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See page 145.

The Efficiency of Tools and Economy in Manufacture of Same.

By W. M. Townsend, Supervisor of Tools,
Montreal Locomotive Works Ltd

I will endeavor to bring out, in the following, a few points relative to the making of cheap and efficient tools. Various kinds of milling machines are rapidly making their way prominent in removing surplus stock from machine and locomotive parts, hence the necessity of having durable milling cutters. To obtain an efficient milling cutter there are two points which are essential, namely, high speed steel and a spiral or helical cutting edge. The latter quality may not appeal to some, due to the fact that an inserted tooth cutter made from a mild steel body with a high speed steel blade inserted at an angle of about 12 degrees, answers fairly well. This, however, is a great mistake. To obtain a clean cut it is necessary to have a certain and constant angle of rake or lip to the milling cutter. This can be obtained only by having a helical or spiral cutting edge. To construct the milling cutter that will give the best results and still adhere to the principle of strict economy (the point which I wish to emphasize mostly in this paper), we must first of all consider its diameter. We will first speak of cutters having a diameter of over 6 ins. Keeping close to our principle of economy, we apply to the scrap heap for material; there we will find crop ends of billet steel sawn from the ends of driving axles, which make an ideal body for an inserted tooth high speed steel milling cutter. The scrap value of these crop ends is very small, hence the low cost for the body of the cutter. Now, to procure high speed steel for the blades in an economical manner (which if cut from the steel bar would cost 50c a pound), we collect all the broken and short high speed tools that cannot be further used on planers, shapers, lathes, etc. These are hammered into blades $\frac{3}{4}$ x $1\frac{1}{4}$ x 5 ins. long. The cost of material for the blades is covered by the cost of labor in hammering out the steel plus its scrap value which is very small. So much for the economy in procuring material.

We will now turn our attention to the design, upon which depends the efficiency. The bodies, after having been bored, turned and faced, are milled with slots $\frac{3}{4}$ in. wide, $\frac{3}{4}$ in. deep, $1\frac{1}{2}$ in. apart, at an angle corresponding to a predetermined helix or spiral. The blades are then fitted and slightly caulked. The cutter is then set up on a universal milling machine, and the front of the blades milled spiral. This gives a constant angle of rake or lip from one end to the other. This insures an equal strain along

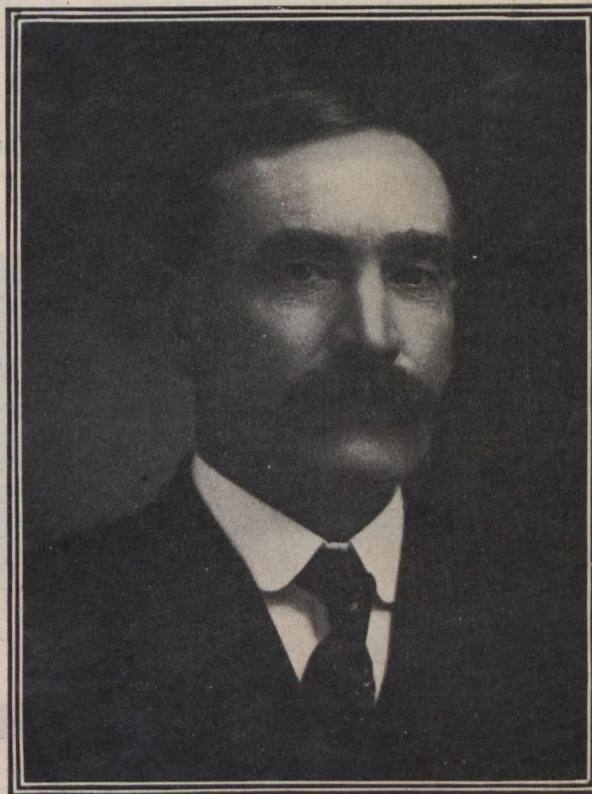
the whole length of the blade. On the other hand, if the blades are merely put in on an angle and not milled spiral, the lip or rake of the cutter is irregular. It can readily be seen that from one end of the cutter to the centre there will be a decreasing lip, while from the centre to the other end of the cutter there will be an increasing drag. This causes an unevenness in the cut and also a tendency to break and pull out the blades on the drag side. So much for cutters having a diameter over six inches.

