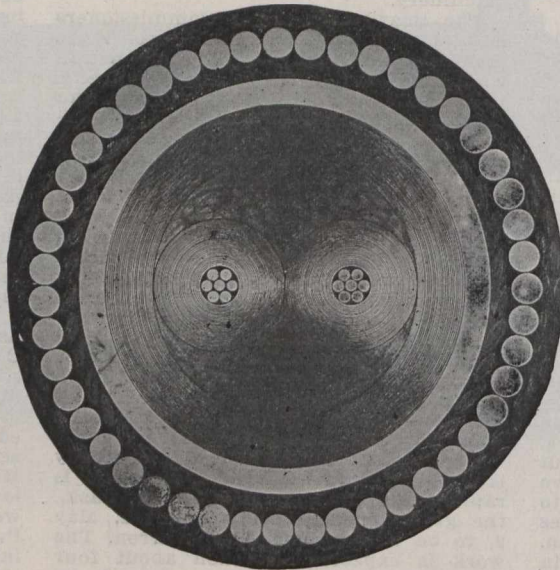
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# Electric Headlight Saves Train

(From Daily Papers)

"Wednesday night B—— forgot to deliver an order to hold Eastbound Passenger Train No. 6, and only the fact that the Electric Headlight of the oncoming Passenger train was seen at a great distance by the Engineer of the Westbound Freight prevented a head end collision in the —— Canyon near —— . The warning light was seen in time to enable the freight to get back on to the siding at —— ."

## PYLE-NATIONAL ELECTRIC HEADLIGHT CO.

CHICAGO



0.4% gradient compensated for curvature, and the sharpest curve is eight degrees. Three cargoes, consisting altogether of 30,000 tons of steel rails, have been delivered at Port Mann, and two other cargoes, consisting of 20,000 tons of rails, are on their way to the same place, for use on the B.C. lines.

**Vancouver Island.**—Reports from Victoria state that construction has been thoroughly opened up from about a mile and a half east of Parson's Bridge to the Smoke River, about 34 miles from Victoria. The work in some places is well advanced, and good progress is being made with the heavier portions of the work. Several engineering parties are at work on the route right into Alberni, revising the location already made. The work is rather heavy between Nitinat and the shores of Alberni canal owing to the rocky character of the formation and the heavy growth of timber. (May, pg. 429.)

**Railway Rolling Stock Notes.**

W. J. P. McNeil & Co., New Glasgow, N.S., have ordered 1 flat car, 60,000 lbs. capacity, from the Canadian Car and Foundry Co.

The Canadian Bridge Co., Walkerville, Ont., has ordered 2 flat cars, 80,000 lbs. capacity, from the Canadian Car and Foundry Co.

The Hart-Otis Car Co., has ordered 16 dump cars, 60,000 lbs. capacity, for the British Columbia Electric Ry., from the Canadian Car and Foundry Co.

The Grand Trunk Pacific Ry. has received three dining cars, nos. 4003 to 4005, and five colonist cars, nos. 3018 and 3021 to 3024, from the Canadian Car and Foundry Co., Montreal.

The Dominion Government recently voted \$21,750 for additional rolling stock for the Prince Edward Island Ry., which amount, we are officially advised, is to cover one tank car and 15 Hart-Otis dump cars, which will be built in the P.E.I. Ry. shops at Charlottetown.

The Intercolonial Ry. has ordered two first class coaches and three colonist cars from the Canadian Car and Foundry Co., Montreal, and three first class coaches from the Preston Car and Coach Co., Preston, Ont. It has also received four stock cars from its Moncton shops.

Press reports state that after a study of the various types of passenger cars in use on this continent, the Austrian State Railway System has decided that the C.P.R. observation cars are the best suited for the tourist service in eastern Europe, that a contract has been placed with the C.P.R. for some of these cars to be built at the Angus shops, and that others of the same type will afterwards be built in Austria.

A Winnipeg dispatch says W. Whyte, Vice President C.P.R., has announced that crude oil is to be used for fuel for the locomotives running through the mountains. The only changes that would be necessary in order to make the locomotives suitable for oil burning would be the construction of a reservoir on the tank to hold oil instead of coal, and the application of oil burners and suitable brick work.

The Canadian Northern Ry. has ordered five consolidation locomotives from the American Locomotive Co., and four ten-wheel locomotives from the Baldwin Locomotive Co., and five 72 ft. combination passenger and baggage cars from the Preston Car and Coach Co., Preston, Ont. It is also receiving tenders for the supply of 250 box cars and 100 flat cars for the Duluth, Winnipeg and Pacific Ry.

The Intercolonial Ry. three first class coaches ordered from the Preston Car and Coach Co., Preston, Ont., will be finished in Sar Jago mahogany, inlaid, with

polished brass trimmings, and equipped with walk-over seats upholstered in plush, the smoke room seats, also. The steam heating will be the Safety Car Heating and Lighting Co.'s direct system, and the lighting will be by Pintsch gas. The car bodies will be 72½ ft. long and the car 80 ft. 5¼ ins. over all.

The Canadian Northern Ry. five combination passenger and baggage coaches ordered from the Preston Car and Coach Co., Preston, Ont., will have the interiors birch finished, left natural in the baggage end and stained mahogany in the passenger end. They will be equipped with the Canadian Gold Car Heating and Lighting Co.'s heating system, and lighted by acetylene gas. The wheels and axles will be supplied by the Canada Iron Corporation. The length of the bodies will be 72½ ft.

The C.P.R., between Apr. 14 and May 14, ordered the following rolling stock: 50 vans and ten D.10 locomotives from its Angus shops, Montreal; 15 D.10 locomotives and 10 N.3 locomotives from the Montreal Locomotive Works; two Lidgerwood ballast unloaders, from Allis-Chalmers-Bullock, Ltd., Montreal; two steel underframes for Lidgerwood ballast unloaders, from the Canadian Car and Foundry Co., Montreal; one 100 ton wrecking crane and one ballast spreader in the U.S.

The Canadian Northern Ry., between Apr. 15 and May 15, received the following additions to rolling stock: 150 box cars, three first class cars from the Canadian Car and Foundry Co., Montreal; seven cabooses, two second class cars, 80 stock cars from the Crossen Car Manufacturing Co., Cobourg, Ont.; 160 Hart-Otis cars from the Hart-Otis Car Co., Montreal; two second class and baggage cars from the Preston Car and Coach Co., Preston, Ont., and 60 box cars from the Nova Scotia Car Works, Halifax, N.S.

A gasoline electric car which was recently built for the Buffalo, Rochester and Pittsburg Rd., proceeded under its own power from the shops at Schenectady, N.Y., to its destination, over the New York Central Rd., making the trip of 225 miles without delay or trouble of any kind, and furnishing an excellent proof of its adaptability for general service. The power plant consists of a gasoline engine directly connected to an electric generator, which furnishes current for standard motors mounted upon the axles. It carries a storage tank for 100 gallons of gasoline, on which it can travel 200 miles.

The C.P.R., between Apr. 14 and May 14, received the following additions to rolling stock: five sleeping cars, 23 suburban cars, 503 box cars, 33 refrigerator cars, passenger; one pile driver, five first class passenger and smoking cars, six vans, five switching locomotives and one Mallet locomotive from its Angus shops, Montreal; 120 steel flat cars and six steel flat cars for the Esquimalt and Nanaimo Ry., two steel frames for Lidgerwood unloaders, from the Canadian Car and Foundry Co., Montreal; six D.10 locomotives from the Canadian Locomotive Co., Kingston, Ont.; and 18 tank cars, two wrecking cranes, three steam shovels, from the U.S.

Following are chief details of the six first class coaches which the G.T.R. is building at its Montreal shops, as mentioned in our last issue:—

Length over end sills	67 ft. 6 ins.
Length over buffers	75 ft. 6 ins.
Width at lower deck crown moulding	10 ft. 1 in.
Width of upper deck	6 ft. 7 ins.
Height from rail to top of lower deck crown moulding	11 ft. 5 ins.
Height from rail to top of roof at centre	14 ft. 1 in.
Height from rail to top of roof over all	14 ft. 6 ins.
Height from rail to centre of coupler	2 ft. 11 ins.
Height from rail to platform	4 ft. 3¾ ins.
Wheel base, one truck	10 ft. 6 ins.
Wheel base, total	62 ft. 1 in.
Passenger compartment, length inside	48 ft. 8 ins.
Passenger compartment, width inside	8 ft. 9 ins.

Smoking room, length inside	12 ft. 9 ins.
Smoking room, width inside	6 ft. 5 ins.
Length inside, total	66 ft. 6 ins.
Width inside, total	8 ft. 9 ins.
Inside lobby	5 ft. 10 ins.
Height from floor to under side deck rails	7 ft. 7 ins.
Weight	112,600 lbs.
Trucks	Six wheeled
Wheels	38 ins. steel tired
Journals	5 ins. by 9 ins.
Platforms	Steel
Vestibules	Standard, wide
Couplers	Tower
Seating capacity, passenger	61
Seating capacity, smoking room	12
Hoppers	Duner Co.

Following are chief dimensions and special equipment of the two first class vestibule coaches and three colonist sleeping cars, which the Intercolonial Ry. is having built by the Canadian Car and Foundry Co., Montreal:—

First Class Coaches.	
Length over platforms	80 ft. ¼ in.
Length over end sills	72 ft.
Width over side sills	9 ft. 10 in.
Wheel base of truck	10 ft. 6 in.
Interior finish	Mahogany.
Body bolsters	Double, cast steel.
Trap doors	Wood.
Lighting equipment	Pintsch gas.
Heating equipment	Standard Coupler Co.

Safety Car Htg. & Ltg. Co.'s direct steam.	
Platforms	Standard Coupler Co.
Vestibules	Pullman.
Air brakes	Westinghouse P.M. 1612.

Colonists' Sleeping Cars.	
Length over buffers	71 ft. 7¼ in.
Length over end sills	63 ft. 7 in.
Width over side sills	9 ft. 10 in.
Wheel base of truck	10 ft. 6 in.
Interior finish	Ash.
Body bolsters	Double, cast steel.
Trap doors	Wood.
Platforms	Standard Coupler Co.
Lighting equipment	Pintsch gas.
Heating equipment	Standard Coupler Co.

Safety Car Htg. & Ltg. Co.'s direct steam.	
Vestibules	Pullman.
Air brakes	Westinghouse P.M. 1612.

Trucks for each type of car:	
Style	6 wheel, 80,000 lbs. capacity, wood frame.
Wheels	Steel tires, 36 in.
Journal wedges	Drop forged, 5 by 9 in.
Axles	M.C.B. steel, 5 by 9 in.
Journal boxes	McCord & Co.
Centre bolsters	Cast steel.
Brake beams	Simplex high speed.
Brake shoes	Steel back.

**The Quebec Bridge.**

C. N. Monsarrat, heretofore Bridge Engineer for the C.P.R., was by an order in council, passed May 7, appointed Chairman of the Board of Engineers in charge of the construction of the Quebec Bridge, in succession to H. E. Vautelet, resigned. Another order in council, was passed May 16, appointing C. C. Schneider, of New York, a former President of the American Society of Civil Engineers, and for many years Chief Engineer of the American Bridge Co., to be a member of the commission in place of C. MacDonald, who had only accepted office temporarily. Ralph Modjeska, the only member of the original commission, and Mr. Schneider, will act as consulting engineers, while Mr. Monsarrat will devote his whole time to superintending the erection of the bridge.

The supplementary estimates submitted to the House of Commons, May 8, contain an item of \$550,000, of which \$250,000 is to be paid to the Province of Quebec, and \$300,000 to the city of Quebec, as refunds of the subsidies paid to the Quebec Bridge and Ry. Co., towards the erection of a highway and railway bridge.

Replying to a question as to what amounts had been expended in connection with the Quebec Bridge, in addition to the \$31,000 odd paid to the engineers who investigated as to the circumstances connected with the building and collapse of the Quebec Bridge, the Minister of Railways said in the House of Commons, recently, the net amount paid for the year ended Mar. 31, 1909, was \$35,822.41; the amount paid for the year ended Mar. 31, 1910, was \$111,788.02, and the amount for the year ended Mar. 31, 1911, was \$194,450.41; making a total of \$342,060.84. (May, pg. 435.)



## 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

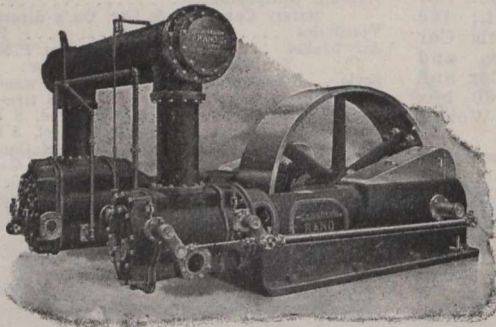
taught by this widespread use of Pay-As-You-Enter Cars is obvious. Increased Revenue, Accident Elimination and Schedule Improvement have been demonstrated in every case. Isn't all this sufficient to show that it always pays to operate the Pay-As-You-Enter Car? Why not remodel some of your present cars?

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TORONTO, CANADA, JUNE, 1911.

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## PROFESSIONAL CARDS.

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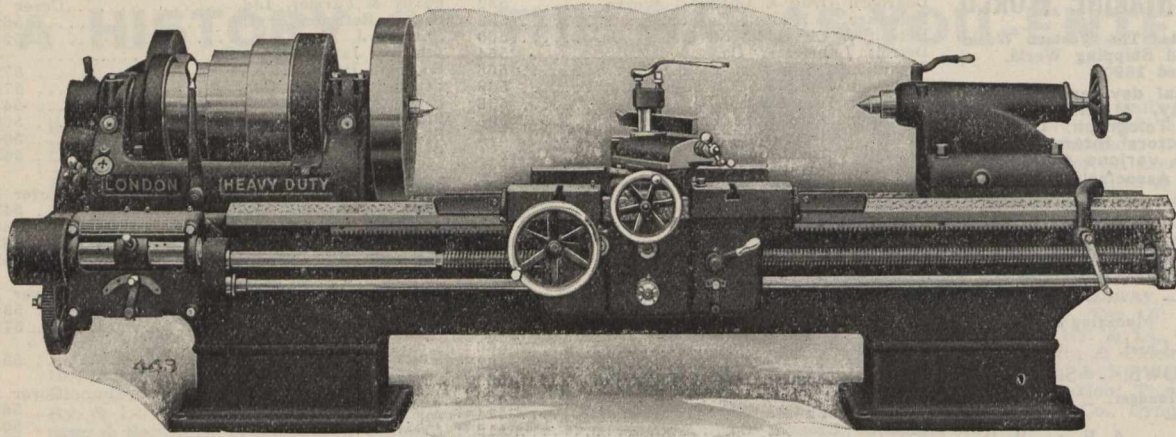
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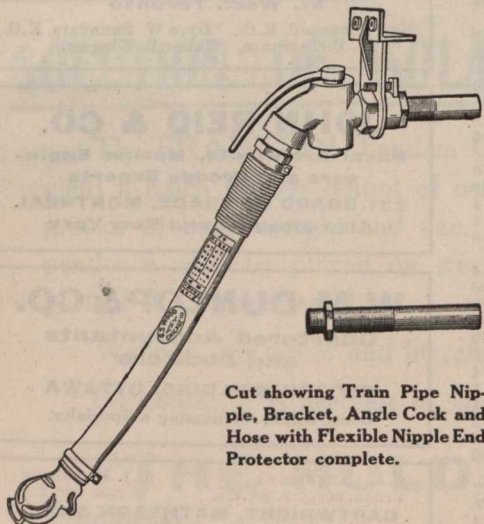
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**MAINLY ABOUT PEOPLE.**

Sir Wm. C. Van Horne, returned to Canada, from Europe, at the end of April.

Hayter, and Mrs. Reed left Montreal during May for a short stay at St. Andrews, N.B.

Mrs. Maver, wife of A. A. Maver, Master Mechanic, G.T.R., Montreal, died there, May 2.

C. M. Hays, President, G.T.R. and G.T.P.R., returned to Canada, May 18 from England.

Sir Wm. Mackenzie, President Canadian Northern Ry., left Toronto for England, early in May.

A. A. Allan, of the Allan Line, accompanied by Mrs. Allan, sailed from Montreal, for England, May 12.

Jas. Hamilton, formerly Manager, Shedden Forwarding Co., at Hamilton, Ont., died there, May 2, aged 66.

The engagement is announced of W. J. Shaughnessy, son of Sir Thos. G. Shaughnessy, to Miss M. L. Graham.

W. Kemp, chief clerk, Division Freight Agent's office, G.T.R., Portland, Me., was married in Manchester, Eng., May 12.

W. B. Boyd, Chief Electrician, Toronto Ry., has been elected a Member of the Institute of Electrical Engineers of Great Britain.

Sir Wm. C. Van Horne is reported to have purchased a picture by Rubens,

Canada, celebrated his golden wedding at Toronto recently.

W. R. Baker, Secretary, C.P.R., who returned to Canada May 5, from a short trip to England and the Continent, was received at Windsor by the King and Queen.

W. G. Ross, ex-Managing Director, Montreal St. Ry., who has been staying at Nice, France, for some time, recently won a silver medal there, in one of the weekly golf handicaps.

Lt.-Col. the Hon. J. S. Hendrie, M.P.P., Chairman of the Ontario Legislature's railway committee, and Mrs. Hendrie, have returned to Hamilton, from Europe.

W. J. Power, who is reported to have been appointed Assistant General Freight Agent, Great Northern Ry., St. Paul, Minn., was from 1891 to 1895 in the C.P.R. freight office, at London, Ont.

H. A. Parker, a former Vice President and General Manager, Chicago, Rock Island and Pacific Ry., and recently a consulting engineer of the G.T.P.R., died at Chicago, Ill., May 3.

F. C. Wilson, President of Williams & Wilson, Ltd., Montreal, who left in March for a Mediterranean trip with Mrs. and Miss Wilson, are expected to return in June.

Lord Mount Stephen has offered to give £10,000 towards the institution of a pension fund for ministers of the Church of Scotland, on condition that

adian Northern Ry., and Hon. R. Dandurand, director, Grand Trunk Pacific Ry., have been elected directors of the Dominion Steel Corporation Ltd., in the places of the late Hon. L. J. Forget, and the late H. F. Dimock.

R. J. Mackenzie, of the Canadian Northern Ry., who owns a number of race horses, is reported to have decided to dispose of the whole of them, as the railway and other interests, with which he is connected, do not allow him the time which they appear to demand.

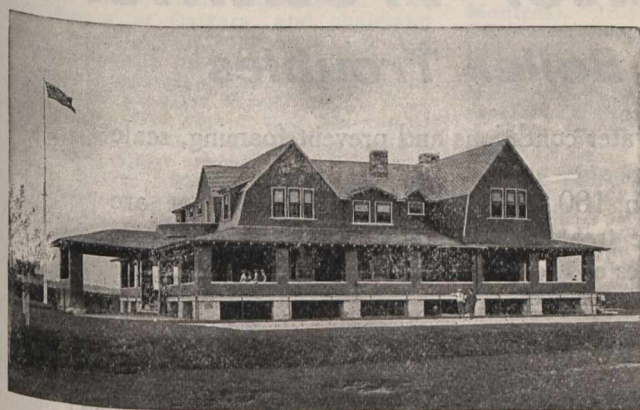
D. A. Story, General Freight Agent, Intercolonial Ry., Moncton, N.B., who has been granted an extended leave of absence, on account of ill health, and who recently returned from a trip to Bermuda, is spending a few weeks in the White Mountains.

G. A. Walker, who has been connected with the Toronto office of the C.P.R. Legal Department, for 21 years, was presented with a gold watch, May 6, by the staff there, on his leaving for Calgary, to take charge of the C.P.R. Legal Department for Alberta.

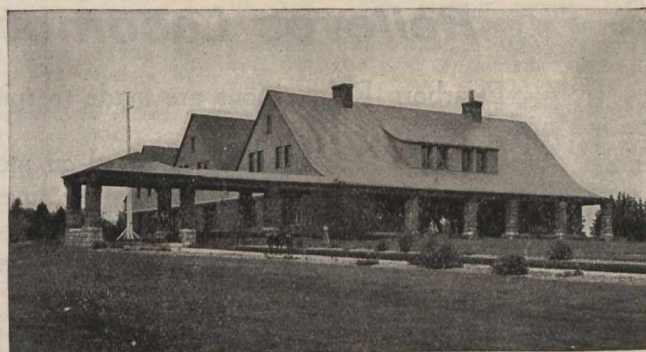
J. P. Forde, who recently resigned the position of Resident Engineer, District 1, British Columbia Division, C.P.R., has been appointed Resident Engineer, B.C. Public Works Department, with supervision over the southeastern portion of the province, and office at Revelstoke.

G. J. P. Moore, who was recently ap-

**SUMMER HOUSES AT ST. ANDREWS, N.B.**



Fort Tipperary, Sir Thos. G. Shaughnessy.



Covenhoven, Sir Wm. C. VanHorne.

for \$100,000, while in Paris, France, recently.

Mrs. MacTier, wife of A. D. MacTier, Assistant to the Vice President, C.P.R., Montreal, is spending the summer in England.

John Hargrave, who has done considerable railway contracting during the past ten years, died at Winnipeg, May 4, aged 81.

W. R. MacInnes, Freight Traffic Manager, C.P.R., Montreal, who went to England early in April, returned to Canada, May 12.

G. T. Bell, Assistant Passenger Traffic Manager, G.T.R., and G.T.P.R., has been elected a Vice President of the Canadian Club, Montreal.

The engagement is announced of Miss R. M. Elliott, daughter of W. S. Elliott, Division Freight Agent, C.P.R., North Bay, Ont., to A. H. Rosevear.

R. Marpole, General Executive Assistant, C.P.R., Vancouver, B.C., was in Montreal early in May, on business connected with the British Columbia lines.

H. S. Holt, President, Montreal Light, Heat and Power Co., has been elected a director of the C.P.R., in place of the late Hon. L. J. Forget.

A. D. Smith, who was for many years, connected with Foley, Welch and Stewart, contractors on the G.T. Pacific Ry., died at Cochrane, Ont., May 8.

John Harvie, who was the first conductor on the old Northern Railway of

there are nine other contributors of like amounts.

W. E. Fowler, ex-Master Car Builder, C.P.R., who has been in California for some time, returned to Montreal in May to take his family to California, where they will reside in future.

A. A. Allan, of the Allan Line, and President of the Shipping Federation of Canada, has been elected a director of the Merchants Bank of Canada, vice H. A. Allan, resigned on account of his residence in England.

J. J. O'Neil, whom newspaper reports speak of as Inspector of Bridges and Buildings, T. & N.O.R., North Bay, Ont., was presented with a grandfather's clock recently by a number of the local employes, on his retirement from the service.

H. Watson, heretofore Travelling Passenger Agent, C.P.R. Steamships Service, Winnipeg, Man., has been appointed General North Western Agent, Allan Line, at Minneapolis, Minn., vice O. N. Westlund, resigned to enter other business.

G. H. Shaw, General Traffic Manager, Canadian Northern Ry., Toronto, sailed from Montreal, on the s.s. Royal Edward, May 17, with Mrs. Shaw, on business connected with his department, in Great Britain. He expects to return about the middle of July.

Sir Wm. Mackenzie, President, Can-

pointed City Passenger Agent, C.P.R., at Quebec, Que., was entertained to dinner in Montreal, by a number of his associates, prior to his leaving to take up the duties of his new position, and was presented with an engraved gold watch.

M. J. Quinn, of the Canadian Northern Quebec, and Quebec and Lake St. John Rys. accounting office, Quebec, Que., was presented by the members of the staff, May 9, with an address and an oak silverware cabinet, on his leaving the service on his appointment as a civic assessor.

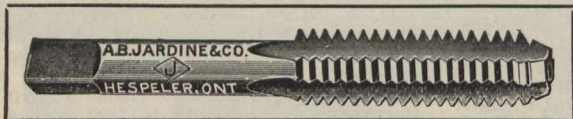
Lord Strathcona, who presided at the annual dinner of the City of London International Commercial Association, recently, was presented by the representative of the Comite Republicain, present, with a bronze trophy representing Peace, decked with the flags of England and France.

D. Rose, who has been appointed European Traffic Manager, Illinois Central, Indianapolis Southern, Yazoo and Mississippi Valley Rys., Central Ry. of Georgia, and the Ocean Steamship Co., with office in London, Eng., began his railway career in the G.T.R. Traffic Department at Montreal.

F. W. Morse, General Manager, Chicago and Alton Rd., and Toledo, St. Louis and Western Rd., and who was formerly Vice President and General Manager, Grand Trunk Pacific Ry., at Winnipeg, has been elected also Vice



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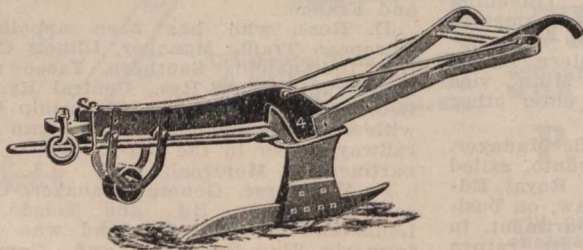
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President, succeeding G. H. Ross, resigned on account of ill health.

The British Columbia River Lumber Co., Ltd., which recently issued £600,000 first mortgage debenture stock, in London, Eng., at 89, has among its directors, Sir Wm. Mackenzie, R. M. Horne-Payne, D. B. Hanna, A. D. Davidson, A. D. McRae, R. J. Mackenzie and F. H. Phippen, of the Canadian Northern Ry. E. E. Mullins, who has been appointed Superintendent of Motive Power, Northern Ry. of Costa Rica, at Limon, graduated from the School of Practical Science, Toronto, in 1900, and was for two years in the G.T.R. shops, and for six years in the Baldwin Locomotive Works. He has been with the Northern Ry. of Costa Rica, for three years, as Mechanical Engineer.

George Black, Road Foreman of Locomotives, G.T.R., Stratford, Ont., whose paper on improvement in modern locomotives appears in this issue, was born in Lincolnshire, England, where he saw railway service as engine wiper and spare foreman on the Great Northern Railway. In Canada, he has worked as wiper, foreman and locomotive engineer, and was appointed Road Foreman of Locomotives on the G.T.R. in Oct., 1902, which position he still holds.

R. R. Jamieson, formerly General Superintendent, Western Division, C.P.R., Calgary, Alta., and who retired from railway service in 1908, to enter private business, after which he was for two years mayor of Calgary, and chairman of the commission responsible for the construction and operation of the municipal street railway, was reported to be seriously ill at New Westminster, B.C., recently. It was stated that his condition was very serious, and that he might not survive many weeks.

J. E. Berry, whose appointment as New England Agent, National Despatch-Great Eastern Line, Boston, Mass., we announced in our last issue, was born at Biddeford, Me., May 23, 1878, and entered transportation service, Mar. 1, 1901, since when he has been, to May 1, 1903, Inspector of Trunk Line Association; May 1, 1903, to Dec. 12, 1905, Eastbound Agent, National Despatch-Great Eastern Line; Dec. 12, 1905, to May 1, 1911, Travelling Freight Agent, Central Vermont Ry.

H. Bailey, whose appointment as Bridge and Building Master, District 1, Lake Superior Division, C.P.R., Sudbury, Ont., was announced in our last issue, was born at Huntsville, Ont., Sept. 2, 1879, and entered C.P.R. service, in the Bridge and Building Department, Lake Superior Division, Aug. 11, 1902, and from June 6, 1904, to June 21, 1909, was foreman of that department; June 21, 1909, to Apr. 1, 1910, shop foreman at North Bay, Ont.; Apr. 1, 1910 to Apr. 1, 1911, Assistant Bridge and Building Master, Lake Superior Division.

J. P. Daly, whose appointment as General Freight and Passenger Agent, Ottawa and New York Ry., Ottawa, was announced in our last issue, was born at Weedsport, N.Y., Oct. 15, 1871, and entered railway service, Feb. 1889, since when he has been, to Nov. 1893, freight clerk, N.Y.C. & H.R. Rd., Weedsport, N.Y.; Nov. 1893 to Aug. 1904, agent, same road and place; Aug. 1904, to Apr. 1, 1907, Contracting Freight Agent, same road, Buffalo, N.Y.; Apr. 1, 1907, to Apr. 1, 1911, chief clerk, Division Freight Agent's office, same road, Buffalo, N.Y.

A. W. Davis, who has been appointed Locomotive Foreman, G.T.R., Stratford, Ont., was born at Sittingbourne, Kent, Eng., Sept. 5, 1864, and entered G.T.R. service July 7, 1897, since when he has been, to May 1, 1903, machinist apprentice, and later foreman at Toronto, and for five years, roundhouse foreman at St. Thomas, Ont.; May 1, 1903 to May 1, 1911, Superintendent of Motive Power, Bay of Quinte Ry., assisting erecting

shop foreman, Canada Foundry Co., Toronto, and roundhouse foreman, Norfolk and Western Ry., Roanoke, Va., respectively.

O. L. Dickeson, who has been appointed Vice President, White Pass and Yukon Route, Vancouver, B.C., was born at Ottumway, Ia., Sept. 16, 1877, and entered railway service, Jan. 18, 1899, since when, he has been, to 1901, stenographer in transportation department, Chicago, Burlington and Quincy Rd.; 1901 to 1905, chief clerk, same department, same road; 1905 to 1908, Superintendent of Transportation, same road, lines west of Missouri River, Omaha, Neb.; 1908 to April 24, 1911, Special Inspector of Transportation, same road, Chicago, Ill.

W. J. Quinlan, whose appointment as District Passenger Agent, Grand Trunk Pacific Ry., Winnipeg, was announced in our last issue, was born at Montreal, Nov. 21, 1883, and entered railway service Mar. 1902, since when he has been, to June, 1903, in Baggage Department, G.T.R.; June, 1903, to July, 1904, in ticket office, Bonaventure station, Montreal; July, 1904, to May, 1907, clerk in city ticket office, G.T.R., Montreal; May, 1907, to July, 1910, Passenger Agent, G.T.P.R., Winnipeg; July, 1910, to Apr., 1911, Travelling Passenger Agent, G.T.P.R., Winnipeg.

C. N. Monsarratt, A.M. Can. Soc. C.E., who has been appointed Chairman, Quebec Bridge Commission, was born at Montreal, July 2, 1871, and entered C.P.R. service Nov. 1889, since when he has been, to June, 1896, structural draughtsman, Chief Engineer's office, Montreal; June, 1896, to Apr., 1897, Inspector of Steel Bridges, in charge of their manufacture and erection; Apr., 1897, to Dec., 1901, engaged in designing and estimating structural work, and engineer in charge of erection of many important structures in British Columbia and elsewhere; Dec., 1901, to Jan., 1903, Assistant Engineer, Montreal; Jan., 1903, to Apr., 1911, Engineer of Bridges, Montreal.

C. E. Dewey, who has been appointed General Freight Agent, Grand Trunk Pacific Ry., Winnipeg, was born at Cheshunt, Eng., Oct. 2, 1873, and entered railway service, Nov. 1888, since when he has been, to Apr. 1896, in service of G.T.R., Toronto; Apr. 1896, to Aug. 1897, chief clerk to Division Freight Agent, G.T.R., Stratford, Ont.; Aug. 1897, to Aug. 1899, chief clerk to Division Freight Agent, G.T.R., Hamilton, Ont.; Aug. 1899, to July, 1902, Division Freight Agent, G.T.R., Stratford, Ont.; July, 1902, to July, 1907, Division Freight Agent, G.T.R., Toronto; July, 1907, to Apr., 1908, Assistant General Freight Agent, G.T.R., Montreal; Apr., 1908, to May 1, 1911, General Freight Agent, Central Vermont Ry., St. Albans, Vt.

J. H. Boyle, who has been appointed Assistant Superintendent, District 4, Eastern Division, C.P.R., Ottawa, Ont., was born at Waterloo, Que., June 25, 1869, and entered C.P.R. service, Apr. 12, 1888, since when he has been, to Aug., 1890, freight brakeman; Aug., 1890, to Nov. 1903, conductor; Nov. 1903 to Sept. 15, 1906, Trainmaster District 1, Eastern Division, Farnham, Que.; Sept. 15, 1906 to Aug. 15, 1907, Trainmaster, District 3, Eastern Division, Montreal; Aug. 15, 1907 to Jan. 1, 1908, Trainmaster, District 2, Eastern Division, Smiths Falls, Ont.; Jan. 1, to May 13, 1908, Trainmaster, District 3, Eastern Division, Montreal; May 13, 1908 to Apr. 29, 1911, Assistant Superintendent, District 3, Eastern Division, Montreal.