Inserted tooth cutters with a diameter much less than six inches are not prac-

in making cutters of smaller dimensions, is to use carbon steel costing about 14c. a pound. This is altogether unnecessary and extravagant. Billet crop ends selected from high carbon billets such as are used for driving axles, pistons, and side rods, carefully hammered, outclass in every way the ordinary tool steel. In the first place, the cost, hammered to size, is about $1\frac{1}{2}$ c. a pound, as compared with 14c. a pound for tool steel. Secondly, they are tougher, and the teeth will not break when a heavy cut is put on, such as is the case with tool steel, and the cutting edge stands up equally as well. The success of this method of course depends upon the treatment of hardening. This, however, is very simple, and consists of carefully packing the tools to be hardened in a mixture of salt and raw bone, placed in an airtight box, which should be brought and kept to a heat of 1,000 deg. Fahr. from 24 to 48 hours, according to size, then drawn from the box and quickly immersed in running clear water. There is no need whatever of drawing the temper, the cutting edge has the correct hardness, while the body of the cutter remains very tough. The question that you would naturally raise at this point would be: How deep can cutters be hardened in this manner? A depth of $\frac{3}{8}$ in. can be reached, or in other words, the cutter may be ground until the tooth is almost ground away, leaving no space for the chips to get away. When a cutter reaches this stage, it can be annealed, recut, and rehardened, as often as the thickness of material will allow, without affecting the quality of the cutter.

Some three years ago a test was made at our works to determine the advantage of using high speed steel cutters for a certain class of work, namely—milling out jaws of side rods, transmission bars, radius bars, combination levers, etc. It was found that the high speed steel cutters broke from the vibration and pressure brought to bear upon them, whilst cutters of the same design, made from billet steel case hardened, did the work very satisfactorily without breaking, running at the same speed and feed. What I have said so far regarding milling cutters refers to cutters used for straight milling. Cutters used for milling gears, taps, reamers, and irregular shapes should, in my opinion, be made from high speed steel.

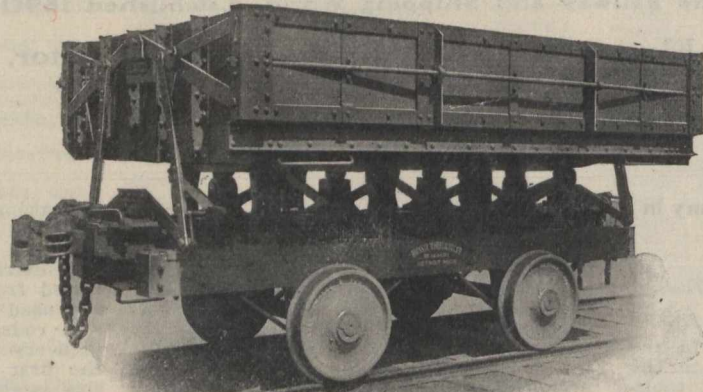
In studying the efficiency and economy of tools, we must not forget to consider the quality and quantity of work required of them. We now come to tools such as are used on lathes, planers, shapers and slotters. There are many brands of high speed steel on the market at the present time, and I have tried almost all of them, but will not express my opinion regarding their merits, as it would make this paper appear



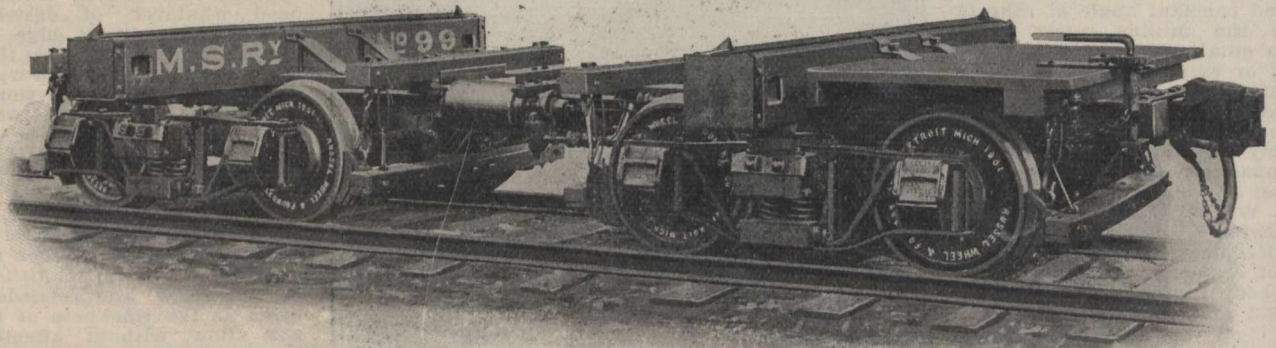
T. Kilpatrick,
Superintendent District 1, British Columbia Division, C.P.R.