J. O. Norrie, who has been appointed Travelling Passenger Agent, C.P.R. Atlantic Steamship Lines, Winnipeg, was born at Belfast, Ireland, Apr. 20, 1879, and entered transportation service, Jan. 22, 1894, since when he has been, to June, 1899, in various positions with the

Barrow Steam Navigation Co., Belfast, June 30, 1899, to July 3, 1901, with Thos. Cook and Son; July 3, 1901, to July 14, 1905, with Clyde Steamship Co.; July 14, 1905, to June 1, 1906, manager, J. Dunlop and Co.; on June 1, 1906, he entered C.P.R. service at Londonderry, Ireland, and remained there until the Empresses were withdrawn from Moville, after which he came to Montreal, where he has since occupied various positions, latterly that of cashier and accountant, C.P.R. Atlantic Steamship service.

D. T. Lawrence, whose appointment as General Freight Agent, Central Vermont Ry., St. Albans, Vt., was announced in our last issue, was born at Marysville, Ohio, July 20, 1871, and entered railway service, May 28, 1890, since when he has been, to Nov. 16, 1892, clerk and stenographer in General Freight and Passenger Agent's office, Central New England and Western Rd., Poughkeepsie, N.Y.; Nov. 16, 1892, to July 1, 1899, stenographer, National Despatch Line, Boston, Mass.; July 1, 1899 to May 1, 1903, New England Agent, National Despatch Line, and Agent, Great Eastern Line, Boston, Mass.; May 1, 1903 to May 1, 1911, Manager, National Despatch-Great Eastern Line, Boston, Mass.

A. C. Lytle, who has been appointed Assistant Trainmaster, District 1, Eastern Division, C.P.R., Farnham, Que., was born at Hemmingford, Que., June 6, 1864, and entered railway service Sept. 2, 1872, since when he has been, to Nov., 1879, station agent, G.T.R.; Nov., 1879, to June, 1893, in mercantile business; June, 1893, to Jan., 1902, General Freight and Passenger Agent, Orford Mountain Ry.; Sept., 1894, to Jan., 1902, also Superintendent, same road; Jan., 1902, to Jan., 1903, in mercantile business; Jan., 1903, to Mar., 1910, General Superintendent, Freight and Passenger Agent and Accountant, Orford Mountain Ry., Eastman, Que.; Mar., 1910, to May, 1911, Assistant Superintendent, Orford Sub-division, Eastern Division, C.P.R., Eastman, Que.

C. G. Bowker, who has been appointed Joint Superintendent, G.T.R. and Wabash Rd., St. Thomas, Ont., was born at Medford, N.J., Apr. 21, 1871, and entered railway service in May 1888, since when he has been, to Oct., 1890, operator, Philadelphia and Reading Rd.; Oct., 1890, to 1893, operator, New England Division, same road; 1893 to 1897 in charge of telegraph lines and electrical service, Buffalo Division, Lehigh Valley Rd., Buffalo, N.Y.; May 1900 to Feb., 1902, train dispatcher, G.T.R., London, Ont.; Feb., 1902 to Nov. 1905, train dispatcher, G.T.R., Durand Mich.; Nov., 1905, to May, 1907, Chief Train Dispatcher, G.T.R., Stratford, Ont.; May, 1907, to Sept., 1909, Trainmaster, G.T.R., Stratford, Ont.; Sept., 1909, to May 13, 1911, Assistant Superintendent, Middle Division, G.T.R., London, Ont.

G. L. McCrea, who was recently appointed Local Freight Agent, C.P.R., Vancouver, B.C., was born at Springtown, Ont., Feb. 9, 1876, and entered railway service June 25, 1895, since when he has been, to 1898, assistant to the agent, Canada Atlantic Ry., Renfrew, Ont.; 1898, to Oct., 1901, agent, Canada Atlantic Ry., between Parry Sound, Ont., and Noyan Jct., Que.; Oct., 1901, to July, 1904, operator, C.P.R., Hull, Que., operator and assistant agent, C.P.R., Renfrew, Ont.; July, 1904, to Feb., 1905, relieving agent, Western Division, C.P.R.; Feb. to Aug., 1905, agent, C.P.R., Marysville, B.C.; Aug., 1905, to Apr., 1906, agent, C.P.R., Lethbridge, Alta.; Apr. to June, 1906, at Divisional headquarters, C.P.R., Cranbrook, B.C.; Feb., 1907, to Mar., 1911, revising clerk, claims clerk, etc., consecutively, in City Freight Agent's office, C.P.R., Vancouver, B.C.



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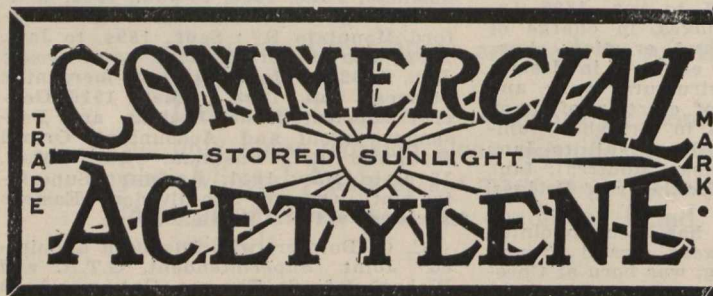
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### Canadian Northern Railway Construction, Montreal to Port Arthur.

The Dominion Parliament has passed an act, to which assent was given May 19, authorizing the Government to aid in the construction and completion of a line of railway extending from Montreal, Que., to Port Arthur, Ont. The act provides that the line to be aided shall include the mileage already in part built by the Canadian Northern Ontario Ry. and by the Canadian Northern Quebec Ry., from a point in Quebec province opposite Hawkesbury, Ont., to Rideau Jct., west of Ottawa, and the line already built from Capreol tp., to Sellwood Jct., Ont., 10.6 miles. The aid is to be given by a guarantee of principal and interest of the company's bonds, debentures or other securities to the amount of \$35,000 a mile of line, the interest being at the rate of 3½%, the principal to be payable in 50 years. These guaranteed securities are to be secured by way of first mortgage, the trustees to the deed to be approved by the Government, over all the line from Montreal to Port Arthur except in regard to the 10.6 miles to Sellwood Jct., where the mortgage shall rank after the existing mortgages; and also shall be secured upon \$2,558,500 of bonds or other securities issued under the trust deed of Aug. 24, 1909, subject to release of a portion of the deposit on account of the Sellwood Jct. 10.6 miles. The fourth section of the act provides that there shall also be a general charge, ranking after the general charge created by the trust deed of June 28, 1909, on the Hawkesbury-Niagara River line.

The line is to be built to the classification of the Heavy Standard Specifications of the Department of Railways, of 1908, with 80 lb. steel rails, the maximum curves to be of not less than 716 ft. radius with gradients of 0.5% against eastbound and of 0.6% against westbound traffic, but under special circumstances curves of 573 ft. radius and gradients of 52.80 ft. to the mile may be allowed. The Government, at the request of the company, may pay all or any portion of the interest for the first two years, and shall not enforce the payment of the same from the company until the maturity of the bonds, when the amount shall be payable with interest at the rate of 3½%. Any money paid by the Government under the guarantee shall be held to be paid in discharge of the Government's liability and not in discharge of the company's liability, and the moneys so paid shall be held to be still secured by the guaranteed securities and deed of trust, and the Government shall be subrogated in and to all the rights of the holders of guaranteed securities, the interest upon or the principal of which has been paid by the Government.

It is declared that the aid provided for is for the express purpose of encouraging transportation through Canadian channels, and that before it is granted the C.N.R. and the C.N.O.R. Companies shall enter into an agreement undertaking that all freight originating on either line or its branches not specifically routed otherwise by the shipper, shall, when destined to points in Canada, be carried over either of the lines mentioned or the railway within Canadian territory, and that the through rate on export traffic from the point of origin to the point of destination shall at no time be greater than all such traffic not otherwise routed by the shipper shall be carried to Canadian ocean ports and that the C.N.R. shall not encourage the transportation of freight by routes other than those mentioned, but shall use their utmost endeavors to secure the development of trade through Canadian channels and ocean ports. The company is to establish suitable terminals in Montreal, to interchange traffic with the Intercolonial

Ry. at Montreal upon terms to be agreed upon or to be fixed by the Board of Railway Commissioners; and in the event of the default of the company, and the consequent taking over of the line by the Government, it shall not oppose an application to the Board of Railway Commissioners for an order for the use of the terminals at Port Arthur or Montreal.

It is specified that all traffic originating on the C.N.R. and the C.N.O.R. or the branches thereof, not specifically routed, and when destined for points in Canada, shall be carried over such lines or their connections; that the through rate on export traffic shall at no time be greater via Canadian than via United States ports, and that the aid is granted upon the general condition that trade is to be developed through Canadian channels and through Canadian ocean ports.

In the course of the discussion in the House of Commons, the Minister of Railways said that except for a few miles eastward from Port Arthur, the line would serve an absolutely new country for the greater part of the distance to North Bay, and between North Bay and Ottawa would give railway connection with many points that do not now have it. The line would be approximately 1,000 miles long and most of the route had been approved by him. The only amendments of importance made in the bill in its passing through Parliament were the following: That the guarantee of bonds be on a mileage not exceeding 1,050 miles; and providing for the draft-in of the agreement as to the interchange of traffic with the Intercolonial Ry., before the guarantee is affixed to the bonds.

Sir Donald Mann is reported as having stated in an interview at Ottawa that the line will start at Montreal, taking in the summer resorts of Ste. Eustache, Carillon, and St. Andrews, crossing the Ottawa River, and running on to Ottawa, passing through L'Original, Rockland and Cumberland. Leaving Ottawa one line will cross the river at Chats Falls into Quebec, pass through Norway Bay and back into Ontario at Portage du Fort, following the Ottawa River to Pembroke, and then along the valley of the Petawawa Valley, and by a direct route to North Bay, and on to Sellwood Jct. From North Bay the line will be carried through the clay belt to near Lake Nipigon, and then work south to Port Arthur, where connection will be made with the existing line.

The first section of the line includes the line in Quebec, now under construction from near Hawkesbury to Montreal, and the line from Hawkesbury into Ottawa, which was completed a couple of years ago. The second section connects up with the existing line north of Sudbury, and will run over 10.6 miles of it, to near Sellwood Jct., from which point the final section will be run to Port Arthur.

Sir Donald Mann added at the conclusion of the interview, that it was expected to have the whole line in operation by 1915. The line will go through about 300 miles of the clay belt, and through about 100 miles of mixed farming land, and there is a lot of mineral land in the territory to be served. The line will approximate 1,000 miles against 993 miles between the same points on the C.P.R.

In a further interview, May 20, Sir Donald Mann is reported as stating that the cost, roughly speaking, of the line will be about \$50,000 a mile, but that this was mere guess work. While no time had been set for the completion of the line, the work of building it will be pushed as rapidly as possible. Tenders are to be asked for at once for the construction of a section of about 550 miles from Port Arthur, easterly to Sellwood Jct.

The question of the terminals in Montreal is being discussed extensively in the

newspapers, and while Sir Donald Mann is reported as saying that their cost will amount to about \$10,000 a mile of line, the newspaper reports are to the effect that Montreal will absorb about \$30,000,000 and Toronto \$5,000,000 or \$6,000,000.

### Government Acquisition of Branch Lines in Maritime Provinces.

Under the terms of chap. 25 of the statutes of 1910, "An act to authorize the Government of Canada to acquire, by lease, lines of railway connecting with the Government Railways," the Government Railways Managing Board, undertook, since June, 1910, the investigation of a number of lines in Quebec, New Brunswick and Nova Scotia, connecting with the Intercolonial Ry. As a result of the investigation the Minister of Railways gave notice in the House of Commons, May 17, that he would move a resolution, to be afterwards put in the form of an enactment, that the Government proceed to acquire by lease, under the terms of the act, for a period not exceeding 99 years, the following lines of railway:—

**TEMISCOUATA RY.**—From Riviere du Loup, Que., to Connors, N.B., 113 miles. This line is practically owned by the same interests which own the Quebec Central Ry.

**QUEBEC-ORIENTAL RY.**—From Matapeia to Paspébiac, Que., 100 miles. A portion of this was the old Baie des Chaleurs Ry., afterwards known as the Atlantic and Lake Superior Ry., and lately sold to the Quebec Oriental Ry., a company in affiliation with the Atlantic, Quebec and Western Ry., which was being financed by the Charing Cross Bank, London, Eng., now in liquidation.

**INTERNATIONAL RY. OF NEW BRUNSWICK.**—From Campbellton to the St. John River at St. Leonards, N.B., 113 miles. This company, of which T. Malcolm is President, has authority to build a bridge across the Restigouche River at the Quebec-New Brunswick boundary, which would enable this line to be connected up with the Quebec Oriental Ry.

**CARAQUET AND GULF SHORE RY.**—From Bathurst to Tracadie, N.B., 85 miles.

**MONCTON AND BUCTOUCHE RY.**—From Moncton to Buctouche, N.B., about 28 miles.

**NEW BRUNSWICK AND PRINCE EDWARD Island Ry.**—From Sackville to Cape Tormentine, N.B., about 30 miles.

**KENT NORTHERN RY.**—From Kent Jct. to Richibucto, N.B., about 27 miles.

**ALBERT RY.**—From Salisbury to Albert, N.B., about 45 miles.

**ELGIN AND HAVELOCK RY.**—From Elgin to Havelock, N.B., about 28 miles.

**HAMPTON AND ST. MARTINS RY.**—From Hampton to St. Martins, about 30 miles.

**YORK AND CARLETON RY.**—From Cross Creek to beyond Stanley, N.B., about 10 miles.

**VALE RY.**, the property of the Acadia Coal Co., from New Glasgow to Thornburn, N.S., six miles.

**CAPE BRETON RY.**—From Point Tupper to St. Peters, N.S., about 30 miles.

The lease in each case is to include the rolling stock of the several companies. The value of each line is to be determined by the Court of Exchequer upon report of the Engineer of the Government Railways Managing Board, and the resolutions set out the principles upon which the valuation is to be made. In the case of railways which have been sold under foreclosure, and have been reconstituted, the valuation is to be based upon the amount paid for the railway. Nothing in the resolutions is to be deemed to require the taking over of any one of the lines named, if the terms and conditions proposed by the company are not fair and reasonable. When taken over the lines will be operated as part of the Government railways.



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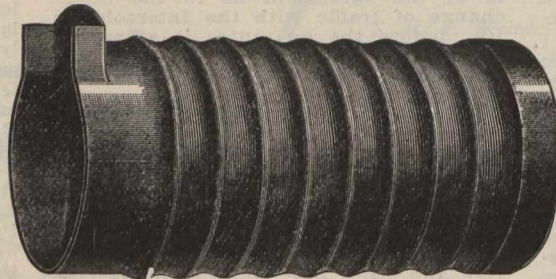
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## TRANSPORTATION APPOINTMENTS.

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.

**Alberta Ry. and Irrigation Co.**—H. C. Oswald, of the C.P.R. Secretary's office, Montreal, has been appointed also Secretary, A.R. & I. Co., vice D. Amey, who remains at the London, Eng., office as Assistant Secretary. Office, Montreal.

**Canadian Northern Quebec Ry., Quebec and Lake St. John Ry.**—J. W. Phair, has been appointed Bridge and Building Master, C.N.Q.R. and Q. & L. St. J. R., vice J. L. McDonald, resigned. Office, Joliette, Que.

**Canadian Northern Steamships Ltd.**—In our last issue it was stated that J. B. Hoseason had been appointed chief clerk to General Freight and Passenger Agent, Canadian Northern Quebec Ry., Montreal. It should have been stated that he had been appointed chief clerk, Canadian Northern Steamships Ltd., Passenger Department, Montreal, of which Guy Tombs, who is also General Freight and Passenger Agent, Canadian Northern Quebec Ry., is General Agent.

**Canadian Northern Ry.**—A. J. Mitchell, Comptroller, Mackenzie, Mann & Co., Ltd., has also been appointed Assistant to the Vice President, C.N.R. Office, Toronto.

C. Price Green, heretofore District Passenger Agent, C.N.R., and C.N.O.R., Toronto, having been transferred to the office of the Advertising Agent, C.N.R. System, the position of District Passenger Agent has been abolished.

J. Irwin, heretofore Superintendent, District 5, Saskatoon, Sask., has been appointed Superintendent, District 3, vice C. D. Fisher, transferred. Office, Dauphin, Man.

C. D. Fisher, heretofore Superintendent, District 3, Dauphin, Man., has been appointed Superintendent, District 5, vice J. Irwin, transferred. Office, Saskatoon, Sask.

G. H. Shaw, General Traffic Manager, has issued the following circular respecting organization of the Traffic Department of the C.N.R., including leased and allied lines. (The matter between brackets is inserted by us as explanatory).

**WESTERN DIVISION.**—Lines west of and including Port Arthur and Duluth (C.N.R.), Duluth, Rainy Lake and Winnipeg Railway, and Duluth, Winnipeg and Pacific Railway).

**FREIGHT DEPARTMENT.**—Geo. Stephen, General Freight Agent, Winnipeg; W. G. Manders, Assistant General Freight Agent, Winnipeg; W. E. McElmoyle, Freight Claims Agent, Winnipeg. (He was heretofore Chief Freight Claims Clerk.) J. B. Sheppard, District Freight Agent, Winnipeg. (He was heretofore Contracting Freight Agent.) C. R. Hill, District Freight Agent, Saskatoon, Sask.; J. M. Horn, District Freight Agent, Edmonton, Alta.

**PASSENGER DEPARTMENT.**—R. Creelman, General Passenger Agent, Winnipeg; Osborne Scott, Assistant General Passenger Agent, Winnipeg; Wm. Stapleton, District Passenger Agent, Saskatoon, Sask.

**EASTERN DIVISION.**—Lines east of Port Arthur in Ontario and Quebec (C.N. Ontario Ry., C.N. Quebec Ry., Quebec and Lake St. John Ry.).

**FREIGHT DEPARTMENT.**—Lines east of Port Arthur and west of Ottawa. (Canadian Northern Ontario Railway). Wm. Phillips, General Freight Agent, Toronto. (He was heretofore General Eastern Agent, C.N.R., and General Freight and Passenger Agent, C.N.O.R. He continues as General Freight and Passenger Agent, Canadian Northern Steamships); G. R. Fairhead, District

Freight Agent, Hamilton, Ont. (He was heretofore Commercial Agent).

**FREIGHT DEPARTMENT.**—Lines east of and including Ottawa. (C.N. Quebec Ry., Quebec and Lake St. John Ry.) Guy Tombs, General Freight Agent, Montreal; F. A. Shaw, District Freight Agent, Montreal. (He was heretofore commercial agent) H. McDonald, Freight Claims Agent, Quebec, Que. (He was heretofore chief freight claims clerk).

**PASSENGER DEPARTMENT.**—R. L. Fairbairn, Assistant General Passenger Agent, Toronto. (He has authority over C.N. Ontario Ry., C. N. Quebec Ry., and Quebec and Lake St. John Ry. He was heretofore District Passenger Agent at Saskatoon, Sask.). Guy Tombs, General Passenger Agent, lines east of and including Ottawa, Montreal.

**HALIFAX AND SOUTHWESTERN Railway.**—Freight and Passenger Departments. P. Mooney, General Freight and Passenger Agent, Halifax, N.S.

**COMMERCIAL AGENCIES.**—F. A. Young, Commercial Agent, 66 West Adams Street, Chicago, Ill.; R. H. Bell, Commercial Agent, 819 Oliver Building, Pittsburgh, Pa.; J. H. McKinnon, Commercial Agent, Fourth and Jackson Streets, St. Paul, Minn.

**ADVERTISING DEPARTMENT.**—All lines. Rex Crossdell, Agent, Toronto. (He was heretofore General Advertising Agent reporting to Third Vice President).

**Canadian Pacific Ry.**—H. C. Nelson, heretofore Resident Engineer, Ottawa, Ont., has been appointed Resident Engineer, District 2, Atlantic Division, vice F. M. Rutter, transferred to Toronto. Office, Woodstock, N.B.

G. J. P. Moore, heretofore chief clerk to First Assistant General Passenger Agent, Montreal, has been appointed City Passenger Agent, Quebec, Que., vice Jules Hone, Jr., resigned. He has charge of the passenger traffic of the railway and steamship lines in Quebec and Levis. Office, 46 Dalhousie St., Quebec.

C. W. Van Buren, Master Car Builder, Eastern Lines, Montreal, has resigned.

P. A. Chrysler, heretofore Assistant General Foreman, Passenger Car Repair Shop, Angus shops, Montreal, has been appointed Assistant Master Car Builder. Office, Montreal.

W. B. Way, heretofore Assistant Superintendent, District 2, Lake Superior Division, Chapeau, Ont., has been appointed Assistant Superintendent, District 3, Eastern Division, vice J. H. Boyle, transferred. Office, Montreal.

A. C. Lytle, heretofore Assistant Superintendent, Orford sub-division, Eastern Division, Eastman, Que., has been appointed Assistant Trainmaster, District 1, Eastern Division, and performs such duties as are assigned to him by the Superintendent. Office, Farnham, Que. The position of Assistant Superintendent, Orford sub-division is abolished.

J. H. Boyle, heretofore Assistant Superintendent, District 3, Eastern Division, Montreal, has been appointed Assistant Superintendent, District 4, Eastern Division, vice T. Collins, Assistant Superintendent, Districts 2 and 4, transferred to District 2. Office, Ottawa, Ont.

W. W. Benny, heretofore Resident Engineer at White River, Ont., has been appointed Resident Engineer at Ottawa, vice H. C. Nelson, transferred.

T. Collins, heretofore Assistant Superintendent, Districts 2 and 4, Eastern Division, Smiths Falls, Ont., has been appointed Assistant Superintendent, District 2, Eastern Division. Office, Smiths Falls, Ont.

L. S. Rudder, heretofore Resident Engineer, District 3, Ontario Division, Toronto, has been appointed Resident Engineer, District 1, Ontario Division, Toronto, vice M. Kelly, transferred.

F. M. Rutter, heretofore Resident Engineer at Woodstock, N.B., has been appointed Resident Engineer, District 3, Ontario Division, Toronto, vice L. S. Rudder, transferred.

P. G. Cromar, Agent and General Yardmaster, North Bay, Ont., has been appointed acting Assistant Superintendent, District 1, Lake Superior Division, North Bay, Ont., during the absence of J. H. Hughes, appointed acting Superintendent at White River, vice W. B. Cronk, on leave.

J. McCallum, heretofore Assistant Superintendent, District 2, Lake Superior Division, White River, Ont., has been appointed Assistant Superintendent, District 1, Lake Superior Division, with jurisdiction over all maintenance of way matters. Office, Sudbury, Ont.

J. H. Hughes, Assistant Superintendent, District 1, Lake Superior Division, North Bay, Ont., has been appointed acting Superintendent, District 2, Lake Superior Division, vice W. B. Cronk on leave of absence. Office, White River, Ont.

M. Kelly, heretofore Resident Engineer, District 1, Ontario Division, Toronto, has been appointed Resident Engineer, District 2, Lake Superior Division, White River, Ont.

J. O. Norrie, heretofore cashier, General Passenger Agent's office, Atlantic Steamship Lines, has been appointed Travelling Passenger Agent, C.P.R. Atlantic Steamship Lines, Winnipeg, Man., vice H. A. Watson, resigned to enter the Allan Line s.s. service.

H. Bowen, heretofore shop engineer, has been appointed Chief Draughtsman, Mechanical Department, Winnipeg shops, vice A. C. Frith, resigned.

C. Gibbons has been appointed foreman, erecting shop, Winnipeg shops.

A. Lupton, heretofore gang foreman, has been appointed general night foreman, Winnipeg shops.

R. Quinn has been appointed foreman in tender shop in charge of road equipment, Winnipeg shops.

T. C. Miller has been appointed gang foreman, Winnipeg shops, vice A. Lupton, promoted.

R. A. Gamble, heretofore Fuel Agent, Alberta Division, Calgary, has been appointed Car Service and Fuel Agent, Saskatchewan Division. Office, Moose Jaw.

J. Davey, has been appointed Locomotive Foreman at Bredenbury, Sask.

B. Wanless has been appointed shop foreman at Sutherland, Sask.

M. Newlands, heretofore Roadmaster, District 3, Alberta Division, Macleod, has been appointed Roadmaster Red Deer Subdivision, Alberta Division, vice B. Reddick, transferred.

R. B. Bennett, K.C., has been appointed Counsel for the Province of Alberta. Office, Calgary.

G. A. Walker, heretofore of the company's legal department in Toronto, has been appointed solicitor for the Province of Alberta. Office, Calgary.

B. Reddick, heretofore Roadmaster, Red Deer sub-division, Alberta division has been appointed Roadmaster, Lagan sub-division, Calgary, Alta., vice J. McGreevy, transferred.

W. K. McLeod, heretofore Locomotive Foreman, West End shops, has been appointed Locomotive Foreman, East End shops, Calgary, Alta.

J. Mullen, heretofore Shop Foreman, Medicine Hat, Alta., has been appointed Shop Foreman, East End shops, Calgary, Alta.

R. S. Teague, heretofore Night Locomotive Foreman, has been appointed Locomotive Foreman, West End round-house, Calgary, Alta., vice W. K. McLeod, transferred.

J. Doig, heretofore shop foreman, Cranbrook, B.C., has been appointed night foreman, East End shops, Calgary, Alta.



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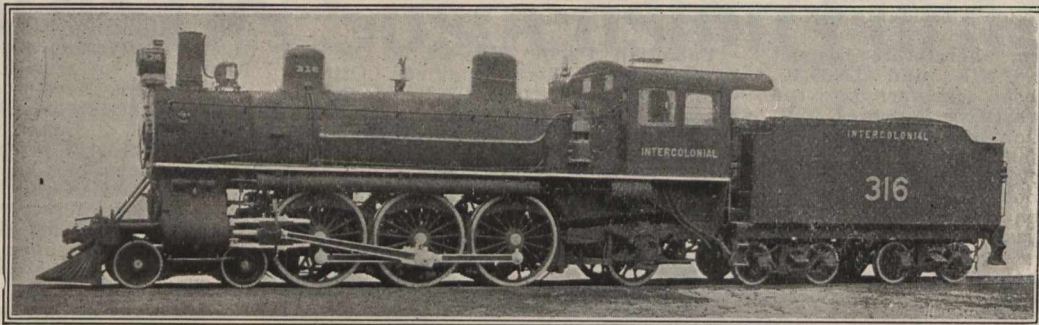
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J. McGreevy, heretofore roadmaster, Laggan sub-division, Alberta Division, Calgary, has been appointed Roadmaster, Medicine Hat sub-division, vice — Molson, resigned. Office, Medicine Hat, Alta.

D. Rushford has been appointed General Roadmaster, District 1, British Columbia Division. Office, Revelstoke. This is a new position.

J. Todd has been appointed Assistant Roadmaster, District 1, British Columbia Division. This is a new position. Office, Revelstoke.

A. J. Collinson, has been appointed Yardmaster at Revelstoke, B.C., vice W. Bell, who resumes his former position as conductor.

G. R. Steeves, heretofore employed as a fitter at Field, has been appointed Locomotive Foreman at Rogers Pass, B.C., vice T. Cassidy, who has been given employment as a fitter, at Revelstoke.

C. P. McGhee has been appointed Travelling Freight Agent, San Francisco, Cal., vice W. W. Smith, appointed District Freight Agent there.

**Grand Trunk Pacific Ry.**—The following agents have been appointed:—Pope, Man., H. R. Porter; Raymore, Sask., C. McMahon; Allan, Sask., R. E. Tully; Edson, Alta., M. F. Cullis; Hinton, Alta., E. W. Latta.

**Grand Trunk Pacific Ry., Grand Trunk Pacific Coast Steamship Co.**—C. E. Dewey, heretofore General Freight Agent, Central Vermont Ry., St. Albans, Vt., has been appointed General Freight Agent, G.T.P.R., and G.T.P. Coast Steamship Co. His jurisdiction with respect to the G.T.P.R. is Port Arthur, Ont., and west. Office, Winnipeg.

F. W. Hopper, heretofore Travelling Passenger Agent, G.T.R., Detroit, Mich., has been appointed General Agent, Passenger Department, G.T.P.R., and G.T.P. Coast Steamship Co., at San Francisco, Cal. Office, 399 Monadnock Bldg.

**Grand Trunk Ry.**—A. W. Davis has been appointed Locomotive Foreman at Stratford, Ont., vice A. J. Roberts, resigned.

W. R. Davidson, heretofore Trainmaster at Hamilton, Ont., has been appointed Trainmaster, with office at London, Ont., and C. H. Brown has been appointed Assistant Trainmaster, with office at Hamilton, Ont. Their jurisdiction extends over Districts 16, 17 and 24, District 18, Komoka to Glencoe, District 19, Glencoe to Kingscourt Jct., Port Colborne to Welland Jct., Port Robinson to Port Dalhousie, and District 20, Tilsonburg Jct. to Harrisburg. Reports and correspondence, unless otherwise ordered, are addressed to the Trainmaster at London. The office of Assistant Superintendent, previously held by C. G. Bowker, and that of Trainmaster at Hamilton, have been abolished.

C. S. Cunningham, heretofore joint Superintendent, G.T.R. and Wabash Rd., Southern Division, St. Thomas, Ont., has been appointed acting Superintendent, Western Division, vice F. W. Egan, who has been granted leave of absence on account of ill health. Office, Detroit, Mich.

The following agents have been appointed:—Aubrey, Que., F. T. Fraser; Coaticook, Que., (outside), C. G. Johnson; Lamsdowne, Ont., W. H. Hutchison; Darlington, Ont., P. Fox; Goodwood, Ont., J. G. Holman; Aurora, Ont., W. A. Masters, (acting); Milton, Ont., T. Coulter; Alliston, Ont., J. A. Cusack; Blackwell, Ont., A. M. Cusack; Stoney Point, Ont., F. W. Shearing; Belle River, Ont., F. Ouellette; Brantford, Ont., N. J. Dore; Walkerton, Ont., S. D. Croft; St. Catharines, Ont., (outside) E. O. Foster; Suspension Bridge, N.Y., A. R. Draper.

**Grand Trunk Ry.-Wabash Rd.**—C. G. Bowker, heretofore Assistant Superintendent, Middle Division, G.T.R., London, Ont., has been appointed joint Superintendent G.T.R.-Wabash Rd., vice

C. S. Cunningham, appointed acting Superintendent G.T.R. Western Division. Office, St. Thomas, Ont.

**New York Central Lines.**—J. W. Daly, heretofore Assistant Passenger Traffic Manager, Lake Shore and Michigan Southern Ry., Dunkirk, Allegheny Valley and Pittsburgh Rd., Lake Erie, Alliance and Wheeling Rd., Michigan Central Rd., Cleveland, Cincinnati, Chicago and St. Louis Ry., Cincinnati Northern Rd., Lake Erie and Western Rd., Toledo and Ohio Central Ry., Chicago, Indiana and Southern Rd. and Pittsburgh and Lake Erie Rd., Chicago, Ill., has been appointed Passenger Traffic Manager, same lines, vice W. J. Lynch, resigned to engage in other business. Office, Chicago, Ill.

**New York Central and Hudson River Rd.**—G. H. Alexander has been appointed Superintendent of Car Service, with direct charge of freight car distribution and tracing of freight, also car records, car demurrage, mileage and per diem accounts, and such other duties as may be assigned to him. Office, Grand Central Terminal, New York.

**Temiskaming and Northern Ontario Ry.**—A. J. Roberts has been appointed General Foreman, North Bay shops, Ont., vice G. Battley, acting General Foreman, who has returned to his former position as Air Brake Inspector.

Jno. Walters, heretofore chargeman, E.F. and G. E. Fauquier, National Transcontinental Ry. contractors, Cochrane, Ont., has been appointed Locomotive Foreman, T. and N.O.R., Cochrane, vice L. G. Fleming, resigned.

**White Pass and Yukon Route.**—O. L. Dickson, heretofore Special Inspector of Transportation, Chicago, Burlington and Quincy Rd., Chicago, Ill., has been appointed Vice President White Pass and Yukon Route. Office, Vancouver, B.C.

#### Recent Dominion Legislation.

A second lot of acts of the Dominion Parliament for the current session were assented to May 18, of which the following affect transportation interests:—

**ALBERT AND MONCTON RY.**—Incorporation.

**ALBERTA ELECTRIC RY.**—Incorporation.

**ALBERTA RY. AND IRRIGATION CO.**—Respecting additional lines to be built.

**ALGOMA CENTRAL AND HUDSON BAY RY.**—Extending time for construction, and granting power to build additional line.

**ALGOMA EASTERN RY.**—Changing title of Manitoulin and North Shore Ry. to the A.E.R., and extending time for building authorized lines.

**ALSEK AND YUKON RY.**—Extending time for construction.

**BRITISH COLUMBIA AND DAWSON RY.**—Incorporation.

**BRITISH COLUMBIA AND WHITE RIVER RY.**—Incorporation.

**BUFFALO, NIAGARA AND TORONTO RY.**—Extending time for construction.

**CANADIAN NORTHERN ONTARIO RY.**—Granting aid in respect of the line from Montreal to Port Arthur.

**CANADIAN PACIFIC RY.**—Extending time for construction of certain branch lines, etc.

**CARIBOO, BARKERVILLE AND WILLOW RIVER RY.**—Extending time for construction.

**CHATHAM, WALLACEBURG AND LAKE ERIE RY.**—Extending time for construction.

**GRAIN GROWERS' GRAIN CO.**—Act of incorporation, authorizing company to erect or purchase elevators.

**GRAND TRUNK RY.**—Amending act passed at present session respecting guarantee of securities of G.T. Western Ry.

**HUDSON BAY, PEACE RIVER AND PACIFIC RY.**—Incorporation.

**HURON AND ONTARIO RY.**—Extending time for construction.

**IMPERIAL STEAMSHIP CO.**—Incorporation.

**IMPERIAL TRACTION CO.**—Incorporation.

**INTERNATIONAL RY. — INTERNATIONAL Traction Railways.**—Defining ownership of certain lines.

**INTERNATIONAL WATERWAYS.**—Relating to establishment and expenses of International Joint Commission under Waterways Treaty of Jan. 11, 1909.

**JOLIETTE AND LAKE MANUAN RY.**—Extending time for construction.

**LAKE ERIE AND NORTHERN RY.**—Incorporation.

**MONTREAL PARK AND ISLAND RY.**—Extending time for construction.

**ONTARIO AND ABITIBI RY.**—Incorporation.

**ONTARIO-MICHIGAN RY.**—Incorporation.

**PACIFIC AND HUDSON BAY RY.**—Incorporation.

**PACIFIC AND PEACE RIVER RY.**—Incorporation.

**PEOPLE'S RY.**—Declaring company's undertaking to be a work for the general advantage of Canada, and authorizing building of additional lines.

**QUEBEC AND NEW BRUNSWICK RY.**—Extending time for construction.

**RAILWAY ACT.**—Amending the Railway Act.

**RAILWAYS AND CANALS.**—Amending act relating to Department of Railways and Canals.

**RICHELIEU AND ONTARIO NAVIGATION CO.**—Providing for increase in capital stock.

**ST. JOHN VALLEY RY.**—Authorizing Dominion Government to lease a certain line of railway in New Brunswick.

**SASKATOON AND HUDSON BAY RY.**—Incorporation.

**SIMCOE, GREY AND BRUCE RY.**—Incorporation.

**SONGHEES INDIAN RESERVE.**—Providing for transfer of the Songhees Indian Reserve, Victoria, B.C., in connection with railway extensions.

**STEAMSHIP SUBSIDIES.**—In relation to subsidies granted to certain lines of steamships.

**TORONTO HARBOR.**—Amending and consolidating acts.

**WATER-CARRIAGE OF GOODS.**—Amending act of 1910.

**WESTERN ALBERTA RY.**—Extending time for construction.

**WESTERN CANAL CO.**—Incorporation.

**WESTERN CENTRAL RY.**—Extending time for construction.

The first list of acts assented to appeared in our May issue, pg. 401.

**Alberta and Great Waterways Ry.**—A number of claims have been made against the Alberta Government for damages alleged to have been caused through the confiscation of the amount realized by the sale of the bonds guaranteed by the Government. The claims have been filed by the company, and by others who had been given contracts in connection with the carrying out of the company's projects. "Those of which I have knowledge," a Toronto lawyer is reported as stating, "will amount to about \$2,500,000, and there may be others."

**Albert and Moncton Ry.**—In the passing of the bill through Parliament the list of provisional directors was amended, by leaving out the names of the following:—Hon. P. McSweeney, Moncton; J. W. Domville, Rothesay; J. D. Mackenzie, London, Eng., and by adding the name of R. L. Johnston, St. John, N.B. This leaves the following as provisional directors:—F. V. Wedderburn, T. M. Robinson, R. L. Johnston, St. John; W. S. Gardner, E. Domville, Montreal; J. C. D. Mackenzie, J. E. Hawkins, London, Eng.

**Temiscouata Ry.**—Profit on operation for March, \$3,019. Aggregate profit for three months ended Mar. 30, \$1,770.



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### St. John Valley Railway.

The bill authorizing the Dominion Government to acquire by lease a line to be built along the St. John Valley under guarantees by the New Brunswick Government, and to operate it as part of the Intercolonial Ry. system, was read a third time in the House of Commons, May 4. The only amendment of moment made in the bill in passing through the House was that the Dominion Government will provide the equipment necessary for its operation. The original proposition was that the Dominion Government would lease the line when built and equipped.

An exhaustive report as to the surveys made under the direction of the New Brunswick Government by D. F. Maxwell as Chief Engineer, has been laid before the Legislature. In starting the surveys it was decided to divide the whole outlined route into the following divisions:—Grand Falls to Woodstock, about 78 miles; Woodstock to Fredericton, about 65 miles; Fredericton to St. John, about 85 miles, with alternative lines to Westfield and Welsford, some 50 miles additional; and to make surveys of such portions of the route as had not heretofore been surveyed for railway purposes. The divisions of the route between Grand Falls, Woodstock and Fredericton have been surveyed several times, the latest being in 1906-07, by G. C. Dunn, for the National Transcontinental Ry. Commissioners. The records of this survey were placed at Mr. Maxwell's disposal. The profiles of this survey show that gradients of 0.4% going east, and 0.6% going west were adhered to, and the plans show that the location followed closely the St. John River, crossing over to the western bank at Andover, and thence on through Woodstock, along the western bank to Fredericton.

Three parties of 16 men each were put in the field, the first working from Fredericton via Gagetown to St. John, and taking the alternative route to Westfield. The second party worked over the part of the route lying between Woodstock and Grand Falls, which would pass through Centreville and Lakeville, and connecting with the N.T. Ry.-St. John Valley survey referred to near the crossing of the River du Chute. The third party worked over the alternative route from Welsford, on the C.P.R., to a connection with a line run by the first party in the parish of Hampstead.

The acts referring to the aid to be granted towards the construction of the line state in one part that it is to have gradients not to exceed 0.4%, and in another part that if the line is built from Andover or other points in Victoria county, the gradients are not to exceed those of the Intercolonial Ry. Although the not exceed 1%, they were not compensated for curvature, and must be considered greater than 1% in proportion as the radii of curves vary in length. These facts were all taken into consideration in making the surveys, and in suggesting alternative routes.

The principal line surveyed was from Fredericton to St. John, in continuation of the survey made for the National Transcontinental Ry. The route as laid out starts from near the C.P.R. station in Fredericton, parallels the C.P.R. on the upper side for about two miles, crossing that line at grade at the Victoria Mills siding, then follows the St. John River, keeping where possible above the line of extreme high water flowage, through Lincoln, Oromocto, Burton Court House, Cambridge, Upper Gagetown, Gagetown proper, Hampstead, and Evandale, in Kings county. In order to locate the shortest possible line to St. John, with Courtenay Bay

as the objective point, the route crosses to the left bank of the St. John River at The Mistake, or over Graham Creek, Kingston Head, along Kingston Creek, and through Kingston to the Kennebecasis River, which is crossed near Gondola Point Ferry. The surveyed route then follows the left bank of the Kennebecasis River through Rothesay, Renforth, and Torryburn, then over the Intercolonial Ry. by an overhead crossing near Brookfield station. The line enters St. John via the Marsh Creek, to the head of Courtenay Bay, and Haymarket Square. This route is 71 miles long, but may be slightly shortened on final location, and added to the mileage of the Grand Falls-Fredericton surveys previously made, makes a total of 207 miles between Grand Falls and St. John. This is no doubt the shortest possible route for a railway that can be obtained with the continuous low gradients acquired between the two points named.

This route, as between Fredericton and St. John has the disadvantage of having two expensive bridges, one over the St. John River at Evandale, and the other over the Kennebecasis River at Gondola Point, as also the possible construction of a tunnel of about 3,500 ft. through Kingston Head. In view of the great cost of bridging the Kennebecasis River at Gondola Point, an alternative line was run from near Kingston to an easier point of crossing the river near Gondola Point, but that would add three miles to the length of the route, and involve the building of another tunnel of 3,500 ft. through Tower Hill. It would be possible to use the Intercolonial Ry. from Rothesay, which would save about eight miles of rather expensive construction.

The alternative line to Westfield starts from the above line near Evandale, crosses the Nerepis River near its mouth, and joins the C.P.R. about a mile west of Westfield Beach station, a distance of 20.5 miles. This would make the distance from Fredericton to St. John, 85 miles. This alternative route would involve the construction of a bridge 3,000 ft. long over the Nerepis River.

For the survey of another alternative line, described in the act as being "to a point on the C.P.R. between Westfield and Welsford," it was necessary to leave the river at a point below Gagetown. After making an inspection of the country it was apparent that it was impossible to obtain a 0.4 gradient on either of the two possible routes, and a 1% gradient has been adopted. The first route, while the shorter, would pass largely through woods and serve no local interests, while the other, starting from the C.P.R. near Welsford station, follows the right bank of the Nerepis River to Armstrong's Corner, then crossing to the left bank reaches the summit at a distance of 19 miles and an elevation of 420 ft., then crossing the Little River to Central Hampstead, 25 miles to a connection with a line run by the first party, making the distance from Fredericton to Welsford 67 miles.

On the Grand Falls-Woodstock end of the route, a line was run through Centreville and Lakeville, some five or six miles from the river, but a 1% gradient had to be adopted. This survey was from Woodstock to Lakeville, 16 miles, and to Centreville, a total of 23.5 miles. The work done shows that it may be possible to get a 0.4% gradient by one of two routes, but by adding two or more miles to the distance. On the one route the distance between Grand Falls and Woodstock would be 76 miles, with a summit of 560 ft.; and the other would make the distance 74 miles with a summit of 585 ft. Both these lines would make connections with the National Transcontinental Ry. survey, already referred to. This survey is fol-

lowed between Clearview and Grand Falls for 37 miles, and will be a very heavy one to construct owing to the bridges necessary over the St. John, Salmon, and other rivers. The act authorizes a connection with the National Transcontinental Ry. at some other point than Grand Falls, and it is possible that a cheaper connection might be made by running a line to New Denmark, but the distance would be increased somewhat.

Plans and profiles of all the surveys have been made, but the engineers do not make any recommendations in favor of any one of them, leaving it to the Government to decide as to what will be done. There is appended to the report an estimate of the cost of the work upon the several surveys, arranged according to the divisions already mentioned.

These estimates are as follows:—

#### WOODSTOCK-GRAND FALLS DIVISION.

Grand Falls to Clearville along line of N.T. Ry., survey, 37.5 miles, standard gradients, \$52,000 a mile, or \$1,950,178.

Clearville to Centreville, via Antworth Summit, 14 miles, Intercolonial Ry. gradients, \$36,347 a mile, or \$536,861.

Bairdsville to Centreville, via Royalton Summit, 20.75 miles, Intercolonial Ry. gradients, \$35,000 a mile, or \$717,055.

Centreville to Woodstock, via Lakeview, 23 miles, Intercolonial Ry. gradients, \$30,660 a mile, or \$705,310.

Grand Falls via Antworth Summit, Centreville and Lakeville to Woodstock, 74 miles, \$43,140 a mile, or \$3,192,349.

#### WOODSTOCK-FREDERICTON DIVISION.

From Woodstock to Fredericton via N.T.R. surveys, standard gradients, 62 miles, \$40,660 a mile, or \$2,520,965.

#### FREDERICTON-ST. JOHN DIVISION.

From Fredericton to Evandale, 48 miles, standard gradients, \$32,600 a mile, or \$1,564,183.

From Evandale, via Gondola Point to St. John, 23 miles, standard gradients, not including bridges, \$42,370 a mile, or \$974,504. Estimated cost of bridge over St. John River at Evandale, \$528,000; estimated cost of bridge over the Kennebecasis River at Gondola Point, \$1,317,625.

From Evandale, via Perry Point to St. John, 26 miles, standard gradients, including all bridges, \$75,340 a mile, or \$1,959,893.

From Evandale to Westfield, C.P.R. connection, 19.5 miles, standard gradients, \$40,000 a mile or \$780,239.

From Fredericton to Hampstead, 42 miles, standard gradients, \$31,870 a mile or \$1,338,570.

From Hampstead to Welsford, C.P.R. connection, 24 miles, Intercolonial gradients, \$30,473 a mile or \$761,835.

These different surveys show altogether two possible routes between Grand Falls and St. John, and two to a connection with the C.P.R., the estimates being:—

From Grand View via Gondola Point to St. John, including all bridges, 207 miles, \$48,830 a mile, or \$10,107,626.

From Grand Falls via Perry Point to St. John, including all bridges, 210 miles, \$43,980 a mile, or \$9,237,390.

From Grand Falls to C.P.R. connection at Westfield, 203.5 miles, \$40,000 a mile, or \$8,057,736.

From Grand Falls to C.P.R. connection at Welsford, 202 miles, \$38,000 a mile, or \$7,733,719.

In connection with the suggestion that a line be built from Andover, with Intercolonial gradients, the following estimates are submitted:—

From Andover via Centreville, Lakeville, Woodstock, Fredericton, Gagetown and Perry Point to St. John, 185 miles, including all bridges, \$40,370 a mile, or \$7,467,319.

From Andover to C.P.R. at Westfield, 178 miles, including all bridges, \$35,750 a mile, or \$6,380,558.



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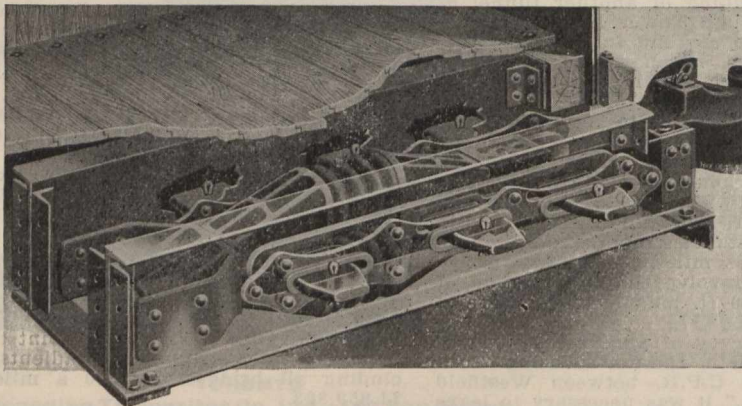
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In conclusion, the Chief Engineer, D. R. Maxwell, points out that sec. 37 of the act authorizes the Government to grant running rights over the line, to any through railway seeking a connection with St. John, L'Etang, St. Andrews, or other port in Charlotte County, and suggests that it would not be advisable to build a railway along the St. John Valley, particularly below Woodstock, except with gradients not exceeding 0.4%, as the saving of cost in building a road with the higher gradients, would not be at all proportional to the real value of the lines for transportation purposes. "The importance of the St. John valley as a route for a great railway cannot be over-estimated," he adds, "and the proposition to build a railway along it, is not merely local, but national in both scope and character, and the line is now within measurable distance, when more than one transcontinental railway, entering this valley by the national road, now building, or by what may be a shorter route across the State of Maine, and seeking an ocean terminus at St. John, must of necessity traverse some portion of this line now under consideration." (April, pg. 352d.)

#### American Civil Engineers Pocket Book

There has just been issued from the press the first edition of a new pocket book for the use of civil engineers, to which the above title has been given. The editor-in-chief is Mr. Merriman, M.A. Soc. C.E., and his staff consisted of 12 associate editors, all of whom are engineers of high standing, or engaged in lecturing on engineering subjects at different universities in the United States. In the preface the editor says a pocket book must be prepared so that facts, formulas, tables and methods can be found more quickly, than by referring to treatises, and that the information contained in it should cover the ground with great conciseness and clearness, and be thoroughly up-to-date. As a result the new pocket book which has been produced, contains nearly all the topics to which civil engineers desire most often to refer, the matter is so condensed that a very great many subjects are dealt with, but the presentation of all of them is clear and full.

The work is divided into 13 sections, containing 75 chapters, 620 articles, 495 tables, and 944 numbered figures, which the editor estimates to be equivalent to 1,200 ordinary cuts, as in many cases several similar figures are grouped together. Section one gives tables for approximate mathematical computations; section two to 11 inclusive, deal with civil engineering proper; sections 12 and 13 treat of mathematics, mechanics, physics, meteorology and weights and measures. These thirteen sections fill 1,314 pages, and they are followed by a detailed alphabetical index of 66 pages.

The volume is thoroughly well printed, on thin paper, of convenient size, is bound in morocco, and is sold at \$5 net. The publishers are John Wiley & Son, New York, who are represented in Canada by the Renouf Publishing Co., Montreal. It can be obtained through the Railway and Marine World's book department.

The G.T.R. has decided to operate a motor car service on its line between Black Rock and Port Colborne, Ont., during the summer, for the accommodation of the residents at the various beaches.

The Board of Railway Commissioners will take up at Ottawa, on June 6, the question of fixing the length of sections to be worked by section gangs on railways, and the minimum number of men to compose such gangs.

#### Too Late for Classification.

**C.P.R.—Esquimalt and Nanaimo Ry.**—On his return to Vancouver from Montreal recently, R. Marpole, General Executive Assistant, is reported to have stated that it is intended to place survey parties in the field at once north of Comox and north of Campbell River to finally revise the location along the proposed extensions. The exact final location of the extension north of Black Creek, between Courtney and Campbell River will depend a good deal on the result of the examination now being made of the mineral resources of the Quinsam Lake district.

**C.P.R.—Georgian Bay and Seaboard Ry.**—The Board of Railway Commissioners has authorized the company to connect its tracks with those of the Lindsay, Bobcaygeon and Pontypool Ry., near the junction at mileage 72.91.

**C.P.R. Second Track Work, Near Montreal.**—The company's divisional forces are building the second track between Mile End and Quebec Jct., and between South Jct. and Adirondack Jct. The first of these pieces of work is expected to be completed in June. On the second there is a new double track steel bridge under construction, the steel superstructure for which is being erected by the Dominion Bridge Co.

**Dominion Pacific Ry.**—Application is being made for the incorporation of a company with this title to build a line from the International boundary in range 23 west of the fourth meridian, northwesterly via Pincher Creek to Cardston, to the C.P.R. Crows Nest branch near Lundbreck, thence northerly and west of the Porcupine Hills to Calgary, and on to Edmonton, by a route passing west of Snake Lake, Gull Lake, and Pigeon Lake; thence generally northwesterly to Fort St. John, B.C.; with a branch line from Pincher Creek southwesterly along the South Fork of the Old Man River to the boundary of British Columbia. O. E. Culbert, Ottawa, is solicitor for applicants.

**Grand Trunk Pacific Ry.**—The Board of Railway Commissioners has authorized the company to operate trains over its line between Edmonton and Prairie Creek, Alta., with a speed limit of 15 miles an hour west of Edson to end of track.

**G.T.R. General Betterments, Etc.**—W. G. Brownlee, Manager of Transportation, is reported as stating in an interview May 20, that nothing more will be undertaken in Toronto this year beyond what has been put in hand. The plans for the Toronto viaduct are being prepared and will be filed with the Board of Railway Commissioners very soon. A roundhouse is to be built at Midland, Ont., and a good deal of betterment work will be done all over the Ontario lines. The work, however, in most cases will be of the ordinary character, without involving new construction.

**Intercolonial Ry.**—An Ottawa press dispatch states that the total income for the financial year ended Mar. 30, was \$9,863,783, and that after deducting operating expenses, and the following amounts; \$600,000 for equipment account, \$25,000 for revenue account on equipment, \$76,000 to cover cost of replacing shops destroyed by fire at Campbellton, N.B., and \$5,000 a month expenditure on new fire account, there remains a surplus of \$272,712.

**Intercolonial Ry.**—The general office accommodation at Moncton, N.B., is to be increased by the erection of an extension of the present building. It will be 139 by 57 ft., three stories with mansard roof, and will be built of red pressed brick with grey freestone trimmings. An Ottawa dispatch, May 23, says the

contract has been let to Rhodes, Curry & Co., of Amherst, N.S.

**National Transcontinental Ry.**—Replying to questions in the House of Commons May 18, the Minister of Railways said the total expenditure on the line from Quebec to Winnipeg to Feb. 28, was \$69,983,500; and the estimated amount required to complete the line was \$43,052,850 while the total expenditure on the line from Quebec to Moncton to the same date was \$26,634,800, the estimated amount required to complete it being \$5,668,550. The cost of right of way for terminals in Quebec city, and the expenditure on the Quebec Bridge are not taken into account in these figures.

**Temiskaming and Northern Ontario Ry.**—J. L. Englehart, Chairman of the T. & N.O. Ry. Commission, is reported as stating that with a view of meeting the demand for a line into the Gowganda, a short time ago he proposed to some New York capitalists that if they furnish the capital, the Commission would build the branch and operate it, turning over to the investors 62½ or 65% of the total receipts. He had not received any reply to the offer, which was the best the Government could do, as it would not be right to use Government funds to build a line which had not for its object the opening up of areas of agricultural land.

**Tobique and Campbellton Ry.**—A press report from Perth, N.B., May 17, states that an arrangement has been made by which the C.P.R. will guarantee the 5% bonds of the T. and C. R. Co. to the amount of \$15,000 a mile, in aid of the building of the line from Plaster Rock to Campbellton, N.B. Plaster Rock is the present terminus of the C.P.R. Tobique Valley line. J. E. Stewart, Andover, N.B., the principal promoter of the company, stated recently in an interview that the company would build the line giving the C.P.R. a mortgage, and that the C.P.R. would operate the line for 40% of the total receipts. The location surveys were made four years ago, and provided a route with a maximum gradient of 1.5%.

**Vancouver, Victoria and Eastern Ry. and Navigation Co.**—The Board of Railway Commissioners approved of the amended location from mileage 0 to 12, and mileage 16 to 17, from Coquihalla Summit, B.C.

W. Stapleton, District Passenger Agent, Canadian Northern Railway, Saskatoon, Sask., writes:—"I find The Railway and Marine World exceedingly useful."

The returns for the Cuba Rd., of which Sir Wm. C. VanHorne is President, for the past nine months, show a surplus of \$584,697, an increase of \$158,548 over corresponding period of previous year.

In the litigation respecting the proceeds of the guaranteed bond issue of the Alberta and Great Waterways Ry., the Provincial Government's appeal against the order joining the Canada West Construction Co. and the A. and G.W. Ry. Co., as defendants along with the Royal Bank, has been dismissed.

The Western Canada Railway Club's annual meeting was held at Winnipeg, May 8, when a paper was read by J. T. Warde, chief clerk, General Car Foreman's office, C.P.R., on the prevention and cure of hot boxes and the economy of proper and efficient oiling of rolling stock. The following officers were elected for the current year:—President, R. R. Neild, General Foreman Locomotive Shops, C.P.R.; Vice President, S. J. Hungerford, Superintendent of Rolling Stock, C.N.R.; Second Vice President, T. Duff Smith, General Fuel Agent, Grand Trunk Pacific Ry. The honorary officers and Secretary and Treasurer were re-elected.



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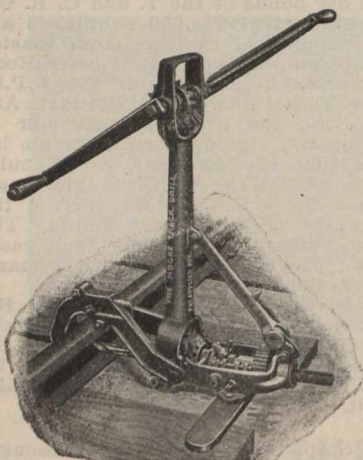
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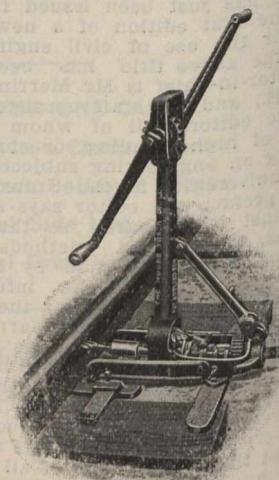
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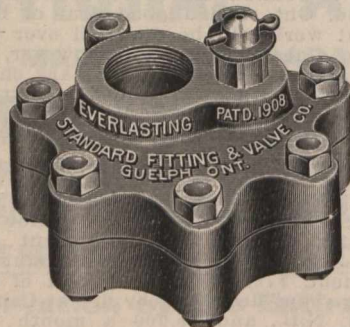
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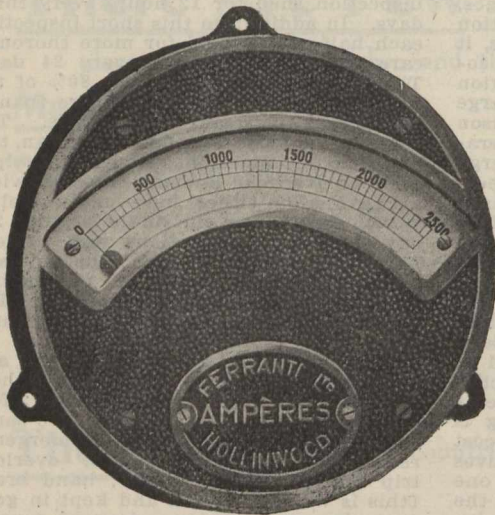
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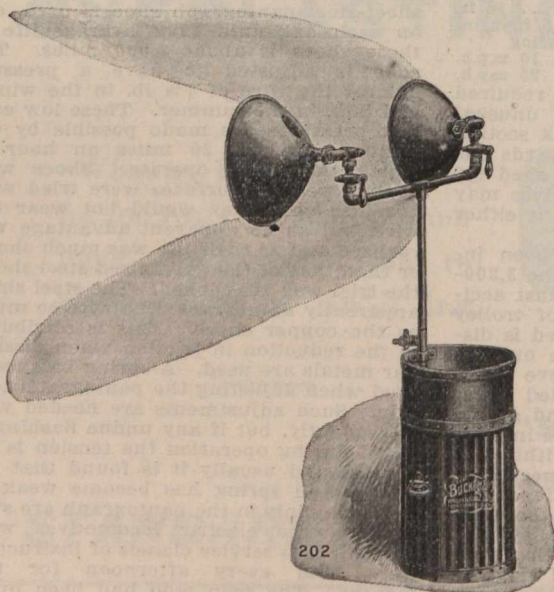
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these classes when off duty. Later when the school work was concluded the steam locomotive engineers were put in charge of the new electric locomotives and instructors rode with them. The men who formerly operated the steam locomotives and now run the electric locomotives are enthusiastic over the change, even though their rate of pay is slightly reduced by their being required to work longer hours. The locomotive crews are made up of two men, an engineer and an assistant. The assistant spends his time in looking over the electrical apparatus in the cabs of the two half-units while they are in operation, and when not thus engaged he rides in the rear half-unit. Formerly two brakemen were required for each train passing through the tunnel. The smoothness with which the trains are handled has made it safe to operate with but one brakeman.

A round trip through the tunnel, including the terminal switching when a train is handled in either direction, requires a run of about 10 miles. The freight trains are made up so as not to exceed 1,000 tons each and all cars are inspected before passage through the tunnel. This is necessary for the prevention of accidents and because the tunnel is the dividing section between two main divisions of the G.T.R., one in Canada and one in the U.S. While the freight trains stand in the yards for inspection the air-brake piping system is charged from a yard air service pipe line which extends through the tunnel and is fed by an electrically operated air pump at Sarnia. The charging, which is done before the electric locomotive couples on to the train, requires no additional layover because the train must stand in the yard to be inspected, and use is made of the yard air supply system so that the air-compressor equipment on the locomotive may be relieved of the unnecessary duty of charging a long freight train just prior to starting through the tunnel.

Under normal conditions passenger trains are hauled through the tunnel with two-unit locomotives, but one-half unit would be ample so far as pulling capacity is concerned. However, 1,000-ton freight trains are handled most frequently and as these require full locomotives, the locomotive pairs already coupled for freight service are used also to handle the passenger trains. Otherwise, if the half-units were separated, one-half would be idle on one side of the river while the other was pulling a passenger train through the tunnel. At the end of the run the halves would be available for hauling only passenger trains or freight trains below the maximum rating. Thus to simplify operation the two half-units are always operated as one locomotive. The average mileage for each locomotive is in the neighborhood of 2,700 miles per month. The maximum monthly mileage was 3,540 miles. Looking at it in another way each locomotive made an average of 10 round trips of the electric zone per day.

An indicating ammeter in each locomotive cab serves to assist in keeping the demand on the power station within a safe maximum. The locomotive engineers are required not to let the motors of one-half unit exceed a maximum of 3,500 amp. There are 17 running positions on the controllers. The first, second and third notches are only for switching, coupling up a train and other purposes where slow speeds are desired. The fourth to the twentieth notches, inclusive, are running notches and the controller can be left on any of these, according to the speed that is desired. The engineers become very adept at gauging the amount of power required when starting trains of various loads. When using the ammeter it becomes possible to accelerate the train and to notch up the controller as the current tends to drop. If a train will not start on 3,000 amp. or less per

half-unit the crew is instructed to look for trouble in the air-brake system.

One of the pairs of locomotive units is equipped with a speed indicator and recorder. A short section of one of the records from this tachometer is reproduced. By means of the speed-measuring apparatus the traveling speed of the locomotive is, at all times, graphically recorded on a roll of paper. The rate of speed is also indicated on a dial within the view of the locomotive engineer. The chief use of this device is to provide a means for preventing the over-speeding of the locomotives. Operating rules require that at no time shall the speed exceed 25 miles an hour, and as every movement of the train is permanently recorded within the box as well as indicated by a pointer the use of the device is very effective.

The principal mechanism of this speed-measuring apparatus is enclosed in a substantial iron box, the moving parts being driven from one of the main axles of the locomotive while the train is in motion, and by a clockwork for 20 minutes after the train has come to a stop. The clockwork spring is automatically wound during running by an eccentric and pitman feeder. The device which moves the paper on which the record is made automatically punches the three-minute intervals and in addition to this the record shows the rate of speed in the form of a curve. One roll of paper will last for about 375 hours of operation. During service the speed indicating and recording device requires no attention except when the train stops for longer than 20 minutes. Then the apparatus must be wound up by hand. In the instruction book suggestions are included for maintaining the speed-measuring apparatus in good condition. The suggestions conclude with the statement, "It is necessary in the engineer's own interest that the time of stoppage particularly should be registered exactly."

The trolley circuits for the entire electrified zone normally are all in one electrical section. Switches are provided at each tunnel incline for cutting off the yards from the tunnel section, if such sectionalization should ever be needed. Since operation was started there have been practically no electrical troubles or mechanical defects in the trolley circuits. At one time a high brake wheel on an especially large car grounded the trolley wire in the tunnel and opened the breaker, but the trolley wire itself was not damaged enough to interfere with the continued operation of the same train after the brake staff had been bent out of the way. Aside from three of the porcelain spool insulators that were cracked when installed, the trolley wire insulation and suspension have given no trouble.