tical, due to the fact that slot cut at an angle across the top of the cutter body would be very irregular in depth, hence the impossibility of holding the blade. Take for example a blank cutter body 5 ins. diameter 10 ins. long, cut a slot through the top at an angle of about 15 degrees, you would have a depth of about $\frac{3}{4}$ in. in the centre, while at either end there would be no depth to speak of. This can be avoided, however, by dividing the cutter into short sections, thereby lessening the unequal depth caused by cutting a slot at an angle to the axis of the cutter, but the high cost of this method does not warrant its adoption. The general practice,

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Fig. 1.—Illustrating depth to which cutter teeth may be ground, still retaining their proper hardness.

as an advertisement. I believe, however, that if we wish to ascertain which is the most efficient steel, we should give every brand an extensive trial, making an individual record of each, and determining which is the best, as compared to the price paid for it. Different shops have different materials to contend with and the formulae used in the composition of steel differ, so that some brands are better for cutting one class of material, while other brands are better for cutting other classes of material. This is why I contend that each shop should test out every brand and see which is best adapted for its requirements.

High speed steel is an immense item in large machine shops, and great care should be exercised in order to avoid waste. A great saving may be made, by observing the following practice. In making finishing tools, instead of using a piece of high speed steel, say 1 1/4 x 2 1/4 x 15 ins. long, costing about \$6, we go back to the old reliable, and use a piece of billet steel, leaving it as large as the tool post will admit, and weld a tip to it made of high speed steel. The finished cost of this tool is about one-eighth of the solid high speed steel tool and is just as efficient for these reasons: the billet steel is sufficiently strong to withstand the pressure brought upon it for a finishing cut. It does not require dressing any oftener than the solid tool, but it does require a little more care. I will explain a little more clearly how this tool is made. As stated before, we take a piece of high carbon billet from the scrap heap, and draw it out to the required dimensions. One end is then scarfed ready to receive the high speed steel tip which is wedge shaped. The toolsmith fits the two parts fairly well together before welding to ensure a neat weld. The parts after having been prepared are then heated, the tip being allowed to heat longer than the body, owing to the necessity of the former being of a much higher temperature than the latter to allow for welding. When both are at a welding heat they are quickly withdrawn, a piece of Lafitte welding compound is placed between them and hammered lightly together. The tool is then reheated, care being taken to place the nose of the tool in such manner that it will be most exposed to the fire. When the required heat is reached the tool is quickly withdrawn and placed between a former under a steam hammer and given a light sharp blow. In case of the tip being displaced it will not do to try and knock them into place again. The tip must be cut away and refitted, and a fresh piece of the compound used. The tool is then treated in the same manner as a high speed steel tool. These tools have been used until the tip has been ground right down to the weld. I would not advise making heavy roughing tools in this manner, as the billet steel body would not stand the pressure required by a roughing tool such as is used on a heavy planer. A tool of this description

however, answers well when used on a lathe where the point does not project far from the tool post, also where the cut is continuous and not intermittent, as is the case on a planer. You can readily see where the saving comes in, if this method is only applied to finishing and lathe tools. Fig. 2 illustrates the preparation of parts for welding tool with high speed steel tip.

Twist drills made from carbon steel, with the exception of jobbers' drills, that is, drills up to 1/2 in. diameter, are almost a thing of the past, high speed steel drills having taken their place. The original design of the high speed drill was exactly the same as the ordinary carbon drill with the exception of the material used. This, however, has proven to be inefficient and expensive due to the following reasons: In the first place, to obtain proper results from a high speed drill, it is necessary to have adequate space to allow the chips to free themselves from the drill, as the flutes will soon choke up owing to the increased feed and the speed of the drill. The fluted high speed drill has not this advantage. It is expensive for this reason. To make a drill of this design, it is necessary to use a round bar of solid steel, cutting away 50% of it to form the flutes. Yet there are men who will tell you that this design of drill is the best and cheapest on the market.

I will now give my opinion as to which is the best high speed drill and the reasons why. A high speed steel drill with the twisted section about half way between the flat twisted section and the

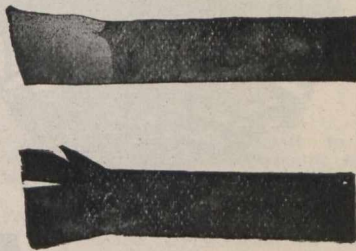


Fig. 2.

standard milled drill is the most efficient and economical, from the fact that it takes just one-third of the steel to make it, and efficient because of the adequate space for the chips to clear, thus preventing clogging and choking. The feed can be doubled, due to this advantage. I have found in my endeavor to reduce the cost of tools that in the average shop where locomotives and heavy machines are built, they have sufficient equipment to make efficient high speed drills with a saving from 10 to 50%. The same may be said of all kinds of taps, especially those used in boiler construction.