Within the tunnel bore the messenger cables are insulated from the conductor wires. The messengers are carried on porcelain spools and the trolley wires are supported from the messengers by special wood-break hangers 3 in. square and 15 in. long. The effective insulating length of these hangers is about 5 in. If a porcelain insulator breaks down and allows the messenger cable to ground on the tunnel shell, then the wood-break hangers are put under electrical stress and the weakest one begins to smoke. As stated in the preceding paragraph three such breakages have occurred. In each instance the smoking wood insulator was noted in time so that repairs were made before service was interrupted. A tunnel patrolman is always on duty inspecting the tracks and whenever this man notes any unusual condition of the trolley wire he makes a mark on the tunnel lining for relocation and advises the motive power department by calling up from the nearest tunnel telephone.

The pantograph shoes are lubricated with a mixture of cheap grease and graphite. This lubricant distributes itself over the trolley wires and so coats

them with grease that ice has never yet formed to a thickness sufficient to interfere with regular operation.

Connections between the power station switches and the conductors and the track return in the tunnel are made through lead-covered cables for the feed line and bare copper return cables. The cables pass from the power station in underground ducts for a distance of about 150 ft. to a shaft leading down to the tunnel bore. An extra lead-covered cable, with end bells ready for quick connection at both ends, is available in case the feeder cable gets damaged.

Westinghouse gravity type lightning arresters with metal arcing points are used for protection of the trolley and messenger in the electrical zone outside of the tunnel. The metal arcing points of these arresters, which are mounted on the steel catenary bridges, afforded a convenient perch for birds and until precautionary measures were taken the breakers not infrequently were opened by short-circuits caused by the birds alighting on the arcing points. The bodies of the birds would carbonize and afford a path to ground for the current and so the fuse stick would not fall and disconnect the arrester. The passage of current to ground would thus open the circuit breaker at the power house, but sometimes the arc would be so severe before the breaker opened that the metal support of the lightning arrester would weaken and let the heavy insulator fall. The possibility of the recurrence of such lightning arrester troubles has been effectively provided against by adding a perch for the birds directly above the metal arcing points. An ordinary two-wire porcelain cleat is supported from one end only by a small metal bracket. Thus the bird uses the cleat rather than the arcing points as a perch and protection from a short-circuit is afforded.

In installing the power telephone circuit cable was used throughout and no part of the line is carried on poles. The object of this special construction was to avoid any mechanical interference with the service. The telephone service on such installations has its greatest value in times of trouble and so the circuits were installed to avoid any probability of mechanical interference. So far the telephone has given uninterrupted service. The telephone circuit used by the motive power department has instruments connected with it at the following points: One on the power station switchboard, one in the power station office, two in the tunnel, one at the top of the tunnel cut on the power house side, one in each of the two tunnel pumping stations and one each at dispatcher's office in Sarnia and the roundhouse in Sarnia. All of these instruments are bridged on the line and a ringing code is used for calling the different stations.

The generating station which supplies 3,300-volt alternating current for the electric zone is located in Port Huron on the St. Clair river front, about 150 ft. distant from the line of the tunnel. The boiler house equipment includes four 400 h.p. B. & W. sectional water-tube boilers, each having three drums 42 in. in diameter by 23 ft. 4 in. long. The tubes are arranged 21 wide in order to secure quick steaming, and the three drums provide a large hot-water storage capacity to assist in maintaining steam pressure under excessive demands. Each battery of boilers is fed by six underfeed stokers controlled by an automatic regulator. On account of the great variations in the load on this plant a steel-plate fan 11 ft. deep by 3 ft. 5 in. wide, driven by an enclosed vertical engine, is used to accelerate quickly the fires of each group of boilers. The speed of the fan engines, through the control of a regulating valve, is varied according to the steam pressure at the turbines. This forced draft apparatus, like all other parts of the plant, is in duplicate to provide for continuity of



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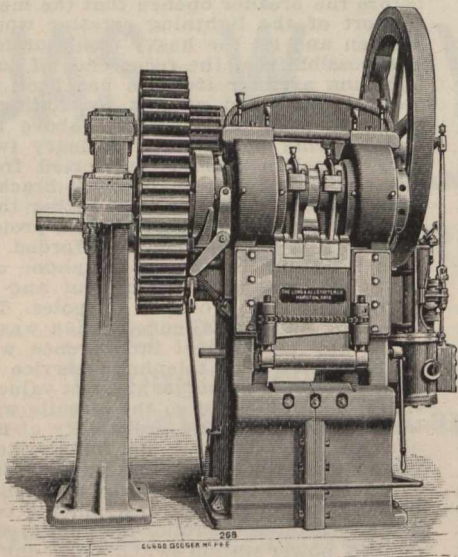
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It may be of interest to describe the operation of the train of automatic apparatus which serves under severe overload to keep the steam pressure high enough to prevent a slowing down of the turbine unit. While no trains are in the tunnel the load on the station is about 400 kw; but when a freight train passes into the tunnel and starts to climb the incline a peak load amounting to about 2,000 kw is thrown on to the turbine suddenly and unannounced. This electrical overload makes a heavy demand for steam in the turbine and it is necessary for the boilers to be forced immediately or their reserve capacity will be exhausted and the pressure fall below a good operating point.

The interaction of the various parts of the steam supply when excessive load comes into the turbine is as follows: Attached to the supply line is a pressure line extending to the valve which is located in the boiler room. The diaphragm in this valve is under two pressures. On one side is the 200-lb. pressure of the live steam main and on the other side is the 125-lb. pressure of the auxiliary main. A balance lever serves to keep the valve in equilibrium. When the heavy demand comes on the steam line to the turbine and the pressure in that line falls, the valve is thrown out of balance and the movement of it in turn opens the throttle of the engine which drives the forced draft fan. Normally a difference in pressure of 4 lb. will operate this valve. As the load on the turbine continues to draw heavily on the boilers the steam pressure lowers and the valve feeds more steam into the fan engine until the fan is driven at full speed. The increase in air fed to the boilers forces more rapid combustion.

With the coming on of the load the fuel is fed more rapidly. The stoker-control valves are driven through a system of belts operating off from the fly-wheel of the fan engine. As the fan speeds up the wheel which drives the regulating valve is accelerated and the stokers operate faster. Thus the auxiliary apparatus furnishes more air and after the load comes on the steam turbine.

When the control valve for the fan engine was first installed the high-pressure tap was made from the main steam header in the boiler house. The valve then lacked sensitiveness and so to improve the service the live steam tap was made at a point in the steam line close to the turbine throttle. Thus the valve is affected by the additional drop in pressure caused by the increased load and the resistance of the header and turbine connections. In addition to making the valve more sensitive this change in the location of the pressure tap has reduced the temperature in the valve. Formerly the valve diaphragms lasted only two or three weeks, but since the lower pressure line has been used the life of the diaphragms has been increased to three or four months.

A separately fired superheater is installed between the two batteries of boilers. This superheater has the capacity for heating 36,000 lb. of steam per hour at 200 lb. per sq. in. to a final temperature of 587 deg. Fahr., which corresponds to a superheat of 200 deg. The grates are hand-fired and the temperature of the steam is controlled automatically by means of the thermo-couple in the stream outlet of the superheater. This thermo-

couple is connected to a relay with a large solenoid which opens and closes the valves to a hydraulic piston. These valves move dampers in the air ducts and thus regulate the draft.

In practical operation the regulating devices have been found to control the temperature very closely, notwithstanding the great variation in load to which the power plant is subjected. The superheater is of especial value because on periods of normal and low load the piping and turbine are kept highly heated by it, and thus initial condensation is greatly reduced at the time of the sudden demands.

The two Westinghouse-Parsons turbo-generators which comprise the main units of this plant are designed to operate at a normal voltage of 3,300 volts with a frequency of 25 cycles per second. They are three-phase machines and by the specifications are required to furnish their full rated load of 1,250 kw from a single phase. Each of the turbine units is capable of handling the entire load and so one machine always is held in reserve. Either turbine regularly handles peaks of from 2,000 kw to 2,300 kw, single phase, which last for four or five minutes at intervals of about 15 minutes. This phase also carries the lighting load. The other phases carry the load of the pumping and auxiliary apparatus, amounting to 200 kw.

With normal traffic through the tunnel the daily output of the plant is about 10,000 kw-hours. The maximum output for one day was 12,000 kw-hours and the highest peak load, 2,750 kw. This plant has been in continuous service without any interruption in the delivery of current since starting in April, 1908. After nearly two years of operation the turbines were opened and it was hardly possible to detect any erosion, even on the low-pressure vanes; the tool marks were still plainly visible in the main bearings.

The turbine glands have a water seal and because of the necessity for maintaining the water supply continuously an emergency connection has been made with the city water service. The city water line connects with the discharge line from the house pump. The house service is under 75 lb. pressure and the city pressure varies from 35 lb. to 60 lb. A check valve in the city water connection provides against the use of city water except when the house supply pressure falls below that of the city pressure. Because of this emergency connection, the house pump can safely be stopped without endangering the water glands at the main turbine bearings.

The main generators are cooled by means of air drawn through the coils by vanes mounted on the rotor. The supply of air for this cooling service as originally installed was all taken from out of doors. An independent supply duct serves each turbine. The ducts are short and so air is taken into the turbine generator at practically the outdoor temperature. Formerly difficulty was experienced in severe weather because of frost accumulating on the air intake screens and cutting down the circulation. To provide against this condition an opening was cut through the side of each duct. Now in cold weather the turbine cooling air is taken from the basement. The circulation of this air through the turbine generator also serves to warm the building.

When the plant was first started each turbo-generator set was used on alternate

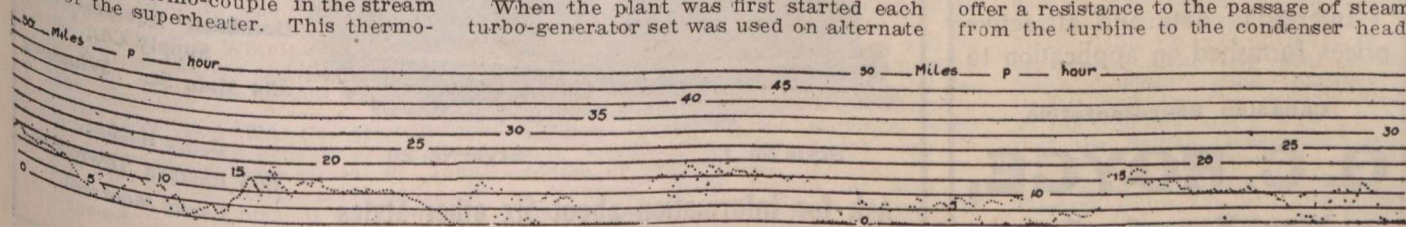
days. Now the load is shifted from one machine to the other twice a week. It is stated that the daily change was made at the beginning of operation so that the men would become familiar with the programme of starting and stopping the units. After the service was well under way, however, it was not thought desirable to shift the load so frequently because of the stresses set up in a turbine when it is warming or cooling.

A voltage regulator set is a very essential part of the regulating equipment of this plant. This set is connected with the locomotive phase of the generator only and maintains it practically constant at 3,300 volts, even though the load swings from 250 kw to 2,500 kw. When a heavy train goes through the tunnel and a maximum load comes on the railway phase, the other two phases get considerably out of balance and so, to keep the voltage on the lighting supply constant, all the lighting transformers are connected with the locomotive phase. The smaller pump motors, machine shop and other motors are all of the three-phase induction type operating directly across the 3,300-volt line, and so they are not unduly affected by the locomotive phase being out of balance with the two unloaded phases.

On account of the widely variable nature of the load it is necessary to keep an especially careful watch over the turbine governors and emergency valves. A systematic method of testing these safety devices is followed. Whenever a turbine unit is shut down, and the load is changed from one to the other twice a week, the emergency valve tripping device is given a service test. The engineer moves the governor rod so that the speed of the turbine is increased, meanwhile watching the frequency indicator and noting at what frequency the emergency valve closes. The valve is set to open at 10% above normal speed and it is thus put to an actual test twice each week.

All the circuit breakers on the station switchboard are now equipped with contact points which complete a circuit and ring an annunciator bell whenever a breaker opens. This system of announcing the opening of a breaker has made it possible for the turbine engineer also to act as switchboard attendant. If the engineer needs assistance at any time he has a push-button available on the board so that he can ring gongs located in the boiler house and in the basement where the auxiliaries are located, and call either the boiler tender or the oiler. There also is a speaking tube from the engine room to the boiler room. At night the fireman reports to the engineer every 15 minutes. If he fails to report regularly the engineer blows a whistle or sends the oiler to see whether the fireman needs assistance. A telephone instrument, connected with the electrical department line, is mounted on the power station switchboard so that the turbine engineer can quickly answer emergency calls coming from the tunnel or the yards.

A barometric jet condenser with a 30-in. inlet serves each steam turbine. A 36-in. exhaust pipe connects the exhaust outlet for the turbine with a reducing fitting attached to the condenser head. There are two bends in the connection and on low loads when the plant was first operated it was found that water accumulated in the bottom bend. This accumulation of water, unless withdrawn, would cause water-hammer as well as offer a resistance to the passage of steam from the turbine to the condenser head.



St. Clair Tunnel—Section of Record from Speed Recording Device.



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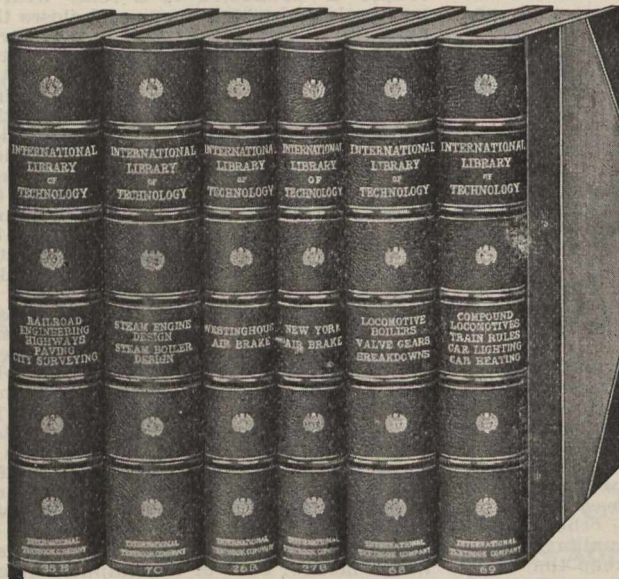
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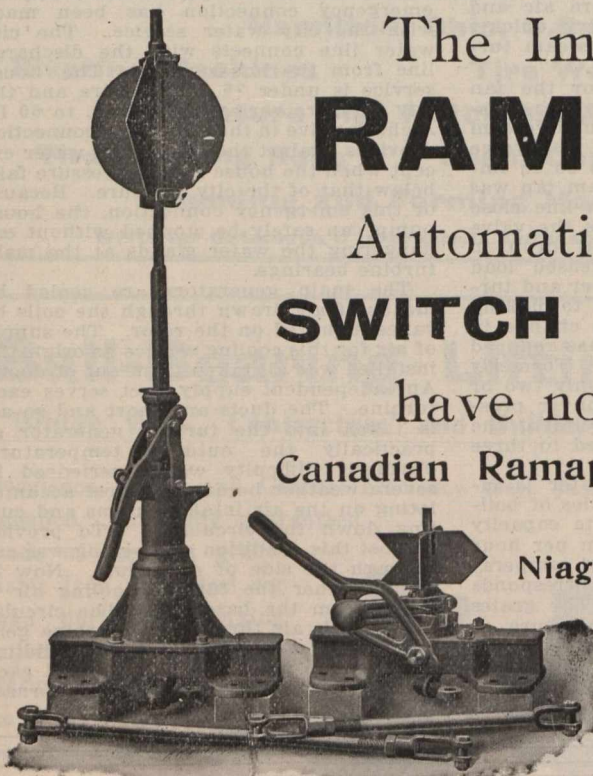
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To provide against this undesirable feature a drip tank has been installed in the basement. This tank has a capacity of about 20 gal. A pipe leads directly to the tank from the bottom of the U-shaped condenser connection. Any water forming in the condenser connection during low load drains into the storage tank in the basement. A water gauge is provided on the tank and the hot water is drawn off from the tank once an hour. Valves are placed in the drip connection so that the vacuum will not be lost while the tank is being emptied. When the water has been drawn from the tank and it is again connected with the turbine exhaust connection, there is about 3½ in. drop in the vacuum.

The power station is illuminated by eight Nernst lamps in the turbine room and two in the boiler room, in addition to nearly 200 incandescent lamps located suitably for special illumination. Lighting current is taken from the main a.c. generator. Normally the exciter unit, which is controlled by a regulator, is below voltage and so its current would not be suitable for lighting. Four oil lamps are kept burning every night for emergency use, but as yet have never been needed. The lighting circuit switch is of the double-throw type and so connected that in emergency it can be thrown over and lighting current taken from a steam-driven exciter which, though not normally used, can be started quickly.

The power station staff includes the following: First engineer, turbine engineer, oiler, fireman (and water tender), machinist, ash handler, janitor, and laborer. The night staff includes turbine engineer, oiler and water tender. The turbine engineer acts as switchboard operator. Only one of the two turbine units is ever required to carry the entire load and as the switchboard is within a few feet of the steam end of the turbine and requires practically no attention, one man can easily attend to both the turbine and the switchboard.

The operation and motive power features of the St. Clair tunnel are in charge of W. D. Hall, Superintendent of Power Plant and Electrical Equipment and Superintendent of Tunnel, who reports to W. D. Robb, Superintendent of Motive Power, G.T.R. Reporting to Mr. Hall are four subdivisions of the force: A first engineer in charge of the power house, four pumping plant attendants, roundhouse foreman and the line crew of two men who take care of the electric lighting and trolley maintenance.—Electric Railway Journal.

#### Among the Express Companies.

The Canadian Northern Ex. Co. has re-opened its office at Cap Rouge, Que., and has closed its offices at St. Augustin and St. George, Que.

F. M. Smith has been appointed route agent, Canadian Ex. Co., for lines west of Fort William, Ont., with headquarters at Winnipeg, Man.

F. R. Jelf, heretofore agent, Dominion Ex. Co., Brandon, Man., has been appointed agent at Calgary, Alta., succeeding D. G. McKenzie.

C. Dowling, heretofore chief clerk in Superintendent's office, Dominion Ex. Co., Winnipeg, has been appointed agent there, vice J. H. O'Connor, resigned to enter other business.

J. H. Connor, who has recently resigned from the position of Agent, Dominion Ex. Co., Winnipeg, was presented with an address and a number of silver and cut glass articles by the staff, May 17.

The Dominion Ex. Co. recently accomplished a quick delivery of a carload of imported stallions from St. John, N.B., to Regina, Sask., 2,230 miles, in 3 days 14 hrs., which, it is claimed, is a record.

D. G. McKenzie, agent Dominion Ex.

Co., Calgary, Alta., was entertained to dinner by a number of friends, May 2, on his leaving Calgary for a long vacation, after which, it is stated, he will be transferred to another office. He was presented with a silver service.

The Minister of Railways introduced a bill into the House of Commons, May 4, amending the Railway Act, and providing that express companies shall conform to the law now existing in respect to railways, under which statements of business and operations must be submitted to the Board of Railway Commissioners.

Through the absorption of the Alaska-Pacific Ex. Co., by Wells, Fargo and Co., the following lines will be included, with others, in the company's Alaska Yukon Division:—C.P.R. Alaska route, Victoria and Vancouver, B.C., to Skagway; Northern Navigation Co., St. Michael to Dawson, Yukon; and White Pass and Yukon Route, Skagway to White Horse, White Horse to Dawson, Caribou to Atlin, B.C.

The Western Ex. Co.'s offices and messenger service, on the Wisconsin Division of the Minneapolis, St. Paul and Sault Ste. Marie Ry., the Duluth, South Shore and Atlantic Ry., and the Mineral Range Rd., have been transferred from the Northern, to the Southern Division; St. Paul and Minneapolis will remain in the Northern Division and Duluth and Superior will be in the Southern Division. S. A. Davis is Superintendent of the Northern Division, with office at St. Paul, Minn., and C. W. Smith is Superintendent of the Southern Division, with office at Chicago, Ill.

The Dominion Ex. Co. has issued a circular to its agents, as follows:—"We are informed that where changes have been made in the classification or rates, such changes have been, in some cases, attributed to action on the part of the Railway Commission. This is wrong and agents are cautioned against making such statements. While the Railway Commission approved the classification upon application of the express companies, the companies are not prevented from making changes in the rates if they choose to do so, provided the classification or tariffs are duly amended and approved in accordance with the Railway Act; but the act requires that the classification and tariffs that are in effect must be strictly adhered to, and if customers request special concessions contrary to the tariffs filed they should be informed that the law will not permit it."

#### Grain Elevator Notes.

The Western Canada Flour Mills Co.'s elevator at Gilbert Plains, Man., with about 11,000 bushels of grain, and an adjacent flour house, were burned to the ground May 4.

The Saskatchewan Co-Operative Elevator Co., recently established by the Saskatchewan Government, received, to the end of April, 90 applications regarding elevators, as provided in the act. The act allows a Government loan of 85% of the cost of construction for any local elevator, the balance being paid by the applicants, who form a local company, the loan being paid out of profits.

It is reported in Winnipeg that the vacancy on the Manitoba Elevator Commission, caused by the resignation of D. B. MacLennan, will not be filled for the present. No additional elevators will be purchased this year. The commission will shortly call for tenders for the remodelling of a number of elevators in different parts of the province, plans and specifications for which are in course of preparation.

Montreal daily papers of May 10 stated that the Harbor Commissioners had commenced to build a grain storage elevator with a capacity of 500,000 bush.

on Windmill Point. This is incorrect. The elevator which is to be built at Windmill Point is for the G.T.R., and will be operated by the Montreal Warehousing Co., a subsidiary of the G.T.R., in connection with the existing G.T.R. elevator there, as announced in our May issue.

Dominion Flour Mills, Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$1,500,000, and office at Montreal, to carry on a general grain and flour business, and in connection therewith to build, own and operate steam and other vessels, elevators and other similar facilities. The incorporators are C. G. Greenshields, E. Languedoc, E. R. Parkins, W. Taylor and R. Brodeur, Montreal.

Press reports from Montreal state that an arrangement for the consolidation of the International Milling Co. and the Canadian Cereal and Milling Co. has been arrived at, and that a holding company will be formed, under the name of the International Milling Co. of Canada, with an authorized capital of \$3,500,000 in 7% cumulative preference stock, and \$2,500,000 in common stock, of which \$2,500,000 and \$1,500,000 respectively, will be issued now, to acquire the shares of the two companies. In addition, there will be a bond issue of \$2,000,000. It is also reported that, in addition to the enlargement of the International elevator at Moose Jaw, Sask., a line of elevators will be built throughout the northwest.

#### Telegraph and Cable Matters.

A. E. Starr, of the C.P.R. Telegraph Department, Victoria, B.C., has been appointed manager, C.P.R. Telegraph office at Vancouver, succeeding W. J. Christie, resigned.

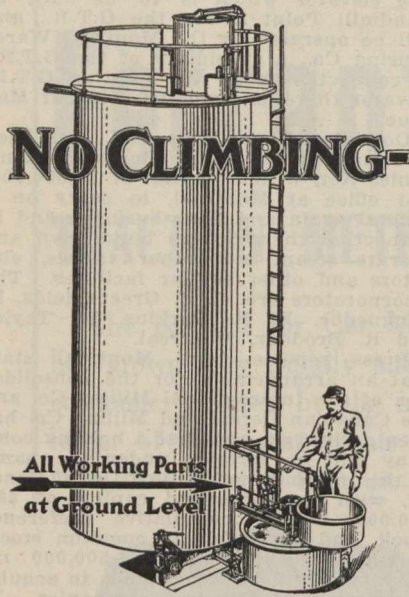
At the Order of Railway Telegraphers convention in Toronto, May 9, eight delegates were appointed to interview the C.P.R. management regarding a general increase of salary, improvements for all operators, and changes in the working rules.

The Dominion Parliament has passed votes for the Government telegraph lines in the west, as follows:—Athabasca Landing, Peace River Landing line extension to Grande Prairie, \$22,500; Moose Jaw, Wood Mountain line, renewals and reconstruction, \$18,500; Northwest lines, shifting of line from farm lands to establish roadway, \$5,000; telegraph line from North Battleford to Isle la Passe, \$37,500; total, \$83,500.

Work was resumed early in May on the erection of the Government telegraph line from Kitsumkalum to Stewart, B.C., 150 miles, and it is expected to have it ready for operation early in July. This is a branch from the Prince Rupert line, which is, itself, a branch from the direct line between Ashcroft and Dawson. Gangs are stringing wire from Lava Lake and Alice Arm to the Naas River. The work was commenced last year, and was about half completed when it was suspended for the winter.

The British Postmaster General, in the House of Commons, May 4, in response to questions regarding the control of the cable service between Great Britain and America, said that negotiations were being completed whereby the control of the Anglo-American Co.'s business will pass to the Western Union Co., but he was not aware that the Direct United States Cable Co. was included in the arrangement. The new deal would not make communication between Great Britain and America entirely dependent on the combine, and it was quite certain that the British Government will control the rates, for British protection. It is reported that under the agreement the Western Union Co. will guarantee 3% on the ordinary stock, and 1½% on the deferred stock of the Anglo-American Co.





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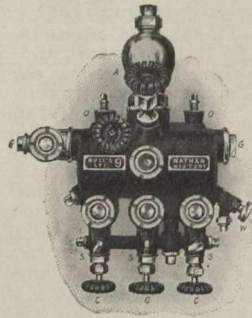
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It costs less than half as much as Titanium Alloy without carbon—its melting point is a great deal lower—it is more efficient in its purifying action. These statements are borne out by the experience of foundrymen everywhere—thousands of tons of Titanium Alloy with carbon have been and will be used.

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ASSISTANT SECRETARY, Aubrey Acton Burrows, Secretary and Business Manager Railway and Marine World.

OFFICIAL ORGAN, THE RAILWAY AND MARINE WORLD.

## A System of Accounting for Track Construction Expenditures.

By H. F. Smith, Comptroller Montreal Street Railway,

In explaining the system in use by the Montreal St. Ry. in recording expenditures made for track construction and renewals of track, it is with the hope that it may prove of sufficient interest to other companies, to promote discussion and criticism that may result in the bringing out of some ideas that will help in perfecting a system of records for this class of work.

It has been my experience that it is not a simple task to get an accurate cost of each job when a number of pieces of work are under way at the same time. To get the labor cost of course is simple. The difficulty is with the material.

The predominating idea of the engineering department being naturally to get the work done as well and expeditiously as possible, any system of records for this class of work, to be effective, must be simple and work automatically, and be of a nature easily understood by the outside staff of the construction department. One of the difficulties experienced by the accounting department when material is requisitioned out of stores for a designated piece of work is that when the occasion arises that the material in question is diverted to another piece of work, the system must be such that it will detect this, should those immediately concerned in the transaction fail to see that the requisition is properly altered.

Again, where two pieces of work are under way on streets in close proximity to one another and the foreman of one job finds he has run short of, or has not received certain material that he needs at once, and the foreman of the other has more than he requires for immediate use, more or less borrowing would likely result, and in a great many cases, material would not be returned. This means that one job would be over-charged and the other shortcharged, with the value of the material not returned. I am not sure whether this is entirely overcome yet, but the system introduced took into consideration these points among others when it was put into force.

When it has been decided by the management that a piece of track is to be renewed or a new line constructed, the engineering department issues a request number on forms 1 or 1A, according to the nature of the work. An estimate of what the work should cost is given in up his estimate the engineer fills in also form 2, which gives the total quantities of the different classes of material re-

quired for the work, and forwards same to the storekeeper, as his authorization to deliver material in such quantities as are requisitioned for from time to time, as the work progresses, up to the amount advised. The storekeeper keeps this form on file and as each requisition is filled, marks the quantity supplied opposite the quantity authorized. This keeps him always advised as to what further quantities he can deliver. Should it so happen that the quantity of material estimated is short of actual requirements, the engineering department is notified by the storekeeper as soon as he receives a requisition for any class of material in excess of the amount authorized, and he must receive a written order from the Chief Engineer before the requisition can be filled. As the engineer is called upon to explain the reason when estimates and actual costs do not bear a fair relation to one another, this system gives him an opportunity to look into matters while the work is in progress, and ascertain if the fault is with his estimates, if any material has been supplied and transferred to another job, or just what the reason may be. Of course, if the costs are much under the estimates, his attention would probably not be drawn to the fact until the work was completed, when a detailed statement of the material charged, compared with the estimate, would be put before him.

I do not think it is necessary to describe at any length the form of requisition for material or the method of keeping time. The requisition form reproduced herewith is self-explanatory. These forms are signed by the Superintendent of Construction and forwarded to stores as material is required.

We have also in use a system of transfer slips covering the transfer of charged out material from one job to another, which are made out in triplicate by the foreman or checker, as the case may be, the carbon copy remains in the book and the other two copies go with the material, and are signed by the foreman or checker receiving same, and forwarded to the Superintendent of Construction, who initials same, keeping one copy and forwarding the other to the stores department. The storekeeper prices and extends same and forwards a summary to the accounting office at stated intervals when adjusting entries are made.

The time is taken by timekeepers, who visit each gang twice daily, and check up the men. They also make up a daily report, showing the amount expended on each job, a copy of which is forwarded to the Construction Department.

About the 15th of each month a letter is sent to the Chief Engineer advising the amount spent on each work order up to the end of the previous month, together with the estimated cost of the work. This keeps him in touch monthly with the amount he has spent, and by comparing with his estimates shows him how much margin he has left.

## MONTREAL STREET RAILWAY COMPANY. TRACK RENEWALS.

W. O. No. ... Track Appropriation No. ....  
 W. O. No. ... Electrical ..... 19.  
 To Comptroller:  
 Kindly issue work order for renewing ...  
 miles track on ..... St. From  
 ..... St. to ..... St. (paved  
 macadam) Single or Double track .....  
 Presently laid with ..... lb. (girder  
 "T") Rail. To be replaced with ..... lb.  
 ..... ft. (Girder "T") Rail.

## ESTIMATED COST TRACK.

Labor ..... \$.....  
 Intersections .....  
 Rails ..... tons .....  
 Joints, Bolts, Spikes .....  
 Ties .....  
 Concrete Paving .....  
 Miscellaneous .....  
 Total, \$.....  
 Less old material released .....  
 Total, \$.....

## Betterment Track

## ESTIMATED COST ELECTRICAL.

Labor ..... \$.....  
 Cable at .....  
 Bonds at .....  
 Miscellaneous .....  
 Total, \$.....  
 Less old material released .....  
 Betterment Electrical .....  
 \$.....

Total estimated cost track and Electrical \$.....  
 Total betterment track and electrical ..... \$.....

Chief Engineer.

## FORM 2—

## MONTREAL STREET RAILWAY COMPANY. TRACK CONSTRUCTION.

W. O. No. .... Appropriation No. ....  
 To Comptroller: ..... 191  
 Kindly issue work order for constructing ...  
 miles track on ..... St., from  
 St. to ..... St. Single or double  
 Length and weight of rail to be used ...  
 lb. .... ft.

## ESTIMATED COST:

Labor ..... \$.....  
 Intersections .....  
 Rails, ..... tons .....  
 Joints, bolts, spikes .....  
 Ties .....  
 Concrete .....  
 Paving .....  
 Miscellaneous .....  
 Total, \$.....

Chief Engineer.

## FORM 3—

## MONTREAL STREET RAILWAY COMPANY.

Work order  
 Track .....  
 Elect. .... 19..

The undermentioned material will be required in connection with track (renewal construction) ..... to be delivered on the work in quantities as required. Under no consideration should these quantities be exceeded without written order from Chief Engineer.

Intersection .....  
 Rails .....  
 Ties .....  
 Spikes .....  
 Joint plates .....  
 Joint plates (special) .....  
 Bolts .....  
 Tie rods .....  
 Cement .....  
 Sand .....  
 Stone .....  
 Pitch .....  
 Tar .....  
 Washers .....  
 Cable .....  
 Bonds .....  
 Rail braces .....  
 Chief Engineer.

The electric freight locomotive which the Windsor, Essex and Lake Shore Rapid Ry. is having built by the Preston Car and Coach Co., Preston, Ont., will be mounted on Baldwin trucks, and fitted with two baggage doors on each side and motorman's cab at each end. The interior will be fitted with ash, and the exterior painted. The car will be 54 ft. long over all, 9 ft. wide, and the bottom framing will be of structural steel throughout, the side sills being 10 ins. channels, and centre and intermediate sills 8 ins. I beams.



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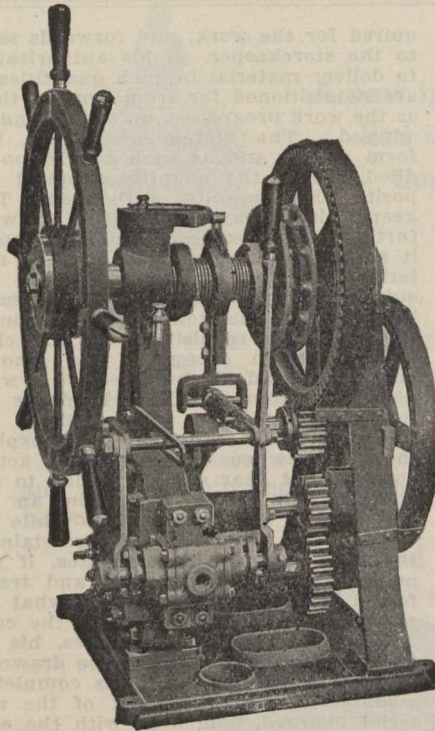
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**Projects, Construction, Betterments, Etc.**

**Alberta Electric Ry.**—A press report from Calgary, Alta., May 12, states that the first portion of the line to be built will extend from Calgary to Banff, about 70 miles, and that it is expected to have in operation by the end of 1912. (May, pg. 453.)

**Brandon, Man.**—The report of Mr. Farquharson with reference to the construction of a street railway in Brandon is under consideration by the city council. The report suggests the building of three lines at once, aggregating 7.7 miles, at a cost of \$140,000, exclusive of overhead work, rolling stock and power. The lay-out of the line would permit of extensions as the needs arose. (May, pg. 453.)

**British Columbia Electric Ry.**—A letter was received by the Vancouver city council, from the General Manager, May 8, stating that the directors in London, Eng., had decided to withdraw from all negotiations for a new agreement, and to work on present franchises until their expiry. A tentative agreement had been drawn up, but on Feb. 13, the council put forward additional conditions which the directors could not agree to, hence the withdrawal. The company, added the General Manager, had invested in actual cash in their various undertakings in the province \$21,826,086, on which there was paid last year 3.7% dividends. In connection with this matter the Vancouver Board of Trade has appointed a special committee to investigate the various franchises and agreements with the company, and report thereon.

The engineer of the South Vancouver municipality has been instructed to prepare profiles of certain streets in order that the company may prepare plans for the car line extensions. A deputation has been appointed by the ratepayers to urge upon the company the desirability of extending the lines along the Westminster road.

The Richmond municipal council was informed May 9, that plans were being prepared for building a second track on the line to Eburne, and that the work would be undertaken in a short time. The traffic would not warrant the building of a second track on the line from Eburne to Brighouse. The Point Grey municipal council has under consideration an application to the company to build a line from Trafalgar St. west to Alma road and to connect with Tenth Ave., for which purpose the council had widened the street to 86 ft. The question of the validity of the company's franchise in Burnaby tp. is being raised, and the council has been notified that the company will defend its status in the courts if necessary. The company's officials are considering the desirability of extending the Chilliwack line through to the Steamboat Mountain goldfields. The extension would be 60 miles, and would open up a large area of fertile land.

The company has purchased over six acres of land on the Burnside road, Victoria, for the purpose of providing a storage yard to be used in connection with the suburban line to the Saanich district. The route for this line has been cleared for the first 12 miles, and two grading gangs are at work. It is expected that the line from Victoria to Deep Cove will be in operation by the end of 1912. (May, pg. 453.)

**Buffalo, Niagara and Toronto Ry.**—The Dominion Parliament has revived and confirmed the powers conferred by the company's act of incorporation, chap. 67 of the statutes of 1906; extending the time fixed for the construction of the lines authorized to be built, and making a slight change in the location of the starting point of the line, near Niagara-on-the-Lake. (Mar., pg. 257.)

**Calgary Municipal St. Ry.**—Progress is being made with the extension of the municipally owned electric railway in Calgary, Alta., and it was expected to have the one to the general hospital ready for traffic by May 30. Work has been started on the suburban extensions, and a proposition is under consideration for the building of a six mile line to connect with the municipal lines. This line will probably be built by the council for the landowners interested. (May, pg. 453.)

**Coteau Power Co.**—A press report states that arrangements have been completed for the building of an electric railway from Vernon to Lumby, B.C. A. E. Ashcroft, C.E., Vernon, B.C., is one of the leading men in the company. This is a 20 mile line and the power house will be located at Shuswap Falls. Power will also be furnished for lighting purposes.

We are advised that matters in connection with the arrangements for starting work on the company's proposed power scheme, which includes an electric railway at Vernon, B.C., are progressing favorably. It is believed that a start will be made this summer on the power plant. (Apr., pg. 399.)

**Chatham, Wallaceburg and Lake Erie Ry.**—The Dominion Parliament has granted the company authority to build the following additional lines of railway: From a point on the main line to Blenheim and Rondeau Harbor; from Wallaceburg to Dresden, Ridgetown and Erie Eau Park; from North Dresden to Petrolia and Sarnia; to issue bonds for \$20,000 a mile in respect of such lines, and granting an extension of time for the construction of previously authorized lines.

A press report states that it is expected to let contracts at an early date for building a spur line and freight sheds and the making of connections with the G.T.R. at Chatham, Ont. (Mar., pg. 257.)

**Dartmouth and Cow Bay Electric Ry.**—The Nova Scotia Legislature has incorporated a company with this title to build an electric railway from Dartmouth to Cow Bay, N.S. A. C. Pyke and R. Stanford, are among the provisional directors.

**Development Co. of Canada.**—The Quebec Legislature has incorporated a company with this title for the purposes named in the application. (April, pg. 365.)

**Greenway-Phoenix Tramways Co.**—The British Columbia Legislature has incorporated a company with this title to take over the franchises, etc., of the Greenway-Phoenix Tramway Co., incorporated under the Tramway Company Act, and to build and operate tramway lines. The provisional directors are:—T. A. Woodruff, Chicago, Ill.; D. McIntosh, I. H. Hallett, Greenwood, B.C. (Mar., pg. 257.)

**Grouse Mountain Scenic Incline Ry.**—It is said that construction will be started early in June on this projected railway, and that the work will be done in three sections, the first consisting of 1.5 miles of track leaving Capilano View, and extending easterly to the incline or cable section, which will go up the side of the mountain for 1.5 miles, with a rise of 2,000 ft., to a power house situated in D.L. 1526. The third section of the line will skirt the crest of the mountain to the summit, where there will be gardens and an hotel. The general plan is to construct a two-car, three-rail line from end to end. The timbers on which the line will be built are to be anchored to solid rock and safety will be assured by the employment of the most modern devices. Section one of the line will be provided with the ordinary type of electric car. Section two, the incline, will be a cable line, pro-

vided with two observation cars, each of which will seat about 60 passengers. Section three will be operated with the ordinary electric cars. According to present plans the power will be obtained from the British Columbia Electric Ry. It is expected that the line will be completed and in operation next year. (Apr., pg. 319.)

**Hamilton to Galt, Ont.**—Surveys were being made, it was reported May 17, for the Dominion Power and Transmission Co., which owns all the electric railways centreing in Hamilton, for the building of an electric railway to Galt. It is stated that the Hamilton and Brantford Ry. will be used as far as Langford, the new line branching off thence to Rockton and Galt. General Manager Hawkins is quoted as stating that the company had this line surveyed and was considering its construction. Local reports state that no portion of the right of way has been purchased, and that the line may be extended so as to be connected with the projected Hamilton, Waterloo and Guelph Ry., thus making it possible to give a long round trip.

Other press reports state that a Toronto syndicate has prepared plans for a line to serve Hamilton, Galt and Guelph, and that F. L. Sommerville, formerly G.T.R. Resident Engineer at Toronto, was negotiating with interested companies with a view of securing a right of way into Hamilton.

**Huron and Ontario Ry.**—The Dominion Parliament has extended the time within which the company may build its projected lines. (Jan., pg. 71.)

**Imperial Traction Co.**—The Dominion Parliament has incorporated a company with this title, to build an extensive system of electric railways from Hamilton, westerly to Guelph, Stratford, London and other points in Western Ontario. (Feb., pg. 167.)

**International Traction Railways—International Ry.**—The Dominion Parliament has passed an act respecting the taking over of the lines, etc., of the International Ry. in Canada, by the International Traction Railways. (May, pg. 453.)

**Lake Erie and Northern Ry.**—The Dominion Parliament has incorporated a company with this title to build a railway from Port Dover to Galt, and Ayr, Ont. (Mar., pg. 257.)

**London and Lake Erie Ry. and Transportation Co.**—Application is being made to build a spur to connect the St. Thomas Street Ry. near Balaclava St. with the Michigan Central Rd., and is under the consideration of a special committee. The company has running rights over the municipally owned street railway, but proposes to build the spur itself. (Jan., pg. 71.)

**London and Northwestern Ry. of Canada.**—The Dominion Parliament has passed an act extending the time within which the line, authorized to be constructed by chap. 100 of the statutes of 1909, may be built, and adding the words "of Canada," to the title, so that when bonds are being placed on the British market, the company may not be confused with a similarly named British steam railway. (April, pg. 365.)

**London Street Ry.**—New switches and diamonds were put in at the corner of Richmond and Dundas streets, April 30. (May, pg. 453.)

**Lunenburg Electric Ry.**—The Nova Scotia Legislature has incorporated a company to build an electric railway within the municipality of Lunenburg, N.S. The municipality has been authorized to contribute towards the payment of damages for right of way required by the L.E. Ry., within the municipality.

**Manitoba Radial Ry.**—The Dominion Parliament has extended the time within which the company may construct the lines authorized to be built by chap. 105 of the statutes of 1907.





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**Moncton Tramways, Electricity and Gas Co.**—The transfer of the electric light plant to the company, as a part of the contract with the city for the building of an electric street railway, was made by the Moncton, N.B., city council, Mar. 26. (April, pg. 365.)

**Montreal and South Western Ry. and Power Co.**—The Quebec Legislature has incorporated a company with this title, to build a steam or electric railway from Caughnawaga southwesterly to the International boundary at St. Francis, Que., with authority to develop water powers, to generate and distribute electrical energy. The title in the original application was Montreal and Southern Ry., and Power Co., but the Legislature made the change so as to prevent confusion with existing companies having somewhat similar titles. (See Montreal and Southern Ry. and Power Co., Feb., pg. 113.)

**Elevated Railway for Montreal.**—At a meeting of the Montreal city council, May 15, the Board of Control was asked to submit a report on the advisability of having an elevated railway from one end of Craig St. to the other. It is estimated that such a line can be built for \$200,000 a mile, while an underground line such as the Montreal St. Ry. had power to build would cost at least \$1,000,000 a mile.

**Montreal Park and Island Ry.**—In passing through the House of Commons the company's bill was amended so that the consent of municipalities will have to be obtained to its lines being carried along or across any highway, and by authorizing its amalgamation with the Montreal St. Ry. and the other electric railways owned by the same interests on Montreal Island. (Mar., pg. 259. See also Montreal Tramways Co., May, pg. 455.)

**Montreal Street Ry.**—As the result of a meeting with the Board of Control, May 4, the company will submit a statement showing the terms upon which it will grant reduced fares, and do certain works, and the controllers will prepare a report showing what the city will expect the company to do. Upon the exchange of these papers, and consideration thereof, a further meeting will be held in order to arrive at an agreement. (May, pg. 455.)

**Niagara Frontier Ry.**—Application is being made to the municipal authorities interested by G. H. Pettit and Wm. C. Perkins in behalf of the company, for franchises for an electric railway from Niagara-on-the-Lake to Fort Erie, along the Niagara River. (May, pg. 455.)

**Niagara, St. Catharines and Toronto Ry.**—Negotiations have been in progress for some time between the company and the town council of Thorold, Ont., as to an extension of the franchise. The town offers a 10 year franchise, on condition that the company gives a five cent fare, paves between the tracks and pays \$1,000 a year. The company declined to agree, and desired a conference, but the council has refused to consider any alteration of terms. (April, pg. 365.)

**Niagara, Welland and Lake Erie Ry.**—At a meeting of the shareholders the following were elected officers for the current year:—President, C. J. Laughlin, Welland, Ont.; Vice President, F. C. Carlson, Los Angeles, Cal.; Secretary, A. P. Laughlin, Welland; Treasurer, D. L. Stafford, Dunkirk, N.Y. A contract is said to have been let to H. H. Leach & Co. for the construction of the line. The first section of the line to be built will be between the G.T.R. and the Michigan Central Rd. stations in Welland, and it is expected to have this in operation within three months. (Mar., pg. 259.)

**Nipissing Central Ry.**—The Commissioners of the Temiskaming and Northern Ontario Ry., who have bought this line, for \$250,000, went over it early in

May. Up to May 25 the property had not been transferred to the Commission, some details remaining to be settled.

At a public meeting in Cobalt, May 16, a resolution was passed asking the Commissioners to arrange for the building of the line through the town, and recommending the council to grant the necessary franchise. (May, pg. 459.)

**Ontario West Shore Ry.**—Arrangements are reported to have been made by J. W. Moyes, President, May 5, for the resumption of construction work at the Goderich end of the line. The question of what streets the line will be built on in Goderich is still before the council. (May, pg. 455.)

**Ottawa Electric Ry.**—The question of building of extensions to the street railway system are under consideration by the city council. In this connection, notice of motion has been given by Alderman Stroad for the appointment of a commission to report on the best way of meeting the situation about to arise through the expiration of certain of the franchises held by the company. The company has nounced the city council that it prefers the Montreal road to the St. Patrick St. route for the new line to the cemetery, and the matter is under discussion. (April, pg. 365.)

**Ottawa, Smith's Falls and Kingston Ry. Co.**—The Ontario Legislature has incorporated a company with this title. (See Ottawa, Smith's Falls and Kingston Electric Ry., April, pg. 365.)

**Peoples Ry.**—A special meeting of the shareholders was held in Berlin, Ont., May 8, for the purpose of authorizing an issue of bonds at the rate of \$25,000 a mile, and the execution of a mortgage to secure the same. A resolution was also submitted authorizing an increase in the capitalization of the company to the extent of \$40,000 a mile. S. Wanless, Berlin, nt., is secretary of the company.

The company has secured an act from the Dominion Parliament declaring that its undertaking is a work for the general advantage of Canada, and authorizing it to extend its lines in many directions. It is stated that a contract was signed in Toronto, May 17, with the Acme Construction Co., for building the line. Some construction work has been done between Guelph and Berlin, Ont., and W. A. Bugg, President, is reported as stating that the line between these two places would be in operation by the fall, and that when work had been thoroughly started, more than a mile of track a day would be laid. He is further reported to have said:—"We shall make the trip between Toronto and Windsor in less time than the steam roads take. Our rolling stock will include sleepers, parlor car and buffet cars of the most modern type." The company's plans include a through line from Toronto to Windsor, with a net work of local lines extending from Collingwood and Owen Sound, to Goderich, Sarnia, and Port Stanley. Preferred stock amounting to \$29,500 has been subscribed by various townships, and over \$150,000 of common stock has been privately subscribed. The bond issue of \$25,000 a mile is reported to have been underwritten by New York and Detroit financial houses. It is intended to use Hydro-Electric power. (May, pg. 455.)

**Pincher Creek to Pincher Station.**—At a meeting of the Pincher Creek, Alta., town council, May 12, it was decided to take into consideration the question of building an electric railway from Pincher Creek to the C.P.R. station at Pincher. With a view of providing power for such a railway, as well as for the increasing demands for lighting, the council ordered an additional engine of 215 h.p. for its power plant.

**Port Arthur and Fort William Electric Railway.**—The Port Arthur, Ont., city council has authorized the extension of

the Arthur St. car line to Algonquin Ave., in the Carrick extension. (May, pg. 455.)

**Quebec Ry., Light and Power Co.**—We are officially advised that a contract has been let to M. Lonergin, Quebec, for the building of the upper level line from Beauport to Kent House, Que. The line is expected to be completed and ready for operation by June 20.

The through service to Sillery was inaugurated April 30, the route followed being from Sillery to the Chateau and back by St. John St. The track to Montmorency Falls is being relaid with new and heavier steel rails. A new siding is being built just below Limoilou on the river side of the line.

We are officially advised that the company has under consideration the abolition of steam motive power on the Montmorency Division, and the operation of the entire line by electricity. At present both electric and steam motive power are used. (April, pg. 365.)

**Regina Electric Ry.**—Rapid progress is being made with the building of the municipal electric railway in Regina, Sask., and it is expected to have the line to the Exhibition grounds opened for the fair. Track was also reported to have been laid May 15, from Albert St. to Cornwall St. on Eleventh Avenue; the right of way on Dewdney St. was ready for tracklaying, and the preparatory work was being gone on with on Albert St. The overhead work is being put at a good rate. The materials for all the work have been delivered in Regina, or are on the way. The car bodies were purchased in England, while the trucks, etc., have been purchased in the U.S. We are advised that the Regina City Council let contracts totalling \$266,476.57 for work and materials in connection with the railway. These contracts include construction on paved and unpaved streets, pavements between tracks, gravel, cement, ties, poles, steel rails, rail fastenings, spikes, bonds for steel rails, special intersection work, and overhead materials. It has been decided to erect the car barns on Albert St., between Fifth and Sixth Avenues. (April, pg. 365.)

**Revelstoke, B.C.**—Press reports state that a company is being organized in Revelstoke, B.C., to build an electric railway there.

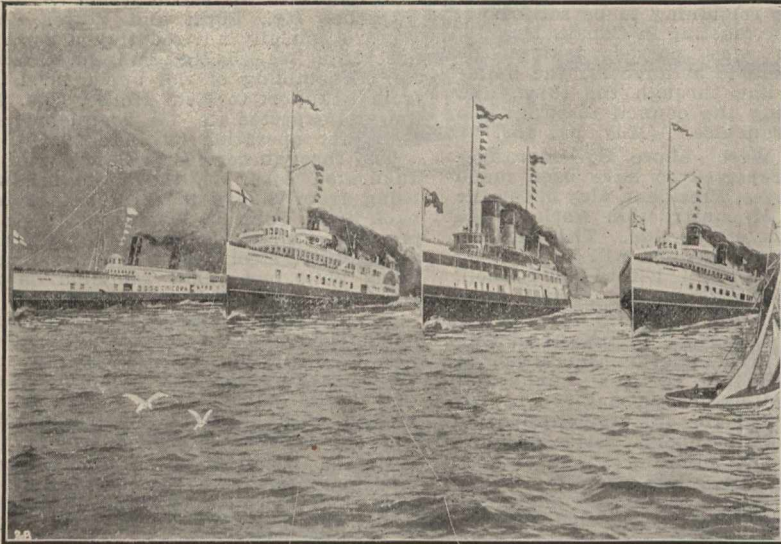
**Rural Ry. of Manitoba.**—The Manitoba Legislature has amended the company's powers in certain particulars. The amendments affect a number of details as to the payment of fee, etc., for the procuring of the act, the advertising of plans for construction, and other matters, and authorize the building of a line from St. Vital, to Winnipeg, St. Boniface, Transcona, Birds Hill, Portage la Prairie, East Selkirk, Stonewall, Morris, Emerson and other points. A second act authorizes the municipality of St. Vital to enter into a contract with the company to build a line from Winnipeg to the site of the new provincial Agricultural College. C. E. Lewis, Minneapolis, Minn., is President of the company.

Several meetings have been held with a view of promoting the building of an electric railway to connect up Oak Bluff, Sanford and La Salle, in Macdonald municipality, Man. It was proposed to negotiate with the Rural Ry. of Manitoba, in respect of the projected line. (April, pg. 365, and Dec., 1910, pg. 1069.)

**Simcoe Ry. and Power Co.**—As a result of a vote of the ratepayers of Midland, Ont., to arrange with the Hydro-Electric Power Commission for the supply of power, a contract has been made with this company for the supply of current. (Sept., 1910, pg. 783.)

**Stratford Ry. Co.**—The Ontario Legislature has incorporated a company with this title to build the lines named. The company is asking the Stratford, Ont.,





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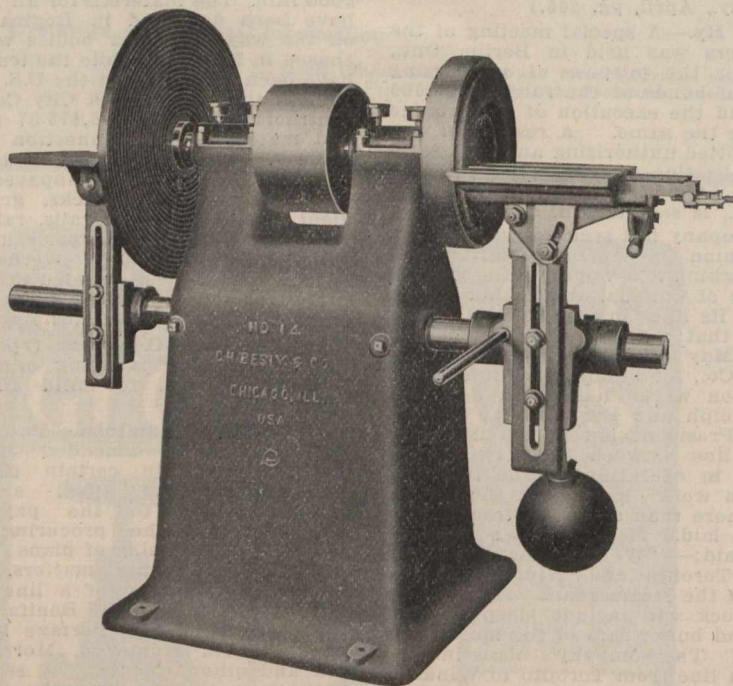
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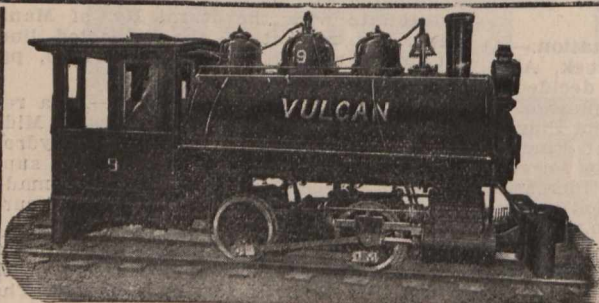
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city council for permission to separate the city and the radial portions of the project to enable the company to finance the undertaking, and to grant an extension until the end of June for making a start. J. W. Graham, and several of the directors waited on the committee of the council which has the matter in hand, May 10, and discussed the matter. The company, Mr. Graham said, had the money to proceed with the construction in the city as soon as the amendment was made in the agreement. The committee recommends that this be done at the next meeting of the council. (Mar., pg. 261.)

**Sydney, East Bay and New Waterford Monorail Co.**—The Cape Breton county council has granted the company a bonus of \$1,000 a mile and exemption from taxation for five years in aid of its projected railway. The company is inviting subscriptions to its capital stock, of which 25% must be paid up prior to organization. J. P. Joy, 127 Pitt St., Sydney, N.S., is acting as the representative of the promoters.

**Toronto and York Radial Ry.**—The plan of the private right of way which the company desires to use in order to take its line off Yonge St., from Balmoral Ave., to the C.P.R. crossing, will cross Farnham and Woodlawn avenues once, and Walker, Wickson, and Birch avenues twice, with the loop. The station will front on Cottingham St. The city is opposing the adoption of the route.

The building of a double track line on the Lake Shore Division near Mimico Creek is well advanced, and the connections are expected to be made early in June. A private right of way has been secured for other portions of the line, and construction is expected to be gone on with at an early date. (May., pg. 455.)

**Toronto Civic Street Railway.**—The Ontario Railway and Municipal Board is desirous of obtaining considerable information from the city before it approves of the bylaws for the proposed civic car lines. The information asked for is specified in an order made May 9, and the city's legal department started in at once to prepare it. The question of the operation of the lines when constructed is being considered and the Board of Control, May 17, decided to enter into negotiations with the Toronto Ry. for an interchange of traffic at certain points.

It is estimated that the proposed line on St. Clair Ave., which will extend from Avenue Road to the G.T.R. tracks, 2.65 miles, will cost \$280,928, and that the line on Gerrard St. east, which will extend from Greenwood Ave., to Main St., 1.55 miles, will cost \$225,780. The cost of operating a 24 hour service on the St. Clair Ave. line is estimated at \$201.61 a day, and on the Gerrard St. line at \$140.74 a day. (May, pg. 455.)

**Toronto Ry.**—The Ontario Railway and Municipal Board has authorized the company to build a loop on Louisa St., and to extend its lines in various parts of the city. Work was re-started April 14, on the extensions commenced during 1910, of which about two miles were built.

Work has been in progress since the beginning of May on the Wilton Ave. line, on the Adelaide St. line, and on the new Front St. line. The new car barns on the corner of Lansdowne Ave. and Paton St., have been completed, and were put in use May 15. (Feb., pg. 169.)

**Toronto Suburban Ry.**—Application is being made for permission to lay a turnout on Dundas St., near St. John's road, but the site is objected to.

No definite action has been taken in the way of the construction of the extension of the line for which the Ontario Legislature recently gave the company a year to go on with. (May, pg. 455.)

**Tsimpian Light and Power Co.**—The terms of an agreement have been submitted by the company to the city council of Prince Rupert, B.C., providing among other things for the building of an electric railway. The line, which would be first built would extend from one end of the city to the other, and additional lines would be built as required; the company would look after the roadway between the tracks and for a certain distance on either side, and pay to the city a percentage on the gross earnings, starting at 3% and rising to 10%. R. Brutinel is Manager of the company.

**Vancouver, Stanley Park.**—Three proposals have been submitted before the Vancouver Park Commissioners, with the object of providing transportation in Stanley Park. One plan is submitted by the Electric Railways Construction Co., of which G. A. Ashwood is Managing Director. This company desires to build a double track electric railway from the southerly end of the proposed causeway across Coal Harbor, across the park to a convenient point east of Prospect Point, and then along the seafront to near Siwash Rock. A second proposal is for the building of a miniature electric railway through the unimproved portions of the park, but touching at Brockton, Prospect Point, Siwash Rock and other points; and the third proposal is to provide gasoline motor cars, or electric cars operated on rails or by the trackless trolley system. The first plan is rather favored, but the Commissioners have taken the other three into consideration.

**Western Central Ry.**—A meeting of shareholders has been called to be held in the offices of T. Drummond, Toronto, June 5, to authorize the issue of first mortgage bonds to an amount of \$35,000 a mile for single track, and \$55,000 a mile for double track lines. J. S. MacDiarmid, is interim Secretary of the company. (Mar., pg. 261.)

**Winnipeg Electric Ry.**—A Winnipeg dispatch May 17, states that an issue of new capital stock is being arranged with a view of providing funds for present and future extensions of the lines and power plant.

Plans have been submitted to the city council for extensions on Mountain Ave. Work has been started on a line on Donald and Princess St., to connect the Broadway and Higgins Ave. lines; and on the construction on a line on Garry, Ethel, Kennedy and Sargent Streets. (May, pg. 453.)

#### Electric Ry., Finance, Meetings, Etc.

**British Columbia Electric Ry.**—Gross earnings for March, \$363,766; working expenses \$229,658; net operating earnings \$134,108; renewal funds \$29,770; net earnings, \$104,338; approximate income from investments, \$20,000; net income, \$124,338, against \$255,423 gross earnings; \$159,681 working expenses; \$95,742 net operating earnings; \$17,852 renewal funds; \$77,890 net earnings; \$16,500 approximate income from investments; \$94,390 net income for March, 1910. Aggregate gross earnings for nine months ended Mar. 31, \$3,072,500; net earnings \$1,221,113, against \$2,224,324 aggregate gross earnings, and \$955,538 net earnings for same period 1909-10.

**Halifax Electric Tramway.**—Railway receipts for April, \$16,925.71, against \$16,114.66 for April, 1910. Receipts for two weeks ended May 14, \$7,615.36, against \$7,020.46 for same period 1910.

**London St. Ry.**—Gross earnings for April, \$20,671.96; expenses, \$15,684.03; net earnings, \$4,987.93; deductions, \$2,363.05; net income, \$2,024.88; aggregate gross earnings for four months ended Apr. 30, \$81,752.82; expenses, \$60,749.97; net earnings, \$21,002.85; deductions, \$9,452.10; net income, \$11,550.75.

**Montreal St. Ry.**—Passenger earnings for April, \$367,410.15; miscellaneous earnings, \$4,898.93; total earnings, \$372,309.08; operating expenses, \$200,718.92; net earnings, \$171,590.16; city percentage on earnings, \$29,544.10; interest on bonds and loans, \$15,486.70; rental leased lines, \$607.10; taxes, \$4,700; total charges, \$50,337.90; surplus, \$121,252.26; expenses per cent. of earnings, 53.91, against \$335,941.37 passenger earnings; \$8,823.74 miscellaneous earnings; \$344,765.11 total earnings; \$190,842.05 operating expenses; \$153,923.06 net earnings; \$25,298.33 city percentage on earnings; \$14,732.98 interest on bonds and loans; \$552.90 rental leased lines; \$4,000 taxes; \$44,584.21 total charges; \$109,338.85 surplus; 55.35 expenses per cent. of earnings for April, 1910. Aggregate total earnings for seven months ended Apr. 30, \$2,575,223.95; operating expenses, \$1,571,191.54; net earnings, \$1,004,032.41; total charges, \$279,543.29; surplus, \$724,489.12; expenses per cent. of earnings, 61.01, against \$2,337,001.32 aggregate total earnings; \$1,407,826.42 operating expenses; \$929,174.90 net earnings; \$257,169.97 total charges; \$672,004.93 surplus; 60.24 expenses per cent. of earnings for same period 1909-10.

**Toronto Ry.**—Gross earnings for March, \$374,110; working expenses, maintenance, etc., \$201,574; net earnings \$172,536, against \$342,000 gross earnings; \$184,703 working expenses, maintenance, etc.; \$157,297 net earnings for March, 1910. Aggregate gross earnings for three months ended Mar. 31, \$1,067,963; working expenses, maintenance, etc. \$572,943; net earnings \$495,020, against \$974,264 aggregate gross earnings; \$526,802 working expenses, maintenance, etc.; \$447,462 net earnings for same period 1910.

**Winnipeg Electric Ry.**—Gross earnings for March, \$316,714; working expenses \$166,586; net earnings \$150,128, against \$254,070 gross earnings; \$133,265 working expenses; \$120,805 net earnings for March 1910. Aggregate gross earnings for three months ended Mar. 31, \$972,359; working expenses, \$517,010; net earnings \$455,349, against \$813,479 aggregate gross earnings; \$417,733 working expenses; \$395,746 net earnings for same period 1910.

A quarterly dividend of 3% has been declared, making the annual dividend 12%, an increase of 2% on previous dividends.

**Electric Railway Dictionary.**—With the approval of the American Electric Railway Association, the McGraw Publishing Co., has issued an Electric Railway Dictionary, which gives definitions and illustrations of the parts and equipment of railway cars and trucks, and of everything else connected with electric railway tracks, equipment, rolling stock etc. The plan adopted in the work is to give a concise and exact definition and refer to an illustration. The definitions are arranged alphabetically, and extend to 63 closely printed pages of standard technical magazine size. The close on to 2,000 illustrations, are well drawn and printed. The volume is an interesting one, and will be found useful in every electric railway office and shop. The price of the book is \$5. It can be obtained through the Railway and Marine World's book department.

The Dominion Power and Transmission Co., Hamilton, Ont., has received three interurban cars from the Preston Car and Coach Co., Preston, Ont.

The Montreal and Southern Counties Ry. flat car, which is being built at the G.T.R. shops, Montreal, as mentioned in our last issue, will be a converted frame of a G.T.R. flat car, 381 ft. long, and 8 ft. 1½ ins. wide over side sills, with 5 by 5 ft. cab at one end of the car for motorman.