A few words may be said regarding reamers. There are many styles of straight reamers, all of which have their advantages, which leaves me nothing to say regarding them. Taper reamers are different in their action, however, inasmuch as the whole part of the reamer that comes in contact with the work is cutting equally, whereas, in the straight reamer, the extreme end is the only part that cuts, the rest of the reamer only acting as a guide. It is this difference of action that I now wish to discuss. In all railway shops there is a great amount of taper reaming to be done; this calls for a different class of reamer. Having visited some of the large locomotive works and enquired from others, I find that their practice is to use the straight fluted taper reamer—some of them have the teeth staggered, others equally spaced. I beg to state that this style of reamer is decidedly wrong. Reamers that are required to cut equally their full length of flute

should be milled with a left hand spiral cutting edge, having an angle of about 20 deg.; the pitch or distance between the teeth should be about 3/4 in., leaving ample space for the chips to clear, thus preventing clogging and tearing of the hole. The advantages of this style of reamer are: It takes about 30% less power to drive it; it never chatters; it never digs in; the tang does not twist off; the teeth do not break off; they are easy on crank shafts and can be driven with an air motor, where straight fluted reamers would stick. It may appear that I am claiming a little more than what is true, but these are actual facts that have been tried and proven. There are two reasons for the success of this style of reamer, namely, the spiral cutting edge which gives the reamer a shearing action instead of a straight drag (which must necessarily follow with a straight flute), also to the fact that the line of cut parallel to the length of reamer is divided, due to the angular cutting edge which is not parallel to the line of cut. The even and regular curl of chip made by this reamer will also convince you of the correctness of design. The cost of these reamers is a trifle less than the straight fluted reamers, on account of the fewer number of teeth to be cut. This applies generally to reamers having a diameter of 1 1/2 ins. and under, with a flute of from 14 to 16 ins., standard taper 1-16 in. to 12 ins. Fig. 3 illustrates the difference of straight fluted and spiral fluted taper reamers.

A word or two may be said regarding reamers of large diameter, such as cross-head reamers both for piston and wrist pin fit. For cheapness and durability these may be made in the same manner as solid milling cutters, as mentioned in the previous part of this paper. Select a piece of high carbon billet from the scrap heap, have the forging well hammered, machine and caseharden, and you will have a tool that is equal to the finest tool steel made. You will find that the cost will be about one-tenth of that of good tool steel.

There are many other items of interest whereby great savings can be made, but as our subject covers such a wide area, I must confine my remarks to one or two thoughts in general. An immense saving can be made by annealing all broken and worn-out tools, immediately they are out of service. This being done, they should be arranged in open bins or racks, so that when the foreman of the tool room requires material, he looks over his stock of annealed scrap (I mention annealed for the reason that very often a piece of scrap material is available, but it is necessary to wait while it is being an-

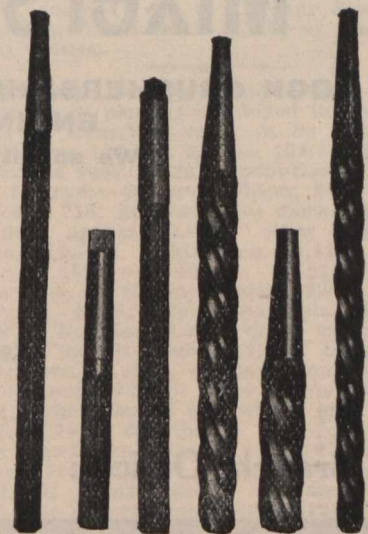


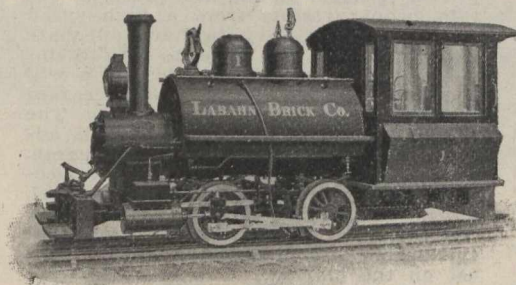
Fig. 3.