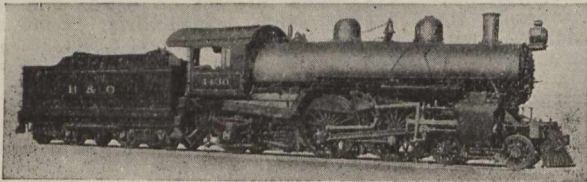
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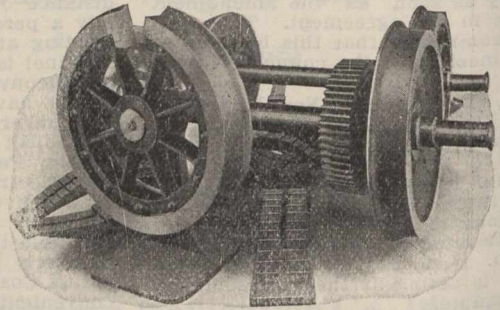
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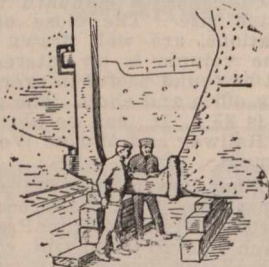
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**Electric Railway Notes.**

The Montreal St. Ry. recently received two trailer cars from the Preston Car and Coach Co., Preston, Ont.

The Calgary Municipal St. Ry. has received four single truck cars from the Preston Car and Coach Co., Preston, Ont.

The Guelph Radial Ry. has ordered two double end pay-as-you-enter cars from the Preston Car and Coach Co., Preston, Ont.

The Ottawa Electric Ry. has ordered one heavy double broom electric steel frame snow sweeper from the Ottawa Car Co., Ottawa.

The Moose Jaw Electric Ry. has received four 21 ft. car bodies, 31½ ft. over all, mounted on 21-E trucks, from the Ottawa Car Co., Ottawa.

The Windsor, Essex and Lake Shore Rapid Ry., Kingsville, Ont., has ordered one baggage car from the Preston Car and Coach Co., Preston, Ont.

The British Columbia Electric Ry. has ordered 16 Hart-Otis dump cars, 60,000 lbs. capacity, from the Hart-Otis Car Co., Ltd., Montreal. These will be built by the Canadian Car and Foundry Co., Montreal.

The Ottawa Electric Ry. has been notified that the Dominion Government will not renew the contract for the carriage of mails to and from the trains, as it is proposed to use automobiles. The contract expires Sept 1. The amount paid the company under the present contract is \$8,000 a year and it is said to have asked for an advance to \$15,000.

The Toronto and York Radial Ry. has ordered three double ended pay-as-you-enter cars, mounted on trucks with G.E. 80 motors, quadruple equipment, double

end control, with 12 walk-over and four longitudinal seats, upholstered in rattan, from the Preston Car and Coach Co., Ltd., Preston, Ont. They will be finished in cherry, inside and out, and fitted with sliding door on one side of vestibule and automatic folding doors on the opposite side. The car bodies will be 33½ ft. long, and the cars will be 48½ ft. long over all.

The two double ended pay-as-you-enter cars, which the Guelph Radial Ry. is having built by the Preston Car and Coach Co., Preston, Ont., will be mounted on 27-G-1 trucks, equipped with Westinghouse 108-B-2 motors, quadruple equipment, double end control. They will be finished in cherry on the inside and painted outside, and fitted with 10 walkover and four longitudinal seats, with spring seats and backs, upholstered in rattan. The heating system will consist of 14 heaters, supplied by the Consolidated Car Heating Co., system 192-W. The vestibules at each end will be extra long, being 7½ ft. over all, with sliding door at one side and a double folding automatic door on the opposite side.

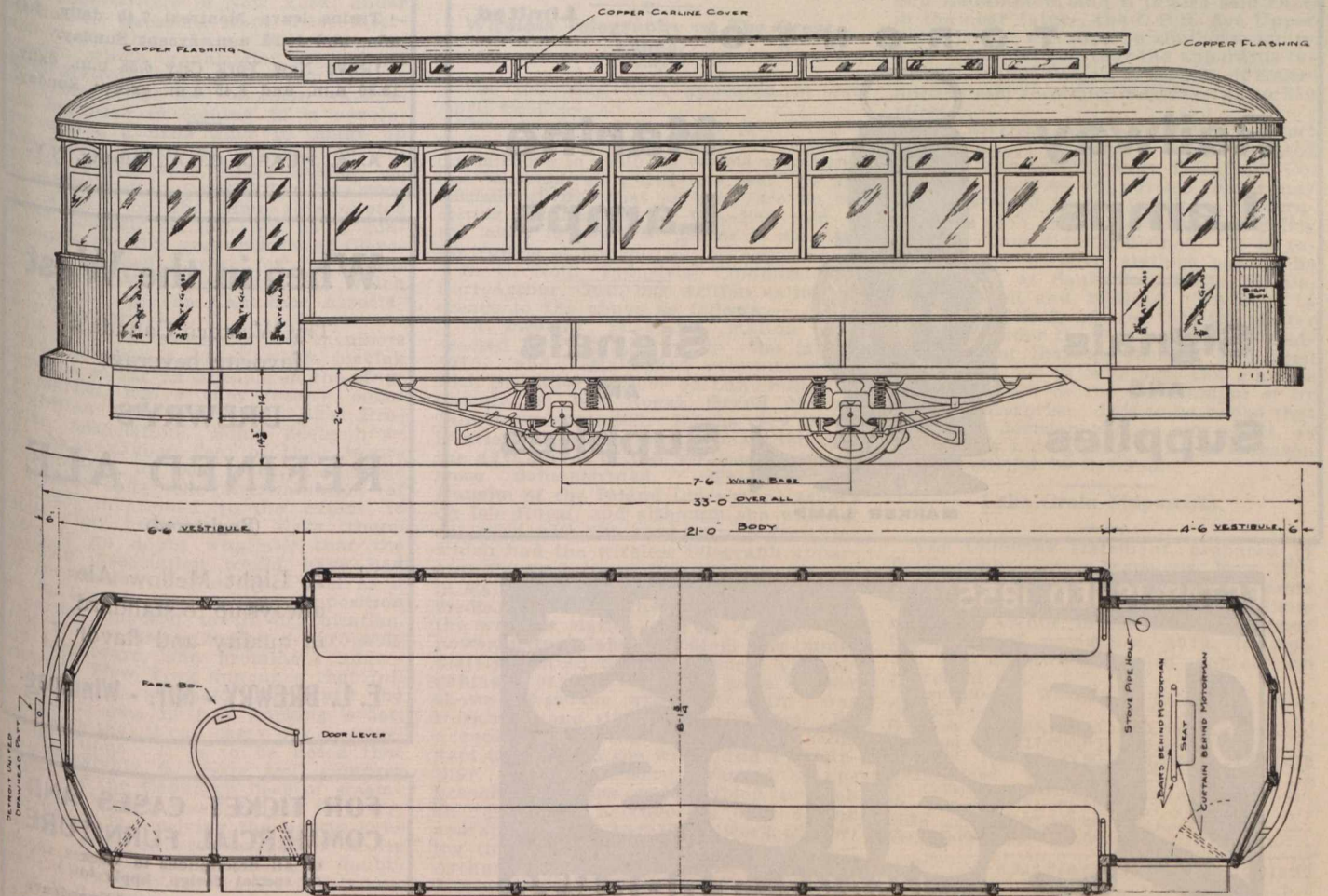
The Montreal and Southern Counties Ry. (G.T.R.), has ordered one electric motor combination passenger and baggage car, to be built in the G.T.R. shops, Montreal, in addition to the one previously ordered, as mentioned in our last issue. Following are the chief details:—

Length over buffers	49 ft. 4 ins.
Length over end sills	38 ft. 0 ins.
Width over side sheathing	8 ft. 1½ ins.
Width inside, clear	7 ft. 4¾ ins.
Inside length of passenger compartment	18 ft. 6 ins.
Inside length of smoking compartment	10 ft. 6 ins.
Seating capacity, passenger compartment	28
Seating capacity, smoking compartment	16

Approximate length, baggage compartment and motorman's cab	13 ft. 5 ins.
Baggage doors width	3 ft. 6 ins.
Motors	Westinghouse

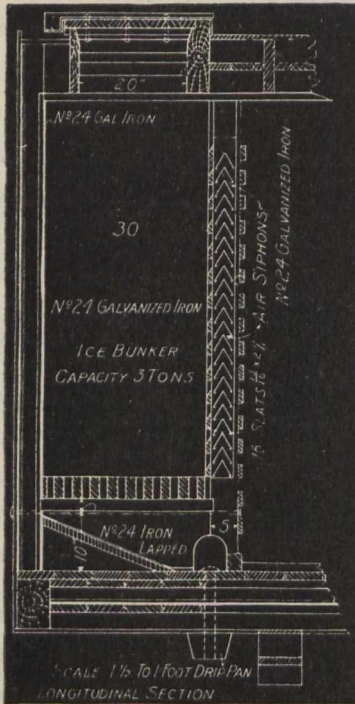
**S. W. & A. Railway Cars.**

The diagrams on this page show the elevation and floor plan of the six cars which the Sandwich, Windsor and Amherstburg Ry. has ordered from the Preston Car and Coach Co. They will be omnibus body, single truck cars, mounted on 21-E trucks, 7½ ft. wheel base, 33 n. wheels. They are for single end operation. The width over sills will be 7 ft. The width over posts above the belt rail 8 ft. 1¾ in. The front vestibule will be 4½ ft. long, the rear vestibule 6½ ft. long. There will be one pair of automatic folding doors in the front vestibule, and two pairs of automatic folding doors in the rear vestibule. The doors in the rear vestibule may be operated independently of one another by the conductor, who will have the controlling mechanism located where he stands inside of the P.A.Y.E. railing. The steps in both the front and rear end will operate along with the door, so that when the door is closed the steps are folded up. The same handle that controls the door will control the steps also. The same thing occurs in the front. There will be no bulkhead in either end of the car body. The lower panels of both front and rear vestibule doors will be ¾ in. plate glass. These are said to be the first cars in Canada equipped in this way. The interior of the cars will be finished in cherry, as also the interior of vestibules. The upholstery will be leather, with spring cushions and backs. Each car will be equipped with two sand boxes, register rods, electric bells and hand brakes.



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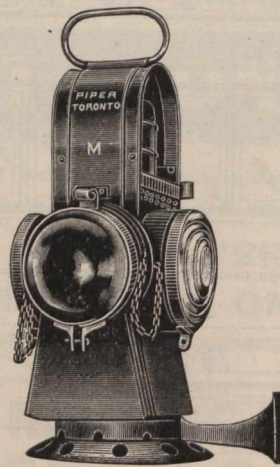
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**International Water Lines Passenger Association.**

PRESIDENT, W. M. Lowrie, New York. SECRETARY, M. R. Nelson, New York.

**The Shipping Federation of Canada.**

PRESIDENT, A. A. Allan, Montreal; MANAGER AND SECRETARY, T. Robb, 526 Board of Trade, Montreal.

**Ship Masters' Association of Canada.**

GRAND MASTER, Capt. J. H. McMaugh, Toronto, Ont.; GRAND SECRETARY-TREASURER, Capt. H. O. Jackson, 376 Huron St., Toronto.

**Canadian Lake Protective Association.**

The English underwriters were the first to give the Canadian Lake Protective Association full recognition, and announced in good time a rate of 5¼% as a basis rate for vessels belonging either to this association or to the Great Lakes Protective Association of Cleveland, Ohio. Both associations were thus placed exactly on the same basis and at a rate which was ¼% better than the basis rate of last year. On the other hand, underwriters in New York, under considerable pressure from those interested in the Great Lakes Protective Association, which organization through its representatives was much opposed to the formation of the Canadian Association, hesitated in coming to a conclusion, taking a little time to make up their minds regarding the various objections which were raised against us. Ultimately they announced for the Canadian Association the same rate quoted in the English market, but as a concession to the U.S. organization at Cleveland, announced a rate for its vessels of 5½% or ¼% less than that which they quoted to the Canadian Association's members.

The result, of course, is that members of the Canadian Association are placing insurance so far as possible in the English market, where they receive equal recognition with the Great Lakes Protective Association. Some fleets, however, have a good deal of their insurance covered in New York, and these at present suffer the discrimination of ¼ of 1% mentioned to the extent to which they cover their risks there. There is no doubt whatever that the Canadian Association would have had fair recognition in New York just as it had in London, but for the opposition of parties opposed to its organization. As it is the discrimination is probably only temporary, and prominent underwriters in New York announce that full recognition is withheld only until the association gets in full working order, and shows that it can carry out its present intentions. It is to be noted that its membership is pretty well comprehensive of the Canadian fleet of steamers of the class it was intended to cover, and that it is receiving the hearty support of vessel owners enrolled in it. Its success seems to be assured, and doubtless it will shortly receive the full recognition it deserves.

In the meantime it has made arrangements with the Dominion Department of

Railways and Canals to co-operate for the benefit of the service. It has been arranged that the various canal superintendents shall keep the association's office posted regarding water conditions, and shall make prompt report to the association of any vessels being overloaded. Casualty report forms are in the hands of the masters of all the steamers enrolled in the association, and full records are being kept by the association of the various accidents, slight or serious, which may occur. Correspondence has taken place with owners of the vessels outside as well as in the association, and United States as well as Canadian, whose masters appear to have violated the regulations or sailing rules.

It is not apparent why the Great Lakes Protective Association of the U.S. and the Canadian Lake Protective Association cannot both become effective organizations, working together for the good of the whole system of navigation on the lakes, receiving equal recognition from underwriters, and altogether managing to control conditions in such a way that underwriting can be managed with profit to the underwriters and without unreasonable expense to owners. It is to be regretted that any opposition was put in the way of the Canadian organization at the very outset. At present that association aims to do more than the other by exercising direct control over the masters of the enrolled vessels. It is hoped that it will have a fair chance to prove its efficiency in this respect.

**Wireless Telegraphy on The Great Lakes.**

The following item appeared in our April issue:—

"In connection with recent press reports to the effect that the Northern Navigation Co. intended to equip its vessels with wireless telegraph apparatus this year, we are officially advised that as there are no receiving stations on the Canadian side of the lakes, it would be useless to so equip the vessels at present."

N. G. Neill, Industrial Commissioner, Port Arthur, Ont., has written us in reference to the above as follows:—

"A wireless telegraph station was erected at Port Arthur in the fall of 1910, and established communication with the other stations on Lake Superior, namely, at Isle Royal, Grand Marias, Duluth and Calumet. It was very shortly after the station was in operation that the advantages of the wireless telegraph were demonstrated. The steamer Dunelm of the Inland Lines went ashore on Isle Royal, and although she was not equipped with the apparatus, a freighter which had the wireless telegraph apparatus strung between her masts was within sight of her distress rockets, and immediately flashed the distress signals to the wireless station at Port Arthur. The powerful tug, James Whalen, was immediately sent to her assistance. The advantages of this invention were further shown when the wrecking outfit was working along side of the Dunelm. By a constant exchange of messages being kept up between the wreck and Port Arthur, the boats were warned of approaching storms and enabled to seek shelter in the neighboring bays during operations. The hazardous work of towing the wreck to the dry docks at Port Arthur were only undertaken after the Meteorological Station there had given out a report that fine weather might be expected for the next 24 hours, and this message was conveyed to the scene of

the wreck 60 miles out in Lake Superior.

"The Northern Navigation Company has recognized the advantage which the installation of wireless telegraphy is to any steamer, and the additional feeling of security which it gives her passengers, and placed an order on April 19 for the equipment of the Hamonic and the Huronic. It is the company's intention to equip all its boats, both freight and passenger, during the summer. A wireless station is to be erected at Sault Ste. Marie, Ont., as soon as they can get the apparatus on the ground, and it is understood that arrangements will also be made for the establishment of stations at Sarnia, Owen Sound and Midland on the Georgian Bay. Boats will therefore never be out of communication with land on Lakes Huron and Superior, where probably the heaviest traffic on the Great Lakes is concentrated."

The paragraph in our April issue to which Mr. Neill refers was based on official information written us by the Northern Navigation Co.'s management and was undoubtedly correct so far as the management's intentions at that time were concerned. We are now officially advised by the management that it has been decided to equip the three Lake Superior boats, Hamonic, Huronic and Saronic, but that the other boats of the fleet will not be equipped at present.

Arrangements have been completed for the installation of wireless telegraph equipment on three barges of the Canadian Towing and Wrecking Co., Port Arthur, these being the Empire, Imperial and Luddington, and it is also said that, in the near future, the C.P.R. five Upper Lake boats, will also be similarly equipped. It is claimed that the apparatus installed on lake vessels is capable of transmitting and receiving messages up to 250 miles.

The wireless telegraph station at Port Arthur was built and is being operated by the Marconi Wireless Telegraph Co. of Canada, but we are advised that it may be transferred to the Dominion Government as soon as the Government's policy in this connection is defined. It is reported that wireless stations are to be established at Sault Ste. Marie, Sarnia, Owen Sound and Midland. On May 15 we were officially advised that the matter was still under the Government's consideration, but that no decision had been arrived at as to whether the stations would be built by the Government or by private enterprise. It is to be hoped that a prompt decision will be arrived at, as there does not appear to be any reason why it should be delayed.

**Lake Grain Shipments.**

The following statement, prepared by F. E. Gibbs, Grain Inspector, Fort William, Ont., shows the bushels of grain shipped by vessels from Fort William and Port Arthur, of the 1910 crop, from the close of navigation, 1910, to Apr. 30. The last two figures in each column represent lbs.

Destination.	Wheat.	Oats.	Barley.
Canadian ports:			
Goderich ..	308,706.50	130,000.00	.....
Kingston ..	417,000.00	336,481.20	.....
Montreal ..	688,523.50	293,126.26	12,818.12
Owen Sound	75,000.00	.....	.....
P. Colborne.	635,515.20	.....	.....
Pt. Edward.	74,000.00	.....	.....
Tiffin .....	1,007,402.40	.....	.....
Vic. Harbor.	136,500.00	.....	.....
	3,342,648.40	759,608.12	12,818.12
Foreign ports:			
Buffalo .....	2,230,253.50	.....	.....
Depot Harbor	113,108.40	.....	.....
	5,686,011.10	759,608.12	12,818.12



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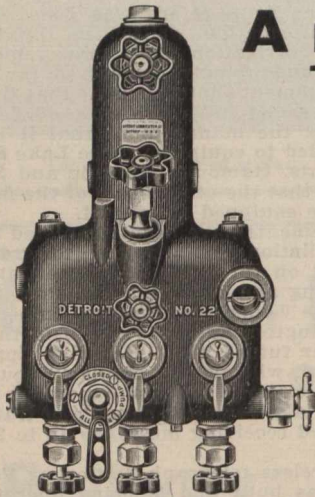
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Manufacturers of  
PINE, HEMLOCK, LUMBER, BRIDGE  
TIMBER, RAILWAY TIES, TELE-  
GRAPH POLES, LATH, SHINGLES,  
BOX SHOOKS.



**The New Steamboat Dalhousie.**

The Niagara, St. Catharines and Toronto Navigation Co.'s new steamboat which has been named Dalhousie, is nearing completion. She has a length of 193 ft. between perpendiculars, and a total length over all of 200 ft. 7 in., with a breadth of 38½ ft., and is designed to have an extreme draft of 9 ft., without freight or passengers. She has exceptionally fine, clean lines, the hull being of steel throughout, and is very heavily built for a vessel engaged in inland waters. The frames and beams are of 6 in. channel steel spaced 24 in. centres. The shell plating is above rule requirements for a vessel of this size, and is fitted with heavy doublings in the vicinity of the water line. The main and lower decks will be plated entirely over with steel, and steel pillars and girders support all decks. Four watertight bulkheads subdivide the vessel transversely into five compartments.

On the lower deck forward accommodation is provided for the crew, including officers and crew's mess, as well as sleeping apartments for the crew. Lockers for clothing are provided in the rooms and steel stairways are provided for access to main deck. Aft of the engines is the luncheon room, with ample accommodation for the serving of quick meals. This room is furnished with tables and leather covered settees. The stairway from the lunch room lands in the entrance on the main deck.

The passenger gangway, 4 ft. wide, leads into a 9 ft. entrance hall. On the left are the stairways leading up to the

observation deck and down to the lunch room. On either side of the stairways are the entrances to the ladies' saloon, off which are the purser's and stewardess' rooms. The saloon is upholstered in leather with ample seating accommodation. Back of this cabin will be located the ladies' lavatory and retiring rooms. The decoration of the ladies' saloon will be of red oak panelled wainscoting, and red oak pilasters with composite board panels. The floor is to be covered with interlocking rubber tiling. To the right of the entrance hall is the engine room, also men's lavatory and purser's office. The entire space forward and alongside the engine room is devoted to freight space large enough to take care of about 300 tons.

The main stairway to the upper cabin is constructed of red oak. Entering the cabin something novel in marine equipment will be noticed. Besides the usual lounges, easy chairs, etc., there are reversible trolley car seats capable of seating 70 people. This cabin is about 120 by 24 ft., a portion of which is occupied by six comfortable staterooms. The whole is tastefully decorated in white enamel and natural wood to harmonize with the other appointments of the vessel. Heavy plain brown linoleum covers the floor. The windows are of the drop style of double plate glass. From the centre of observation cabin a stair leads to the sun parlor on the gallery deck above. The stairway is of same design as the main staircase on main deck. The parlor is of the same general design as the observation cabin, settees, etc., being upholstered in close woven cane. Forward of the sun parlor is the smoking room, which is pan-

elled in oak, the seats upholstered in leather of a color to harmonize with the room. The floor is of interlocking rubber tiling cemented to the floor. The windows are of the same type as those of the other cabins. Adjoining the smoking room forward are the officers' quarters and pilot house. These rooms are furnished with metal fittings and decorated in white enamel. Outside the observation cabin are cabin slatted wood seats 21 ins. wide and 18 ins. high.

The boat will be driven by a single solid cast iron propeller 9 ft. in diameter, having four blades right hand; fitted on to a tail shaft of 9¼ in. diameter, the crank and thrust shafts being 9¼ in. The propelling power consists of a triple expansion three crank engine, with cylinders 18 in., 29 in. and 48 in. diameter, and 31 in. stroke, to which steam will be supplied by two Scotch boilers for 180 lbs. working steam pressure, which will propel her about 19 miles an hour. The boilers are 13 ft. 7 5/16 in. by 11 ft. over all, with tubes of 3¼ in. outside diameter, having a total heating surface of about 4,200 sq. ft. and a grate area of 120 sq. ft. There are three corrugated furnaces in each boiler with grates 6 ft. long. They are fitted with duplex marine type boiler safety valves, all attachments being of best welded steel. The smoke stack is of the double type, the outer one about 7½ ft. in diameter and 53 ft. long. The enclosure around the smoke stack, engine opening, etc., are of steel insulated to insure safety from fire, and all upper wood work is supported by steel girders and stiffened by web frames.

There will be ample provision made for the safety of the passengers. These

**LIST OF STEAM VESSELS REGISTERED IN CANADA DURING APRIL, 1911.**

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
Buena Vista	130,325	Kingston, Ont., 1911.	Screw 9 n. h. p.	98.6	18.8	6.8	224	160	Kingston, Ont.	J. H. Davis, Kingston, Ont.
Elmath	130,450	Vancouver, B.C., 1911.	" 3 " "	25.0	9.0	4.2	5	4	Vancouver, B.C.	A. Marshall, Vancouver, B.C.
Grand Manan	130,245	Liverpool, N.S., 1911.	" 32 " "	130.0	26.3	11.0	363	180	Liverpool, N.S.	Grand Manan Steamship Co., Grand Manan, N.B.
Hobo	126,846	Port Clyde, N.S., 1911.	" 10 " "	85.0	12.4	5.0	12	12	Barrington, N.S.	G. D. Wall, Barrington, N.S.
Hugh Stalker	122,558	Collingwood, Ont., 1910.	" 21 " "	72.3	15.7	6.3	43	29	Collingwood, Ont.	G. Stalker, Collingwood, Ont.
Knym	130,451	Vancouver, B.C., 1911.	" 1 " "	35.0	8.0	3.8	9	7	Vancouver, B.C.	T. L. Longhurst, Vancouver, B.C.
Lelia and Frances	122,599	Lubec, Me., 1909.	" " "	40.1	12.2	4.8	14	12	St. Andrews, N.B.	J. L. Guptill, Grand Harbor, N.B.
Matheson (1)	127,868	Rocky River, O., 1877.	" 2 " "	42.0	8.6	5.0	20	11	Sault Ste. Marie, Ont.	J. R. Matheson, Sault Ste. Marie, Ont.
Max L.	97,109	Port Burwell, Ont., 1911.	" 25 " "	67.5	15.0	7.2	45	33	Port Burwell, Ont.	L. Lewis, et al Port Burwell, Ont.
Merry Sea	130,452	Vancouver, B.C., 1911.	" 9 " "	54.3	10.0	5.0	25	17	Vancouver, B.C.	T. G. McBride, Vancouver, B.C.
Minoca	126,913	Dartmouth, Eng., 1910.	" 28 " "	83.5	19.1	9.4	110	48	Halifax, N.S.	Minister of Agriculture, Ottawa.
N. Vancouver Ferry No. 3	130,447	North Vancouver, B.C., 1910.	" 42 " "	145.0	29.1	12.4	1176	792	Vancouver, B.C.	North Vancouver City Ferries, Ltd., Vancouver, B.C.
No. 508	129,529	Renfrew, Scotland, 1910.	" 108 " "	200.3	36.6	12.8	748	435	"	Minister of Public Works, Ottawa.
Pharaon (2)	126,952	New Whatcom, Wash., 1899.	" 10 " "	53.5	12.4	6.0	23	18	Victoria, B.C.	Pacific North West Fisheries, Ltd., Victoria, B.C.
Rapids Prince	130,418	Toronto, 1911.	" 101 " "	96.6	37.0	8.2	1384	955	Montreal	Richelieu & Ontario Navigation Co., Montreal.
Sea Rose	130,446	United States	" 2 " "	31.0	9.3	3.3	11	8	Vancouver, B.C.	J. B. Law, Vancouver, B.C.
Skip	130,471	Lunenburg, N.S., 1908.	" 4 " "	42.0	10.6	5.6	12	11	Lunenburg, N.S.	A. Mason, Eastern Point, N.S.
T. J. Clark	126,838	Toronto, 1911.	" 4 " "	69.0	20.0	6.0	75	51	Toronto	Clark, Ltd., Toronto.
Tiono	126,799	New Westminster, B.C., 1911.	" 3 " "	32.2	8.5	4.0	9	6	New Westminster, B.C.	A. Speck, New Westminster, B.C.
Tramontana	130,449	United States	" 5 " "	60.0	16.0	6.0	23	19	Vancouver, B.C.	Kingcome Navigation Co., Vancouver, B.C.
Wimbril	130,448	Vancouver, B.C., 1911.	" 1 " "	30.5	7.3	4.2	9	6	"	G. D. Jukes, Vancouver, B.C.
Yucalta	130,453	" 1910.	" 2 " "	36.4	8.8	3.7	12	8	"	C. W. Maxon, Vancouver, B.C.
Zoa H.	130,470	Tancook, N.S., 1911.	" 4 " "	44.8	12.5	6.5	17	16	Lunenburg, N.S.	R. Fudge, North Sydney, N.S.

(1) Formerly, Antelope. (2) Formerly, Petrel.

**LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING APRIL, 1911.**

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
A. G. Eisnor	130,466	Mahone Bay, N.S., 1911.	Schr.	92.8	25.8	10.0	93	Lunenburg, N.S.	A. Ernst, M.O., Mahone Bay, N.S.
Artisan	130,465	Shelburne, N.S., 1911.	"	110.0	26.0	10.5	93	"	J. Walters, et al Lunenburg, N.S.
Alice M. Pike	126,667	" 1911.	"	85.0	23.0	9.2	86	Shelburne, N.S.	B. Keeping, Belleoram, Nfld.
Benjamin C. Smith	130,468	LaHave, N.S., 1911.	"	105.8	26.6	10.2	100	Lunenburg, N.S.	B. Smith, M.O., Lunenburg, N.S.
Benevolence	126,830	Liverpool, N.S., 1911.	"	110.0	26.4	12.1	99	"	F. Creaser, M.O., LaHave, N.S.
Charlotte	79,746	Hearts Delight, Nfld., 1879 Hearts Content, Nfld., 1889	"	59.2	19.0	7.6	44	Arichat, N.S.	C. Boudrot and A. LeBlanc, Poulamon, N.S.
Doris V. Myra	130,463	Lunenburg, N.S., 1911.	"	106.4	26.2	10.6	99	Lunenburg, N.S.	J. Backman, M.O., Riverport, N.S.
Forest Maid	126,717	Newburyport, Mass., 1877.	"	67.2	18.2	6.0	43	St. John, N.B.	J. F. Paul, Beaver Harbor, N.B.
Gigantic	130,464	LaHave, N.S., 1911.	"	105.8	25.8	10.5	99	Lunenburg, N.S.	D. Parks, M.O., Lunenburg, N.S.
Hattie Loring	130,422	Goldsboro, Me., 1895.	"	64.9	19.4	6.5	50	St. Andrews, N.B.	A. W. Porter and H. E. Bailey, Westport, N.S.
Horace Taber	130,324	St. Clair, Mich., 1867.	"	135.8	28.6	9.8	236	Kingston, Ont.	F. R. Barnhardt, Deseronto, Ont.
Jennie E. Duff	130,467	Bridgewater, N.S., 1911.	"	106.8	26.5	10.5	99	Lunenburg, N.S.	W. Duff, M.O., Lunenburg, N.S.
Laurent au Coin	126,574	Grand Etang, N.S., 1911.	"	36.0	10.6	6.6	10	Port Hawkesburg, Ont.	Laurent au Coin, Cheticamp, N.S.
Lewis H. Smith	130,462	Lunenburg, N.S., 1911.	"	108.0	26.1	10.5	98	Lunenburg, N.S.	W. C. Smith, M.O., Lunenburg, N.S.
Lillie E. Melanson	122,040	Gilbert's Cove, N.S., 1911.	"	80.2	23.4	8.8	90	Weymouth, N.S.	B. N. Melanson, Gilbert's Cove, N.S.
Mary F. Hyde	126,668	Allendale, N.S., 1911.	"	87.4	24.9	9.0	78	Shelburne, N.S.	W. Forsey, Grand Bank, Nfld.
Natoma	130,469	Mahone Bay, N.S., 1911.	"	94.8	25.0	10.3	92	Lunenburg, N.S.	W. Duff, M.O., Lunenburg, N.S.
Nuage Gris	126,929	Limoulu, Que., 1901.	"	66.8	20.3	5.6	38	Quebec, Que.	F. Boulianne, Escoumains, Que.



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PITTSBURG, PA.

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JANNEY "X"**

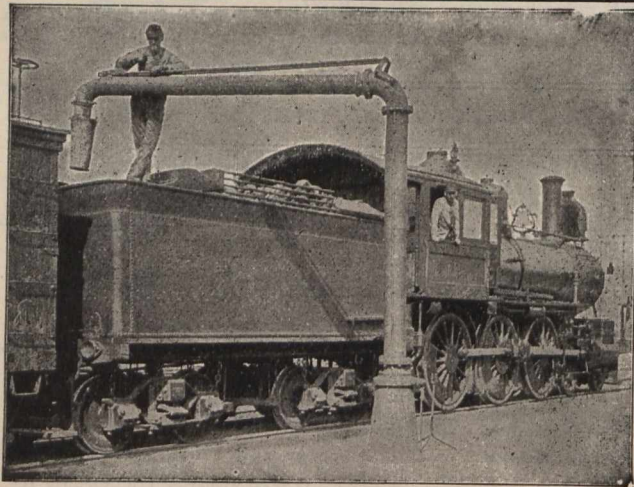
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**MALLEABLE IRON AND STEEL CASTINGS  
FOR RAILROAD USE**



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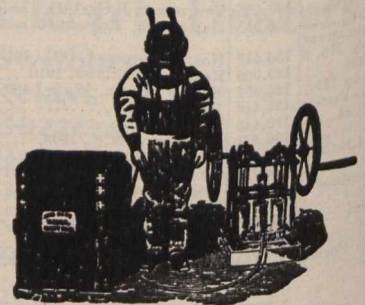
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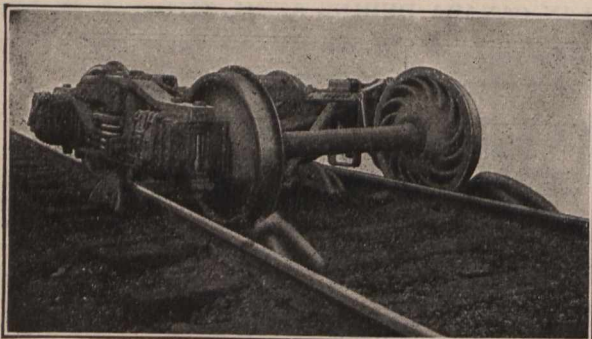
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**60,000 PAIRS  
IN USE.**

Manufactured at

Montreal, Que., and

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of Pressed Steel Plate,  
and guaranteed to re-rail  
heaviest equipment.

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**BRITISH COLUMBIA  
Fir, Spruce and Cedar Lumber  
and Cedar Shingles**

**Long Fir Timbers a speciality**

**Imperial Timber & Trading Co. Ltd.**  
Vancouver, B.C.



include two 22 ft. life boats, two 16½ ft. life rafts, one 16 ft. working boat, suspended on davits, and fitted with quick launching apparatus; two seat rafts each provided with three large galvanized steel tanks for buoyancy; and 1,050 solid cork life jackets. Four cork ring buoys are also provided, and will be hung along the rail of the vessel for immediate use in case any one falls overboard.

The usual complement of fire fighting appliances is supplied and in addition a fire main led from steam pumps to all decks is provided, so arranged that any part of the boat can be reached by a 50 ft. hose length. The pilot house, as stated is located on the upper or gallery deck, and has communication with engine room by telegraph system, which is arranged to work from the gallery deck also. There is in addition, a speaking tube from the pilot house to the engine cabin.

The boat is equipped with steam heating apparatus, with radiators fitted in smoking room, sun parlor, observation cabin and main deck. She is supplied with steam steering gear, and will be operated by telemotor from the pilot house. Light will be supplied from an electric generator from the engine room of 15 kilowatt capacity, the boat being wired for 200 lights, with a 13 in. searchlight on the pilot house operated from within. All cabins are fitted with lacquered brass electric fixtures. Drinking fountains are located at convenient places throughout the vessel for ice water.

The steamer will be painted to harmonize with the present colors used on the Garden City, viz., above guard, light buff, rail, dark green, hull below waterline, red, and waterline to guard, light slate.

A comparison as to the size of the boat with other well known boats will give our readers a better idea of her dimensions:

Name.	Length.	Beam.
Corona .....	270.0 ft.	32.0 ft.
City of Montreal .....	220.0 ft.	32.5 ft.
City of Ottawa .....	220.0 ft.	32.5 ft.
Dalhousie .....	200.0 ft.	38.0 ft.
Dundurn .....	190.0 ft.	30.2 ft.
Macassa .....	178.4 ft.	24.1 ft.
Modjeska .....	178.0 ft.	31.1 ft.
Garden City .....	177.9 ft.	26.1 ft.
Lakeside .....	121.0 ft.	26.0 ft.

It is expected the Dalhousie will be completed in time to go on the route by June 26.

**Notices to Mariners.**

The Department of Marine has issued the following:

- 42. Apr. 21. 107. Nova Scotia, north coast, Northumberland strait, entrance to Pictou, Skinner reef, gas buoy established. 108. Nova Scotia, north coast, Northumberland strait, Caribou reef, buoy established.
- 43. Apr. 26. 109. Nova Scotia, Cape Breton island, Money point, marine signal station established, Cape St. Lawrence, marine signal station discontinued. 110. Quebec, entrance to the St. Lawrence, survey steamer, engaged in the survey of currents, to be avoided.
- 111. Quebec, River St. Lawrence, chart, Razade islands to White island, issued.
- 112. Quebec, River St. Lawrence, chart of Quebec harbors issued.
- 44. May 5. 113. Quebec and Newfoundland, Gulf of St. Lawrence, north shore, information respecting tides.
- 45. May 5, 114. Ontario, Lake Ontario, Bay of Quinte, Telegraph narrows, dredging completed, buoyage.
- 46. May 6. 115. Ontario, Lake Ontario, Presqu'île bay, buoyage.
- 47. May 9. 116. Nova Scotia, south-west coast, off western entrance to Cockeritt passage, bell buoy established.
- 117. New Brunswick, east coast, North-

umberland strait, Buctouche harbor, change of color of Indian point range lights.

48. May 10. 118. New Brunswick, south coast, Bay of Fundy, St. John harbor, Partridge island, temporary light.

49. May 10. 119. British Columbia, Vancouver island, east coast, Haro strait, Little Zero rock, buoy established. 120. British Columbia, Finlayson channel, Jorkins point, gaslighted beacon established. 121. British Columbia, Nepean sound, Otter channel, rock reported. 122. British Columbia, Chatham sound, Prince Rupert harbor, Fairview, beacon established, buoy discontinued.

50. May 18. 123. Quebec, Gulf of St. Lawrence, Gaspé Bay, Gaspé basin, Paddy shoal and Janvrin shoal, light-houses established. 124. Quebec, River St. Lawrence, channel between Hare Island and Hare island south reef, buoy established.

51. May 20. 125. British Columbia, Portland canal, Lion point, Eagle point, and Stewart, buoys established. 126. New Zealand, Three King islands, incorrectly charted.

**The R. & O. N. Co's Steamboat Saguenay.**

The Richelieu and Ontario Navigation Co.'s steamboat Saguenay was launched at Glasgow, Scotland, Apr. 22. She is of the Canadian lake and river type, of which few have been built in Great Britain. She has five decks, orlop, main, promenade, gallery and hurricane, with observation cabins and turrets. Her dimensions are as follows:— Length 275 ft., breadth 56½ ft. depth to hurricane deck 40 ft. There is berth accommodation for 240 first class passengers and 76 of a crew, and she will be registered to carry 1,700 passengers. The cabins are on the gallery and promenade decks, with observation turrets at the forward and after ends. The hurricane deck is used chiefly for the officers' accommodation, at the forward end, with an observation cabin amidships. The dining saloon, situated at the after end of the main deck, is panelled in mahogany, and has accommodation for 100 persons. The machinery consists of two sets of four crank triple expansion engines, balanced on the Yarrow, Schlick and Tweedy system, with propellers of the built type, with blades of bronze. The engines are of the high speed type, and special care has been taken in the design of the valve gear in order to eliminate vibration. The starting platform is situated at the level of the main deck, within the engine room casing, and the

gear is so arranged that both sets of machinery can be conveniently manipulated by the engineer. Steam will be supplied by three single-ended multi-tubular boilers, at a pressure of 175 lbs. under forced draught. There will be a complete installation of auxiliary machinery, including two electric light engines and refrigerating plant. She is expected to sail for Canada, early in June, and will be placed on her route as soon after arrival as she can be prepared.

**Vessels Removed from the Register.**

The following vessels were removed from the register during April, for the reasons assigned:— Steam.—Mizpah, Lindsay, Ont., 2 tons, broken up; Saucy Jim, Collingwood, Ont., 63 tons, burnt; Spray, Vancouver, B.C., 5 tons, foundered. Sailing.—A. K. McLean, Lunenburg, N.S., 176 tons, abandoned at sea; Emma R. Smith, Windsor, N.S., 371 tons, transferred to Newfoundland; H. J. Hogan, Parrsboro, N.S., 772 tons, abandoned at sea; Helen Shafner, Annapolis Royal, N.S., 180 tons, abandoned at sea; Jessie Gertrude, Lunenburg, N.S., 17 tons, sold to foreigners; John J. Barlum, Sault Ste. Marie, Ont., 1,213 tons, sold to foreigners; La Galiotte, Quebec, Que., 18 tons, broken up; La Marine, Quebec, Que., 18 tons, broken up; Lottie B., Lunenburg, N.S., 12 tons, foundered; St. Pierre, Quebec, Que., 44 tons, broken up; Trade Wind, Whitby, N.S., 181 tons, burnt; Umbrina, Shelburne, N.S., 99 tons, sunk; Zephyr, Halifax, N.S., 16 tons, broken up.

**Atlantic and Pacific Ocean Marine.**

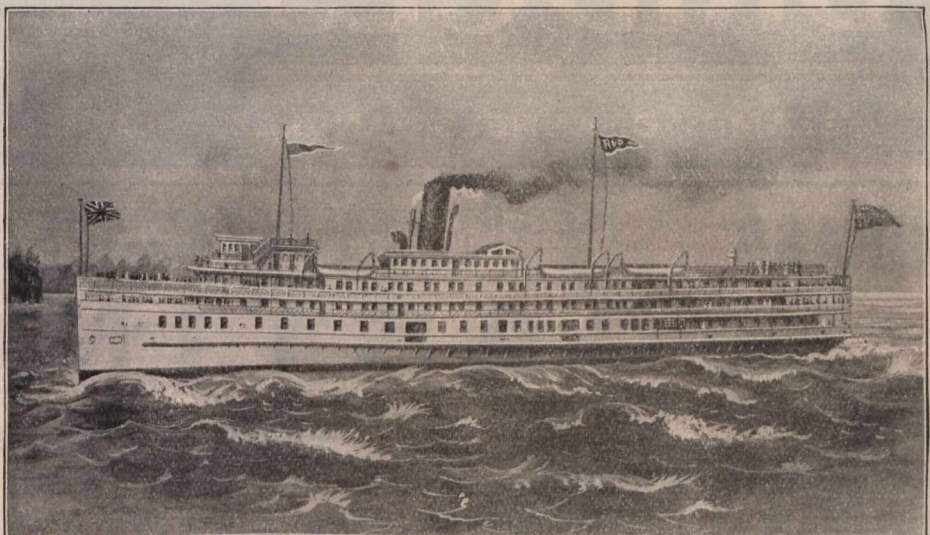
The White Star Line's annual report shows gross profit of £1,070,274, and a net profit of £540,661. Dividends paid during the year, amounted to 30%.

Capt. A. H. Vipond, formerly commodore of the Allan Line, died at Bootle, Eng., Apr. 26, aged 65. He retired from active service about a year ago.

Capt. Wm. Wallace, formerly of the Allan Line, s.s. Sicilian, which command he resigned in Oct., 1910, after 25 years in the service, died at Hudson, Que., Apr. 30.

The Elder Dempster Co.'s balance sheet for the past year shows a profit of £228,619. A dividend of 8% for the year has been declared, together with a bonus of 2%.

The Canadian Northern Steamships, Ltd., s.s. Royal George, being the first vessel to arrive at Montreal this season,



R. & O. N. Co's Steamboat Saguenay.



# THE CANADIAN BRIDGE CO., LIMITED

WALKERVILLE, ONTARIO

LOCOMOTIVE  
TURNTABLES  
ROOFS  
STEEL BUILDINGS

Manufacturers of

Railway and Highway  
**BRIDGES**

STRUCTURAL  
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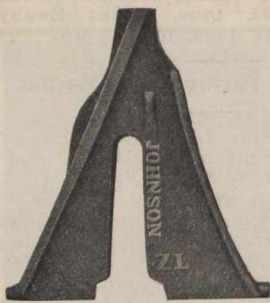
Freight Sheds

We are well equipped to do heavy pile driving.

Montreal, Que.

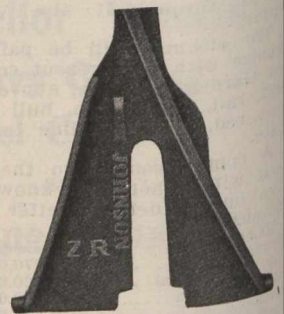
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Type Z left hand

Straddles the rail—needs no spikes, clamps or fasteners.  
Rests on rail both front and rear.  
Adjusts itself to different heights of rail.  
Forms a friction grip with rail during the operation.  
Brings rails to gauge during replacement.  
Distributes the load on the Rail, not one or two ties.  
Special types for Steel-ties and Street Car Rails.



Type Z right hand

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DOMINION BRIDGE CO., LTD., MONTREAL, P.Q.

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STEEL BUILDINGS

ELECTRIC and HAND POWER CRANES  
Structural METAL WORK of all kinds

BEAMS, CHANNELS, ANGLES, PLATES, ETC., IN STOCK

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ICALLY PERFECT

BRONZE

# CASTINGS

ALUMINUM

MANGANESE

LUMEN BEARING COMPANY, WEST TORONTO



Capt. Henderson was presented with a gold headed cane by the Harbor Commissioners.

The Allan Line s.s. Scotia, formerly Staatendam, arrived at Montreal, May 18, on her first trip to that port, and a number of those engaged in the passenger traffic there were entertained to luncheon on board, May 20.

The Cunard Line s.s. Ascania, formerly the Thomson Line s.s. Tortona, which will sail from Montreal, June 9, for England, has been chartered by the British Admiralty, in connection with the Coronation naval review, off Spithead.

The White Star-Dominion Line s.s. Teutonic arrived at Montreal, May 21, on her maiden trip on the St. Lawrence route. She is said to be the longest vessel using the St. Lawrence route, being 582 ft. long over all. A number of passenger agents and others were entertained to luncheon on board, May 25.

P. A. S. Franklin, Vice President, International Mercantile Marine Co., who was in Montreal, May 13, stated that the White Star-Dominion Line, would, this season, operate the s.s. Majestic on the St. Lawrence route, in addition to the s.s. Teutonic, in a two class service, while the Laurentic and Megantic would be run with a three class service, as last season.

The Bermuda Atlantic Steamship Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$100,000 and office at Toronto, to build, purchase or otherwise acquire and operate steam and other vessels, and to carry on a general business as ship owners, brokers, warehousemen and forwarding agents. The incorporators are, S. Johnston, R. H. Parmenter, A. J. Thomson, W. S. Morlock, G. O. Merson, Toronto.

The Dominion Government has been notified by the British Government that the latter will not renew its share of the subsidy for the contract for a steamship service between Halifax and St. John and the British West Indies, when it expires at the end of June. The respective Governments have hitherto each subscribed \$67,500 a year. The present contract is with Pickford and Black, who engaged to employ only vessels of British register, in the service.

T. and J. Harrison, Liverpool, Eng., operating the Harrison Line, announce that they have established a service to Pacific ports, including Vancouver and Victoria, B.C., the round trip to be accomplished in four months. Balfour, Guthrie and Co., are acting as agents for the line, and it is reported that they are negotiating with the Great Northern Ry. for a lease of waterfront lots along Burrard Inlet, for the erection of wharves and warehouses, in connection with this service.

The Dominion Government has signed a contract with the New Zealand Government and the Union Steamship Co., of New Zealand, for a direct monthly steamship service, commencing in August, between Vancouver, Victoria and Auckland, calling at Honolulu and Suva, for five years, for an annual subsidy of £37,000 18s. 2d. It is expected that the New Zealand Government will also contribute to the service. It is stated that the question of the renewal of the contract for an Australian service was to be taken up by the Canadian and Australian Premiers at the Imperial Conference, in England, in May.

The Steamship Cheronea Co.'s s.s. Cheronea, managed by Wm. Thomson and Co., St. John, N.B., is reported to have been sold to a Greek company. She was built at Port Glasgow, Scotland, in 1897, and was transferred from the British register to the Canadian register, in 1909, together with other vessels managed by the same firm. She is equipped with triple expansion engines with cylinders 25, 41 and 66 ins. diam., by 42 ins. stroke, 294 n.h.p. Her dimensions are, length, 324.7 ft.; breadth 47.9 ft.; depth, 22.6 ft.; tonnage, 3,189 gross, 2,060 register.

The winter navigation season at St. John, N.B., closed May 10, with the departure of the s.s. Kwarra, for South Africa. The total number of steamships arriving at the port during the season was 135, of which 112 loaded outward cargoes. The total shipments outward were valued at \$23,669,073, of which \$15,322,437 represented Canadian goods. In addition to this amount, silver ore and furs valued at \$1,800,000 were also shipped. There was a falling off in the shipment of live stock, grain and flour, as compared with the previous year. There was a considerable increase in the imports and inward passengers.

Press reports from Montreal, May 10, stated that announcement would be made shortly, of the awarding of the mail contract between Great Britain and China, to the Imperial Steamship Co., in conjunction with the Canadian Northern Ry. The Imperial Steamship Co., was recently incorporated, to operate a line of steamships across the Atlantic, with the United Kingdom port at Black-sod Bay, Ireland, and the Canadian port at Halifax, N.S. In connection with this it is proposed to build a railway across Ireland, and connect with England, by special car ferries, or quick passenger steamship service. It is stated that Mackenzie, Mann and Co., have considerable interest in the project.

The Dominion Premier, in response to questions in the House of Commons, May 10, stated that the mail contract, for which a subsidy of \$500,000 a year was paid, was with the Allan Line, and that it would not be renewed. He con-

tinued, "We have decided that so far as freight and passenger service is concerned the service should be self-supporting to the St. Lawrence, though for the winter service to St. John and Halifax, it may be necessary to continue the subsidy for some time longer. For the St. Lawrence, instead of this subsidy, we will pay for the carriage of mails, by the pound. We do not want to discontinue too suddenly, and will renew the contract for one year. We believe that for the Atlantic Canada should have a faster service than 18 knots."

**Maritime Provinces and Newfoundland.**

The Department of Public Works received tenders, May 31, for the construction of a landing wharf at Cape Rouge, N.S.

The Dominion Atlantic Ry. Co.'s steamships Prince Arthur and Prince George have been equipped with wireless telegraph apparatus.

The ferry boat, operating across the St. John River, between Edmundston, N.B., and Madawosky, Me., upset, May 1, and five of the occupants were drowned.

The Eureka Lumber Co., Ltd., has been incorporated under the New Brunswick Companies Act, with a capital of \$80,000, and office at Bathurst, to carry on a gen-

**White Star-Dominion ROYAL MAIL STEAMSHIPS**

**SAILINGS FROM MONTREAL.**

SOUTHWARK	June 7
MEGANTIC	" 10
CANADA	" 17
LAURENTIC	" 24
TEUTONIC	July 1
MEGANTIC	" 8
CANADA	" 15
LAURENTIC	" 22
TEUTONIC	" 29
MEGANTIC	Aug. 5
CANADA	" 12
LAURENTIC	" 19
TEUTONIC	" 26
MEGANTIC	Sept. 2
CANADA	" 9
LAURENTIC	" 16
TEUTONIC	" 23
MEGANTIC	" 30

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**THE CANADIAN PACIFIC RAILWAY COMPANY.**

**Dividend Notice.**

At a meeting of the Board of Directors, held this day, a dividend of two and one-half per cent. on the Common Stock for the quarter ended 31st March last, being at the rate of seven per cent. per annum from revenue and three per cent. per annum from interest on the proceeds of land sales and from other extraneous assets, was declared, payable on 30th June next, to Shareholders of record at 3.00 p.m. on 1st June next.

By order of the Board,  
W. R. BAKER, Secretary.

Montreal, May 8th, 1911.



**S. S. "JOHN SHARPLES"**

**FOR SALE**—American steel steamer, 1,614 gross tons, built 1903, as she now lies at Garden Island, Kingston, Ont., where she can be seen and her condition ascertained.

Sealed bids, marked "SHARPLES," accompanied by a certified check for 5 per cent. of the amount of the bid, as a guarantee of good faith, will be received up to noon of June 16, 1911, at the offices of

**R. Parry Jones, Lloyds' Agent, 862 Rockefeller Bldg., Cleveland, O.,**

where bids will be opened in the presence of intending purchasers. The right to reject any or all bids is reserved.



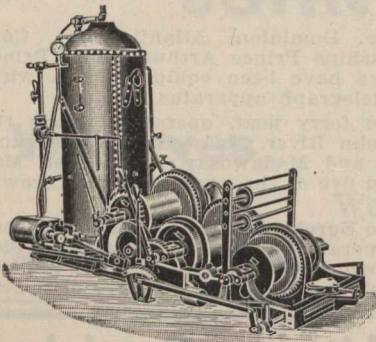
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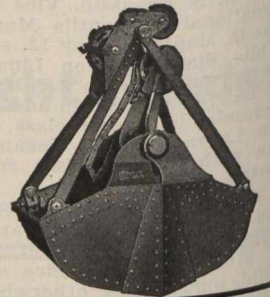
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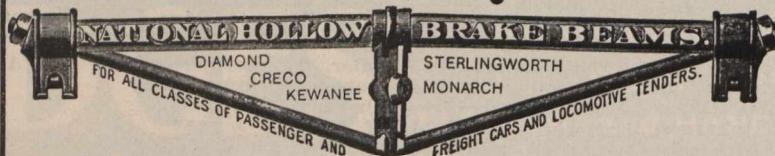
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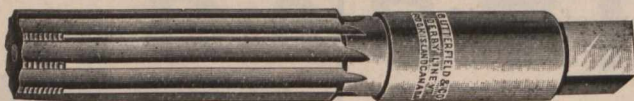
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Capital Paid Up .....	5,737,000.00
Reserve Fund .....	5,737,000.00

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eral lumbering business, and in connection therewith to own and operate steam and other vessels.

The ferry service at Chatham, N.B., which, it was feared, would be suspended, owing to the financial loss incurred, has been continued with increased rates for ferriage. The Provincial Government provides a subsidy of \$500 a year for the service, which amount is stated to be inadequate.

The following steamboats, owned by Burnham, Morrill and Co., for whom I. H. Mathers and Son, Halifax, N.S., act as agents, will be operated during the season, with captains and engineers, respectively, as given:— Robie M., R. J. Gilbert, G. E. Scott; Mary Jane, R. A. Hines, J. McCanell.

The deputation from Halifax, N.S., which recently waited on the Government at Ottawa, returned May 5, and reported that it was probable that the work of enlarging pier 2 would be proceeded with immediately, making it 800 ft. long and 300 ft. wide. Other work, which would probably be undertaken shortly, includes a temporary shed on pier 9, and the construction of a new pier on the Cunard property.

The British Canadian Shipbuilding and Dock Co., Ltd., the incorporation of which was announced in our last issue, is reported to have under consideration the establishment of a shipbuilding plant and dry dock at Sydney, N.S. It is reported that a site has been selected in Sydney harbor, and that tenders for the construction of the proposed vessels for the Canadian Navy will be submitted to the Government on behalf of the company, in which the Fairfield Shipbuilding Co., of Glasgow, Scotland, is interested.

The St. John River Steamship Co., has issued a writ against the Crystal Stream Steamship Co., asking damages for the placing of the steamboat Majestic on the Fredericton route in violation of an agreement made between the two companies, that it would not operate a vessel on that route, nor on the Washade-moak route, nor interfere with any wharves or terminals held by the former company. The same company has also issued a writ against M. D. Austin to restrain him from giving a lease of the Star Line wharf and warehouse at In-diantown, N.B., to the Crystal Stream Steamship Co., and to compel him to lease it to the St. John River Steam-ship Co.

The Dominion Parliament has voted \$150,000 for the construction of a new canal at St. Peters, N.S. The details of the proposal have not been worked out. It is estimated that the cost of the work will be about \$300,000. Whether the existing canal will be abandoned or not has not been decided. The matter is under consideration, but the main difficulty in the way of enlarging the present canal is the fact that to do so would necessitate its being closed for a year, which would be a serious matter.

**Province of Quebec Marine.**

At a recent meeting of the Quebec city council, the question arose as to the construction of the Levis Ferry Ltd., summer boats, and as to whether they were to be built in accordance with the contract, the mayor stating that he had received no reply from the company on the subject.

Revillon Freres Trading Co., Ltd., has recently been incorporated with a capital of \$2,000,000, and office in Montreal, to take over all the assets and liabilities of Revillon Bros., Ltd. and to carry on the business as heretofore, including the owning and operating of steam and other vessels, etc.

The Campbellton and Gaspé Steam-ship Co., Ltd., has been incorporated

under the Dominion Companies Act, with a capital of \$100,000, and office at Fraserville, Que., to navigate the inland waters and other waters outside of Canada, and especially on the St. Lawrence River and its tributaries, and in the Baie de Chaleur, and in connection therewith to own and operate steam and other vessels. The incorporators are G. A. Binet, N. Dion, A. Stein, A. Benoit, E. Charrette, and A. Binet, Fraserville, Que.

In the case of the Quebec and Levis Ferry Co., against the Levis Ferries Ltd., the respondent's motion to dismiss the appeal, was rejected with costs recently. This case, which relates to the fining of the Q. & L. F. Co.'s manager, for contempt of court last year, will now be heard by the Appeal Court. In another case, connected with the Levis Ferries Ltd., A. Gourdeau, petitioner for a writ of mandamus, the city of Quebec, defendant, and A. Bernier, intervening, the motions of the defendant and the intervenor, to dismiss the appeal, were both granted, May 8, with costs against the appellant.

We are officially advised that the floating dry dock, which is to be installed at Montreal by Vickers Sons and Maxim, Ltd., will be of the first class, with a lifting capacity of 25,000 tons, built of steel in three detachable sections, and will be of the following dimensions:— total length, 600 ft.; width over all 135 ft.; length on keel blocks, 550 ft.; clear inside width, 100 1/2 ft.; depth of hull from bottom to top of keel blocks deck, 17 ft.; height of keel blocks, 4 ft. The cost is estimated at \$4,228,710, and the Government will pay a subsidy of 3 1/2% a year for 35 years, on \$3,000,000.

The Fairhaven Transportation and Coal Co., Montreal, the incorporation of which, we announced in our last issue, will operate the steamboat Rock Ferry, during the season, in the coal trade, between Fairhaven, N.Y., and Montreal and Quebec, and she will probably take wood pulp as return cargoes. The vessel, which was formerly known as Merrimac, was recently purchased from the Gilchrist Transportation Co., Cleveland, O. She was built in 1882, and is equipped with fore and aft compound engines, with cylinders 21 and 48 ins. diam., by 40 ins. stroke, of 485 i.h.p., supplied with steam by a fire box boiler 9 by 15 1/2 ft., at a pressure of 90 lbs. Her dimensions are, length, 235 ft.; breadth, 41 ft.; depth 21 ft.; tonnage 1399 gross, 1202 register.

The Montreal Harbor Commissioners' steam tug Sir Hugh Allan, which was built at Barrow-in-Furness, Eng., has been specially designed for use as a tug, but in addition, she has been specially strengthened forward and fitted with suitable ballast tank arrangement, so that she may be utilized as an ice breaker, and as a cruiser for inspection purposes. She will be rated at the highest class at Lloyds', and is equipped with two sets of triple expansion engines having an i.h.p. of 1,300. The bridge deck, which extends the full width of the vessel, has chart and wheel houses at the forward end, and four staterooms, aft. The dining saloon, with accommodation for 16 persons, is on the deck below. There is a complete electric light installation with powerful searchlight. Her dimensions are, length, 130 ft.; breadth, 26 ft.; depth, 13 ft.

**Ontario and the Great Lakes.**

The Dominion Parliament has voted \$50,000 for improvements in Kingston harbor.

The Department of Railways and Canals received tenders, May 31, for dredging the Murray canal.

The Department of Railways and Canals received tenders, May 31, for improvements at Port Colborne.

The name of the steamboat Stranger, no. 103878, registered at Kingston, has been changed by order in council to Lamonde.

The name of the steamboat Calumet, no. 103921, registered at Peterboro, has been changed by order in council to Winnett.

The Public Works Department has awarded the contract for dredging at Toronto, to R. Weddell and Co., Trenton, Ont.

Capt. Frank Duetta, a well known navigator of Lake Ontario and the River St. Lawrence, died at Picton, May 15, aged 65.

The Nipissing-Pontiac Steamboat Co., New Liskeard, has placed the steamboat Aileen in service on Lake Timiskaming, with G. Miller, as captain.

The Merchants Mutual Line, Ltd., is building an addition to its shed on the Simcoe St. wharf, Toronto, making it approximately 300 by 150 ft. wide.

The Hamilton Ferry Co., Hamilton, has appointed J. Gillem, captain, and A.

**SAULT STE. MARIE CANALS TRAFFIC**

The following commerce passed through the Sault Ste. Marie Canals in April:

ARTICLES	CANADIAN CANAL	U. S. CANAL	TOTAL
Copper..... Eastbound..... Short tons	2,355	2,489	4,844
Grain..... "..... Bushels	1,179,564	100,910	1,280,474
Building stone..... "..... Short tons			
Flour..... "..... Barrels	187,980	56,090	244,070
Iron ore..... "..... Short tons	110,306	26,009	136,315
Pig iron..... "..... ".....			
Lumber..... "..... M. ft. B.M.	2,277	1,051	3,328
Silver ore..... "..... Short tons			
Wheat..... "..... Bushels	5,543,521	121,132	5,664,653
General merchandise..... "..... Short tons	1,544	889	2,433
Passengers..... "..... Number	234	21	255
Coal, hard..... Westbound..... Short tons	52,943		52,943
Coal, soft..... "..... ".....	192,083	94,385	286,468
Flour..... "..... Barrels	125		125
Grain..... "..... Bushels			
Manufactured iron..... "..... Short tons	9,963	9,174	19,137
Iron ore..... "..... ".....			
Salt..... "..... Barrels	7,868	19,039	26,907
General merchandise..... "..... Short tons	27,518	32,203	59,721
Passengers..... "..... Number	433	62	495
Vessel Passengers..... Number	191	183	374
Registered tonnage..... Net	423,074	275,721	698,795
Freight—Eastbound..... Short tons	327,207	43,118	370,325
"—Westbound..... ".....	288,644	138,618	427,262
Total freight..... ".....	610,851	181,736	792,587

A short ton consists of 2,000 lbs. The Canadian canal opened April 22; the U.S. Poe lock opened April 24.

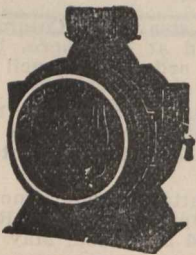


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The Inland Revenue Department received tenders, May 29, for the privilege of ferrying across the Ottawa River between St. Thomas d'Alfred, Ont., and Fasset, Que.

The Montreal Transportation Co.'s Stormont, which grounded between Longue Pointe and Pointe aux Trembles May 6, was released, with practically no damage, the same day.

The Keystone Transportation Co.'s steamboat Keystone, ran aground on the Vidal shoals, near Sault Ste. Marie, May 5. She was released by tugs and proceeded on her trip.

The Department of Railways and Canals has awarded the contract for the work of improving the lower entrance to the Farrens Point canal, to the Randolph Macdonald Co., Toronto.

The Department of Railways and Canals will receive to June 6, tenders for the construction of an extension to the north mooring pier at the upper entrance to the Sault Ste. Marie canal.

The Dominion Parliament has voted \$500,000 for further harbor and river improvements at Fort William and Port Arthur, and \$15,000 for an addition to the Customs House at Port Arthur.

The Ontario and Quebec Navigation Co.'s steamboat Aletha, which was driven ashore in Navy Bay, Kingston, May 1, after being released, May 7, was dry docked at Kingston for repairs.

An order in council has been passed changing the name of the steamboat Waubaushe, no. 85,415, registered at Midland, to D. J. Burke. The register gives the port of registry as St. Catharines.

The Inland Lines steamboat Emperor, which has been built at Collingwood, left there on her first trip, May 3. On May 19, she broke her shaft and was towed to Detour, whence she was taken to Port Arthur for repairs.

The Niagara Navigation Co. is building a structural steel shed, 250 ft. long, on pier 22, at Toronto, to replace the shed destroyed by fire last summer. It will be used for freight purposes, and will cover a waiting room, ticket offices, etc.

During the past winter the Inland Lines steamboats Donnacona and Strathcona were completely overhauled, to enable them to enter the package freight trade this season, instead of the ore trade, for which they were originally built.

The Turbine Steamship Co.'s s.s. Turbina, which was entirely overhauled during the winter, had a trial trip, May 17, and was placed on her route between Toronto and Hamilton, May 20. The repairs and improvements cost about \$10,000.

The Buffalo, Lockport and Rochester Ry. steamboat, Olcott, has been placed on the route between Toronto and Olcott Beach, this summer. It is said that this vessel was formerly known as Lakeside, and built at Toledo, Ohio, about six years ago.

The underwriters are offering a reward of \$1,500 for information indicating the exact location of the car ferry Marquette and Bessemer No. 2, which sunk, during a storm, in Lake Erie, in Dec. 1909. A further \$3,500 will be paid to the same informants, if, and when, the car ferry is successfully raised.

The Inland Lines steamboat Donnacona, with a full cargo of grain from Fort William, struck the bank in the Welland canal, near Port Colborne, May 8, and returned to Port Colborne, where her cargo was discharged. She subsequently proceeded to Buffalo for examination and repairs.

Press reports state that arrangements are being made for the operation of a line of steamboats, between Kingston and Clayton, and Kingston and Cape

Vincent, one trip being made daily on the first route and two trips daily on the second. B. W. Folger, Kingston, is said to be interested in the project.

The following is a list of the steamboats operated by the Upper Ontario Steamboat Co., New Liskeard, with their respective captains and chief engineers: Champion, A. L. Casselman, G. Willis; Gipsy, L. Bethune, R. T. McCaw; S. & Y., R. Hansen, J. McCaw; St. Antoine, G. Miller, T. Arbin; Wenona, J. S. Inkster.

The steamboat Geneva, which is reported to have been purchased recently by the Peterboro and Lake Simcoe Navigation Co., for operation between Peterboro and Rice Lake ports, was built at Orillia in 1905. She is screw driven, and is equipped with engine of 10 n.h.p. Her dimensions are, length, 80.7 ft., breadth 16.3 ft., depth 5.3 ft.; tonnage, 92 gross, 58 register.

A deputation representing the municipalities between St. Catharines and Port Dalhousie, waited on the Minister of Railways and Canals, May 10, to ask that the Grenville route for the proposed new Welland canal be chosen. The Minister in reply, stated that surveys were being made, with the object of deciding the best route, and in reaching a final decision, the representations of the deputation would not be lost sight of.

The U.S. Lake Survey reports the levels of the Great Lakes, for April, in feet above tidewater, as follows:— Superior, 600.61; Michigan and Huron, 579.44; Erie, 571.45; Ontario, 245.44. Compared with the average April levels for the past ten years, Superior was 1.33 ft. lower; Michigan and Huron, 1.11 ft. lower; Erie, 0.86 ft. lower, and Ontario, 0.94 ft. lower. It was anticipated that each of the lakes would rise 0.3 ft. during May.

The Dalhousie Navigation Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$50,000 and office at Toronto, to purchase, lease, charter or otherwise acquire and operate steamships, other vessels propelled by any other motive power or device; to own piers, wharves, docks, dry docks, terminals, warehouses, etc. The incorporators are G. F. Macdonnell, R. H. M. Temple, A. J. Mitchell and J. B. Robertson, all of whom are connected with the Canadian Northern Ry., Toronto.

The Engineer Office of the U.S. War Department, will receive tenders to June 29, for the construction of lock masonry at the Sault Ste. Marie canal, Mich. The work to be done includes the furnishing of all necessary plant, labor and supplies, and the building of a masonry lock and a portion of the approaches, with pump well, tunnels, etc., and the furnishing of cement and certain re-inforcement and metal parts to be built into the masonry. The estimated quantities, include 2,000 cubic yards of excavation, 138,000 cubic yards of concrete in lock and canal walls, 35,000 cubic yards of concrete elsewhere than in walls, 26,000 lineal feet of drilling for anchor rods, 215,000 barrels of Portland cement, 385 tons of square cold-twisted steel bars, 215 tons of anchor rods in rock with nuts and square plate washers, 150 tons of wire cloth, 35 tons miscellaneous steel, iron and castings, 30 tons sheet lead stop waters. Forbs, chief engineer of the ferry steamboat Ivan R. for the current season.

#### Manitoba, Saskatchewan and Alberta.

The Dominion Public Works Department has accepted the plans for the construction of a wharf on the south side of the Saskatchewan River, at Prince Albert, Sask., and tenders are being called for. The wharf will be 225 ft. long.

The Dominion Government is having built, at Prairie Creek, Alta., a fire patrol boat, to run on the Athabasca River, as far north as Mirror Landing, at the mouth of the Lesser Slave River. It will be equipped with a powerful engine on account of the strong currents encountered.

A press report from Athabasca Landing, Alta., states that in addition to two steamboats at present under construction there, for operation on the Athabasca River, a contract has been placed for the building of 80 flat boats, making 150 flat boats in all, to be built there this season.

The House of Commons has voted for harbor and river works in Manitoba, Saskatchewan and Alberta, as follows: Manitoba, Fairford River, to pay for extra work thereon, with interest accrued, \$6,709.12; Gimli wharf extensions, \$7,000; Red River, St. Andrews locks and dam, additional amount to complete payments, \$19,385; Red River, St. Andrews dam, construction of approaches, \$63,000; St. Andrews rapids, raising road, etc., \$1,000; St. Andrews Rapids, archway, \$5,060; Victoria Beach bay, harbor, breakwater and wharf, \$12,000. Saskatchewan and Alberta, surveys of rapids, etc., on North and South Saskatchewan Rivers and other navigable streams, further amount required, \$10,000.

#### B.C. and Pacific Coast Marine.

The Royal City Navigation Co.'s steamboat Paystreak's officers for the current season are, captain, R. C. Menten, chief engineer, A. McLeod.

The C.P.R. British Columbia Coast Service s.s. Joan after being thoroughly overhauled and repaired, has been replaced on her route between Vancouver and Nanaimo.

The official enquiry into the wreck of the s.s. Sechelt, off Church Point, on Mar. 24, was opened at Victoria, May 16, before Justice Martin, and Captains Neurostos and Reid.

The C.P.R. has filed with the Minister of Public Works, at Ottawa, plans of a wharf to be built on water lots 8 to 12, inclusive, on the Fraser River at New Westminster.

Capt. A. A. Sears, master of the s.s. Iroquois, which was wrecked, with considerable loss of life off Sydney, Apr. 10, was recently committed for trial on a charge of manslaughter.

J. H. Bonser and W. Alexander have been appointed, respectively, captain and chief engineer of the Prince Rupert-Skeena Transportation Co.'s steamboat Inlander, for the current season.

The Dominion Parliament has made provision for harbor and river improvements in the province, as follows:—Arrow Lakes, improvements at narrows, \$25,000; Boswell, wharf, \$7,500; Columbia and Kootenay Rivers, wharves, further amount required, \$19,500.

The C.P.R. British Columbia Coast Service s.s. Princess Alice, which is under construction at Wallsend, Eng., is being pushed forward, and it is expected that she will be completed before the end of the year. Her dimensions are, length, 210 ft., breadth 40 ft., depth of hold 16 ft.

The steamboat Roche Point, recently built at Vancouver, for the Imperial Car, Shipbuilding and Drydock Corporation, and leased for a year to the North Arm Steamship Co., had a trial trip to Indian River Park, May 6. She is 76 ft. long, with 17 ft. beam, and a capacity for 150 passengers.

The C. P. R. British Columbia Lake and River Service steamboat Bonnington, had a trial trip on the Arrow Lake, May 10. She was built by the Polson



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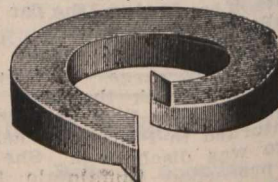
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### ENAMELED IRON SIGNS

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Iron Works, Toronto, and shipped to British Columbia in sections, where she was assembled and re-constructed. A full description of this vessel was given in our Nov. 1910 issue.

The British steamship Georgia, which was formerly under charter to the Canadian Mexican Pacific Steamship Co., for the service between Vancouver and Salina Cruz, and which has been lying idle since the charter expired, last June, is reported to have been sold to a Japanese firm. She was built at Newcastle, Eng., in 1889. Her dimensions are, length, 335 ft.; beam, 40 ft.; depth, 25 ft.

With reference to the vessel, which we mentioned in our last issue, that the C.P.R. is to build for its Kootenay Lakes service, we have been officially advised that her exact character has not been decided upon. The hull will be of steel, and she will be a stern-wheeler, drawing not more than two feet of water. The general dimensions

will be, length 200 ft., beam, moulded, 38 ft., or 44 ft. over guards; depth 7½ ft.

The Dominion Government has entered into an agreement with the Esquimalt Graving Dock and Shipbuilding Co., to pay a subsidy of 3½% on an expenditure of \$2,637,801.26, for 35 years, in aid of the construction of a dry dock and ship building and repairing plant at Esquimalt. The dimensions of the proposed dock are as follows:—along keelson, from gate seat to head of dock, 900 ft.; width at coping, 128 ft., width at bottom, 100 ft.; depth below top of coping, 41 ft., or at ordinary water spring tide, 35 ft. Bullen Bros., Esquimalt, and Denny Bros., Dumbarton, Scotland, are chiefly interested in the project.

The C.P.R. has awarded a contract to Bow & MacLachlan, Paisley, Scotland, for the construction of a steamship, for its B.C. and Pacific Coast Service. It will be operated on the Skagway and Northern

British Columbia route, as well as in the Queen Charlotte Islands trade. She will be fitted with very large hatches and gear for handling heavy weights, and will be comfortably fitted up for passengers. She will have a larger cargo capacity than any of the other Coast passenger vessels, approximately 1,200 tons, and accommodation for about 200 first class passengers. The machinery will include triple expansion engines of 2,000 i.h.p., driving a single screw, supplied with steam by three Scotch marine boilers, and in addition she will be equipped with tanks, all arranged for generating steam with oil fuel. Her dimensions will be, length 245 ft., beam 44 ft., depth of hold 18 ft. It is anticipated that she will be finished in time to sail from the Clyde by Nov. 1.

A number of changes have been made in the harbor regulations generally, and in addition, some special regulations have been made, applying to Vancouver, Victoria and Esquimalt, respecting anchorage, towing of logs, etc.

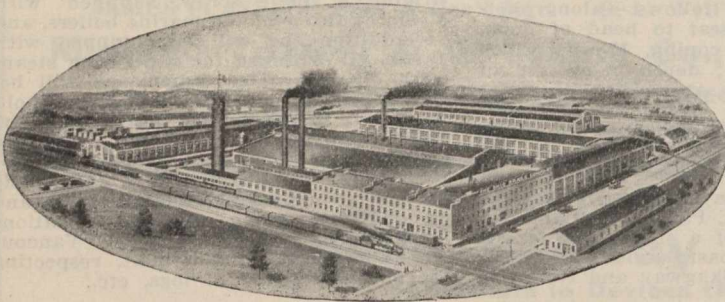
# The Purchasing Agents' Guide

To the Manufacturers of and Dealers in Steam and Electric Railway, Marine, Grain Elevator, Express, Telegraph, Telephone and Contractors' Supplies, &c.

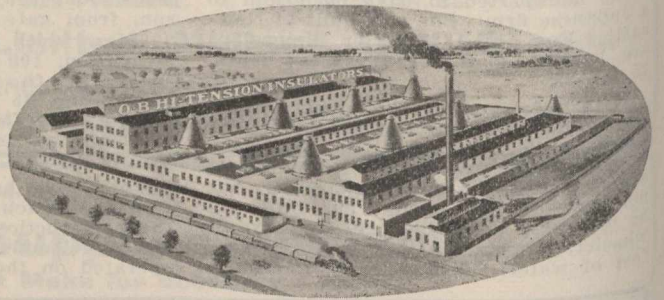
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|---|---|--|
| <p>Accountants and Auditors<br/>W. M. Dunlop and Co. .... Ottawa</p> <p>Acetylene<br/>Commercial Acetylene Co. .... Toronto.</p> <p>Aerated Waters<br/>E. L. Drewry ..... Winnipeg.</p> <p>Air Brakes and Fittings<br/>Allis-Chalmers-Bullock Ltd. .... Montreal.</p> <p>Canadian Westinghouse Co. Hamilton, Ont.</p> <p>Alloys<br/>E. L. Drewry ..... Winnipeg.</p> <p>American Vanadium Co. .... Pittsburg, Pa.</p> <p>Titanium Alloy Mfg. Co. .... Pittsburg, Pa.</p> <p>Angle Bars<br/>Nova Scotia S. &amp; C. Co., New Glasgow, N.S.<br/>Steel Co. of Canada, Ltd., Hamilton, Ont.</p> <p>Anti Rail Creepers<br/>The Holden Co., Ltd. .... Montreal.</p> <p>Asbestos<br/>Canadian H. W. Johns-Manville Co.,<br/>Ltd. .... Toronto</p> <p>Automobiles<br/>Preston Car &amp; Coach Co. .... Preston, Ont.</p> <p>Axes<br/>James Smart Mfg. Co. .... Brockville, Ont.</p> <p>Axles<br/>Canadian Car &amp; Foundry Co. .... Montreal.<br/>James Hutton &amp; Co. .... Montreal.<br/>Nova Scotia S. &amp; C. Co., New Glasgow, N.S.<br/>Jas. W. Pyke &amp; Co. .... Montreal.<br/>Steel Co. of Canada, Ltd., Hamilton, Ont.</p> <p>Babbit Metal<br/>Tallman Brass &amp; Metal Co., Hamilton, Ont.</p> <p>Battery Boards<br/>Geo. C. Royce ..... West Toronto, Ont.</p> <p>Beacons<br/>International Marine Signal Co. .... Ottawa.</p> <p>Bearings, Side<br/>Canadian Car &amp; Foundry Co. .... Montreal.<br/>Chicago Railway Equipment Co. .... Chicago.</p> <p>Blankets and Bedding<br/>The Hudson's Bay Co. ....</p> <p>Blasting Powder<br/>Curtis's &amp; Harvey (Canada) Ltd. .... Montreal</p> <p>Boller Checks<br/>Nathan Manufacturing Co. .... New York.</p> <p>Bollers<br/>Babcock &amp; Wilcox, Ltd. .... Montreal.<br/>Polson Iron Works, Ltd. .... Toronto.<br/>Robb Engineering Co., Ltd. .... Amherst, N.S.</p> <p>Bollers, Portable<br/>Babcock &amp; Wilcox, Ltd. .... Montreal.<br/>Polson Iron Works, Ltd. .... Toronto.<br/>Robb Engineering Co., Ltd. .... Amherst, N.S.</p> <p>Bollers, Stationary and Marine<br/>Babcock &amp; Wilcox, Ltd. .... Montreal.<br/>John Inglis Co., Ltd. .... Toronto.<br/>Polson Iron Works, Ltd. .... Toronto.<br/>Robb Engineering Co., Ltd. .... Amherst, N.S.</p> <p>Bollers, Steam<br/>Babcock &amp; Wilcox, Ltd. .... Montreal.<br/>John Inglis Co., Ltd. .... Toronto.<br/>Polson Iron Works, Ltd. .... Toronto.<br/>Robb Engineering Co., Ltd. .... Amherst, N.S.</p> <p>Bollers, Water Tube<br/>Babcock &amp; Wilcox, Ltd. .... Montreal.<br/>John Inglis Co., Ltd. .... Toronto.<br/>Polson Iron Works, Ltd. .... Toronto.<br/>Robb Engineering Co., Ltd. .... Amherst, N.S.</p> <p>Bolsters<br/>Canadian Car &amp; Foundry Co. .... Montreal.<br/>Canadian Ry. Equipment Co., Welland, Ont.</p> | <p>Whyte Railway Signal Co. .... Toronto</p> <p>Bolt Cutters<br/>London Machine Tool Co., Ltd., Hamilton.</p> <p>Bolts and Nuts<br/>Steel Co. of Canada, Ltd. .... Hamilton, Ont.</p> <p>Bolts, Track<br/>Nova Scotia S. &amp; C. Co., New Glasgow, N.S.</p> <p>Borers, Car Wheel<br/>John Bertram &amp; Sons Co. .... Dundas, Ont.</p> <p>Boring Mills<br/>London Machine Tool Co., Ltd., Hamilton.</p> <p>Brake Beams<br/>Canadian Car &amp; Foundry Co. .... Montreal.<br/>Chicago Railway Equipment Co. .... Chicago.</p> <p>Brake Shoes<br/>Am. Brake Shoe &amp; Fdry Co., Mahwah, N.J.<br/>Canada Iron Corporation, Ltd. .... Montreal.<br/>The Holden Co., Ltd. .... Montreal.</p> <p>Brake Shoes, Locomotive Driver<br/>Am. Brake Shoe &amp; Fdry Co., Mahwah, N.J.<br/>Canada Iron Corporation, Ltd. .... Montreal.<br/>Dorner Railway Equip. Co. .... Chicago, Ill.<br/>Railway Materials Co. .... New York.</p> <p>Brasses, Car<br/>T. McAvity &amp; Sons ..... St. John, N.B.</p> <p>Bridge Numbers<br/>Acton Burrows, Limited ..... Toronto.</p> <p>Bridges<br/>Canadian Bridge Co. .... Walkerville, Ont.<br/>Dominion Bridge Co. .... Montreal.</p> <p>Bronze<br/>American Vanadium Co. .... Pittsburg, Pa.<br/>Titanium Alloy Mfg. Co. .... Pittsburg, Pa.</p> <p>Buckets, Coal, Ore and Concrete<br/>M. Beatty &amp; Sons, Ltd. .... Welland, Ont.<br/>Brown Hoisting Machinery Co., Cleveland.<br/>Williams &amp; Wilson, Ltd. .... Montreal.<br/>Canadian Bridge Co. .... Walkerville, Ont.</p> <p>Buildings, Steel<br/>Dominion Bridge Co. .... Montreal.</p> <p>Bumping Posts<br/>Dominion Equip. &amp; Supply Co., Winnipeg.<br/>The Holden Co., Ltd. .... Montreal.<br/>McCord &amp; Co. .... Chicago, Ill.</p> <p>Buoys<br/>International Marine Signal Co. .... Ottawa.</p> <p>Cables, Electric and Feeder<br/>Chapman &amp; Walker, Ltd. .... Toronto.<br/>E. F. Phillips Electrical Works, Montreal.<br/>The Wire and Cable Co. .... Montreal.</p> <p>Capstans<br/>Dake Engine Co. .... Grand Haven, Mich.</p> <p>Caps, Uniform<br/>W. H. Coddington ..... Hamilton, Ont.</p> <p>Car Furnishings<br/>Gullford S. Wood. .... Chicago, Ill.</p> <p>Car Loaders, Box<br/>Mussens, Ltd. .... Montreal.</p> <p>Car Movers<br/>F. H. Hopkins &amp; Co. .... Montreal.<br/>Mussens, Ltd. .... Montreal.</p> <p>Cars<br/>Crossen Car Mfg. Co. .... Cobourg, Ont.<br/>Canadian Car &amp; Foundry Co. .... Montreal.<br/>Dorner Railway Equip. Co. .... Chicago, Ill.<br/>J. T. Gardner ..... Chicago, Ill.<br/>Hart-Otis Car Co., Ltd. .... Montreal.<br/>Ottawa Car Co., Ltd. .... Ottawa.<br/>Pay-As-You-Enter Car Co. .... New York.<br/>Preston Car and Coach Co., Ltd. .... Preston.<br/>Russel Wheel &amp; Fdry Co. .... Detroit, Mich.<br/>Western Wheeled Scraper Co. .... Aurora, Ill.</p> | <p>Cars, Logging<br/>Russel Wheel &amp; Fdry Co. .... Detroit, Mich.</p> <p>Castings<br/>American Vanadium Co. .... Pittsburg, Pa.<br/>Canadian Car &amp; Foundry Co. .... Montreal.<br/>Crossen Car Mfg. Co. .... Cobourg, Ont.<br/>John Inglis Co., Ltd. .... Toronto.<br/>Lumen Bearing Co. .... West Toronto, Ont.<br/>Russel Wheel &amp; Fdry Co. .... Detroit, Mich.<br/>Standard Steel Works Co. .... Philadelphia, Pa.<br/>Titanium Alloy Mfg. Co. .... Pittsburgh, Pa.</p> <p>Castings, Brass<br/>Canadian Bronze Co. .... Montreal.<br/>Canada Iron Corporation, Ltd. .... Montreal.<br/>Kerr Engine Co. .... Walkerville, Ont.<br/>Lumen Bearing Co. .... West Toronto, Ont.<br/>Tallman Brass &amp; Metal Co., Ltd. .... Hamilton.</p> <p>Castings, Car<br/>Am. Brake Shoe &amp; Fdry Co., Mahwah, N.J.<br/>Canada Iron Corporation, Ltd. .... Montreal.<br/>Russel Wheel &amp; Fdry. Co. .... Detroit, Mich.</p> <p>Castings, Iron<br/>Allis-Chalmers-Bullock Ltd. .... Montreal.<br/>Canada Iron Corporation, Ltd. .... Montreal.<br/>Kerr Engine Co. .... Walkerville, Ont.<br/>Russel Wheel &amp; Fdry. Co. .... Detroit, Mich.</p> <p>Castings, Iron and Steel<br/>Am. Brake Shoe &amp; Fdry Co., Mahwah, N.J.</p> <p>Castings, Malleable<br/>Taylor &amp; Arnold ..... Montreal.</p> <p>Castings, Manganese Steel<br/>Lumen Bearing Co. .... West Toronto, Ont.<br/>Montreal Steel Works, Ltd. .... Montreal.</p> <p>Castings, Steel<br/>American Vanadium Co. .... Pittsburg, Pa.<br/>Canada Iron Corporation, Ltd. .... Montreal.<br/>W. Kennedy &amp; Sons, Ltd., Owen So'd, Ont.<br/>Montreal Steel Works ..... Montreal.<br/>Titanium Alloy Mfg. Co. .... Pittsburgh, Pa.</p> <p>Chains<br/>B. J. Coghlin &amp; Co. .... Montreal.</p> <p>Circuit Breakers<br/>Geo. C. Royce ..... West Toronto, Ont.</p> <p>Closets, Car<br/>Duner Co. .... Chicago, Ill.</p> <p>Coal<br/>Nova Scotia S. &amp; C. Co., New Glasgow, N.S.</p> <p>Compressors, Air<br/>Allis-Chalmers-Bullock Ltd. .... Montreal.<br/>The American Well Works. .... Aurora, Ill.<br/>Canadian Rand Co. .... Montreal.<br/>The Holden Co., Ltd. .... Montreal.<br/>John Inglis Co., Ltd. .... Toronto.</p> <p>Concrete Mixers and Rock Crushers<br/>F. H. Hopkins &amp; Co. .... Montreal.<br/>Mussens Limited ..... Montreal.</p> <p>Contractors' Supplies<br/>American Hoist &amp; Der. Co. .... St. Paul, Minn.<br/>F. H. Hopkins &amp; Co. .... Montreal.<br/>Rice Lewis &amp; Son. .... Toronto.<br/>Russel Wheel &amp; Fdry. Co. .... Detroit, Mich.<br/>Western Wheeled Scraper Co. .... Aurora, Ill.<br/>Williams &amp; Wilson, Ltd. .... Montreal.</p> <p>Conveyors, Coal and Ash<br/>Babcock &amp; Wilcox, Ltd. .... Montreal.<br/>Williams &amp; Wilson, Ltd. .... Montreal.</p> <p>Copying Presses<br/>James Smart Mfg. Co. .... Brockville, Ont.</p> |
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¶ For the present our representatives will have no permanent Canadian addresses as they will devote their time to calling upon the entire trade and for this reason all correspondence should be addressed direct to our Main Offices at Mansfield, Ohio, where every provision has been made to handle it with the utmost dispatch.

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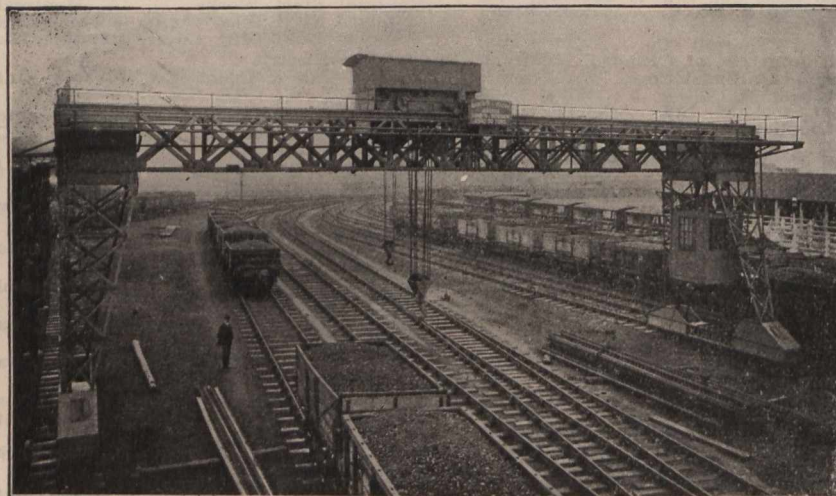
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Northern Electric & Mfg. Co. ...Montreal.
- Telegraph and Telephone Office Signs**  
Acton Burrows, Limited .....Toronto.
- Thermit**  
Goldschmidt Thermit Co. ....Toronto
- Ticket Cases**  
Can. Office & School Furniture Co.Preston.
- Tie Plates**  
B. J. Coghlin & Co. ....Montreal.  
Nova Scotia S. & C. Co. New Glasgow, N.S.  
Steel Co. of Canada, Ltd..Hamilton, Ont.  
Guilford S. Wood .....Chicago, Ill.
- Ties**  
Harris Tie and Timber Co..Ottawa, Ont.  
Parry Sound Lumber Co. ....Toronto.
- Timber, Railway and Bridge**  
Harris Tie and Timber Co..Ottawa, Ont.
- Tires, Steel**  
Jas. Hutton & Co., .....Montreal.  
Jas. W. Pyke & Co., .....Montreal.  
Standard Steel Wks. Co.,Philadelphia, Pa.
- Tools and Supplies**  
Canadian Fairbanks Co., Ltd....Montreal.  
Jas. Smart Mfg. Co. ....Brockville, Ont.  
A. B. Jardine & Co., .....Hespeler, Ont.  
Pratt & Whitney Co. ....Dundas, Ont.  
Williams & Wilson, Ltd .....Montreal.
- Tools, Track**  
John Bertram & Sons Co. ..Dundas, Ont.  
B. J. Coghlin & Co. ....Montreal.  
F. H. Hopkins & Co.,.....Montreal.  
Montreal Steel Works .....Montreal.  
Mussens, Limited .....Montreal.
- Tools, Pneumatic**  
The Holden Co., Ltd. ....Montreal.
- Tools, Cast Steel Track**  
American Brake Shoe & Fdry. Co. Mahwah  
Track Equipment  
Can. Ramapo Iron Wks. Ltd. Niagara Falls  
Tramway Equipment  
J. J. Gartshore .....Toronto.
- Transformers**  
Allis-Chalmers-Bullock Ltd .....Montreal.  
Geo. C. Royce .....West Toronto, Ont.
- Transmission Appliances**  
Canadian Fairbanks Co., Ltd. ....Montreal.  
Williams & Wilson, Ltd .....Montreal.
- Trolley Poles, Steel**  
Dorner Railway Equip. Co...Chicago, Ill.
- Trolley Wheels**  
Tallman Brass & Metal Co..Hamilton, Ont.
- Trucks**  
Jas. Smart Mfg. Co. ....Brockville, Ont.
- Trucks, Electric Car**  
Baldwin Locomotive Works..Philadelphia.  
Montreal Steel Works .....Montreal.
- Trusses, Roof**  
Canadian Bridge Co. ....Walkerville, Ont.  
Dominion Bridge Co. ....Montreal.
- Tubes, Boiler**  
Jas. W. Pyke & Co., .....Montreal.
- Turbines, Steam**  
Allis-Chalmers-Bullock Ltd .....Montreal.
- Turnbuckles**  
Montreal Steel Works .....Montreal.
- Turntables**  
Canadian Bridge Co. ....Walkerville, Ont.  
Dominion Bridge Co. ....Montreal.
- Typewriters**  
Royal Typewriter Co. ....New York
- Valves**  
Consolidated Car Heating Co. Albany, N.Y.  
Detroit Lubricator Co. .... Detroit, Mich.  
Williams & Wilson, Ltd. ....Montreal.
- Valves, Angle and Globe**  
Detroit Lubricator Co. .... Detroit, Mich.  
Kerr Engine Co. ....Walkerville, Ont.  
Nathan Manufacturing Co. ....New York.
- Valves, Brass Gate**  
Detroit Lubricator Co. .... Detroit, Mich.  
Kerr Engine Co. ....Walkerville, Ont.
- Valves, Check**  
Nathan Manufacturing Co. ....New York.
- Valves, Iron and Brass**  
Canadian Fairbanks Co., Ltd....Montreal.
- Valves, Iron Gate**  
Detroit Lubricator Co. .... Detroit, Mich.  
Kerr Engine Co. ....Walkerville, Ont.
- Valves, Locomotive Pop**  
T. McAvity & Sons .....St. John, N.B.  
Taylor & Arnold .....Montreal.
- Valves, Steam**  
Detroit Lubricator Co. .... Detroit, Mich.  
Nathan Manufacturing Co. ....New York.
- Vanadium Steels**  
American Vanadium Co ....Pittsburg, Pa.
- Varnishes**  
Berry Bros. ....Walkerville, Ont.  
The Dougal Varnish Co., Ltd....Montreal.
- Velocipedes**  
Kalamazoo Ry. Sup. Co..Kalamazoo, Mich.
- Ventilators, Car**  
Burton W. Mudge & Co. ....Chicago, Ill.
- Vessels**  
Polson Iron Works, Ltd .....Toronto
- Wagons, Dump**  
Western Wheeled Scraper Co..Aurora, Ill.
- Washers**  
Steel Co. of Canada, Ltd..Hamilton, Ont.
- Waste**  
B. J. Coghlin & Co. ....Montreal.  
N. L. Piper Railway Supply Co...Toronto.
- Water Softeners**  
Babcock & Wilcox, Ltd .....Montreal.  
L. M. Booth Co. ....Chicago, Ill.  
Dearborn Drug & Chemical Co., Chicago.
- Water Towers**  
John Inglis Co., Ltd. ....Toronto.
- Welding**  
Goldschmidt Thermit Co. ....Toronto.
- Wheelbarrows**  
F. H. Hopkins & Co.,.....Montreal.  
Meaford Wheelbarrow Co. Ltd. Meaf'd, Ont.
- Wheels, Car**  
Canada Iron Corporation, Ltd.,...Montreal.  
Canadian Car & Foundry Co....Montreal.  
Jas. W. Pyke & Co., .....Montreal.  
Standard Steel Wks. Co.,Philadelphia, Pa.
- Wheels, Locomotive**  
Canada Iron Corporation, Ltd.,...Montreal.
- Wheels, Re-inforced Pressed Steel**  
Kalamazoo Ry. Sup. Co.Kalamazoo, Mich.
- Wheels, Rolled, solid Forged**  
Standard Steel Wks. Co.,Philadelphia, Pa.
- Wheels, Steel Tired**  
Standard Steel Wks. Co.,Philadelphia, Pa.
- White Lead**  
Steel Co. of Canada, Ltd..Hamilton, Ont.
- Windlasses**  
Dake Engine Co. ....Grand Haven, Mich.
- Windmills**  
Ontario Wind Engine & Pump Co.Toronto.
- Wire**  
American Vanadium Co. ....Pittsburg, Pa.  
Titanium Alloy Mfg. Co...Pittsburgh, Pa.
- Wire and Wire Rope**  
Dominion Wire Rope Co. ....Montreal.  
Mussens, Limited .....Montreal.  
The Wire & Cable Co. ....Montreal.
- Wire, Brass, Iron and Steel**  
Steel Co. of Canada, Ltd..Hamilton, Ont.
- Wire, Copper**  
E. F. Phillips Elec. Works, Ltd..Montreal.  
The Wire & Cable Co. ....Montreal.
- Wire, Electric**  
Chapman & Walker, Ltd ... Toronto.  
E. F. Phillips Elec. Works, Ltd..Montreal.  
The Wire & Cable Co. ....Montreal.
- Wire Goods, Bright**  
Steel Co. of Canada, Ltd..Hamilton, Ont.
- Wire, Insulated, Copper**  
E. F. Phillips Elec. Works, Ltd..Montreal.  
The Wire & Cable Co. ....Montreal.
- Wire Rope Clips**  
American Hoist & Der. Co.St. Paul, Minn.
- Wire, Telegraph and Telephone**  
Chapman & Walker, Ltd .....Toronto.  
E. F. Phillips Elec. Works, Ltd..Montreal.  
The Wire & Cable Co. ....Montreal.
- Wire, Transmission and Trolley**  
Chapman & Walker, Ltd .....Toronto.  
The Wire & Cable Co. ....Montreal.
- Wrenches, Cast Steel**  
American Brake Shoe & Fdry. Co. Mahwah
- Yachts**  
Polson Iron Works, Ltd .....Toronto



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