"Marion" Steam Shovels



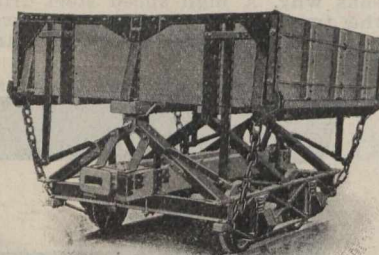
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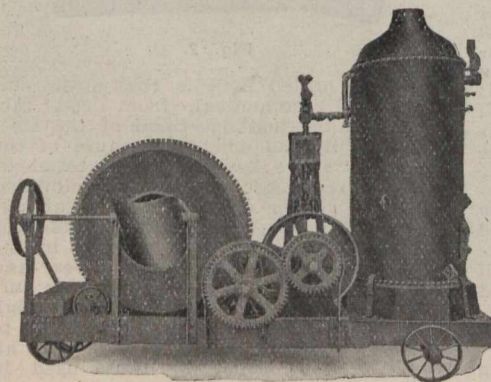
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nealed) and very often finds exactly what he wants without drawing from the regular stock.

Another feature regarding economy, is the correct distribution. I mean by this that every man should have all the tools he requires and no more. I say this because it is a well known fact that workmen have a habit of collecting and storing up under lock and key, all the tools they can possibly lay their hands on, for their own individual use. You can readily see that with this practice, if not watched and kept in hand, in large plants many thousands of dollars may be invested and nothing accomplished.

It is absolutely necessary in large plants to have a man who is fully acquainted with every detail of tool design, tool purchasing, and tool distribution, to properly effect a system which would result in efficiency and economy. This cannot be expected of the tool room foreman, as his duties confine him to the tool room. Under these circumstances the man appointed to perform the duties of economizing in cost, and designing efficient tools, should have the liberty, to watch all machine shop operations, and to have full supervision of tool room practices. This system is in vogue in some of the large locomotive works in the United States and one that I know of in Canada. This system, if adopted by some of the other large plants, would, I feel sure, bring about results worth noting.

The foregoing paper was read before the Canadian Railway Club recently.

Interpretation of General Interswitching Order.

The Assistant Chief Railway Commissioner, D'Arcy Scott, prepared the following under date of Nov. 26, 1910:—In an application, dated Mar. 4, 1910, the Board is asked by the Canadian Pacific, the Grand Trunk and the Montreal Terminal Railway Companies for an order interpreting the provisions of order 4988, known as the General Interswitching Order, dated July 8, 1908. Counsel for applicants and representatives of the Montreal Board of Trade and the Canadian Manufacturers' Association, were heard at Ottawa on June 22, 1910.

The object of having a general interswitching order is to make the rate for the performance of an interswitching service uniform on all railways under the Board's jurisdiction, no matter what the extent of the movement (provided it is within the limit mentioned in the order), or the time or labor required in performing it. The order enables the shipping public and the railway companies to know exactly what service must be performed as interswitching, how much the company that performs the service is to receive, and how much the shipper or consignee is to pay for it. At some points, on account of local conditions, the provisions of the order are not as advantageous to the railway companies as they are at others, and in some cases one railway company may have to do more than another to earn the toll; but such conditions may, to some extent, be inevitable under a general order made to apply everywhere; and there is a certain amount of reciprocity in the working out of the order which should even up matters between the railways. But the intention of the Board in passing the order was chiefly to benefit the public by establishing a uniform rate and conditions of service for interswitching. This is well described by the late Chief Commissioner Killam in his judgment in the London interswitching case, in which he said:—

"With the progress of invention, new enterprises are continually supplanting or injuring old ones to the ruin or loss of those interested in the former. Railways have not

only directly affected in this way former modes of transportation, but they have also been instrumental in building up particular localities or enterprises at the expense of others. It has never been the policy of the law to afford compensation for losses thus occasioned. When the Legislature authorizes the construction of new lines of railway in competition with those formerly existing, this is not done with a view to benefit the promoters of the new lines or to injure those interested in the old ones, but solely for the public good.

"The provisions of the Railway Act which require railway companies thus to interchange traffic at connecting points are introduced, not for the purpose of benefiting one railway company at the expense of another, but solely in the interests of the public. The law cannot recognize anything in the nature of a good-will of the business of either railway company thus affected for which another should give compensation. In my opinion, the division between railway companies of the joint rates for traffic thus interchanged should be made upon the principle of giving reasonable compensation for the services and facilities furnished by the respective companies in respect of the particular traffic thus interchanged, and not by reference to the magnitude of the business of one company or the other at particular points or the respective advantages which each can offer to the other there, or a comparison of the loss which the one is likely to sustain with the gain likely to accrue to the other from the giving of the facilities which the law requires."

From what I have said and quoted, I think it is abundantly clear that an order such as the one before us, which is applicable at practically all points of interchange and to all roads under our jurisdiction, must contain arbitrary provisions which may appear easier to ap-

From a High Mechanical Authority.

H. H. Vaughan, Assistant to the Vice President Canadian Pacific Railway, Montreal, writes:—

"I consider the Railway and Marine World a very valuable publication.

"It presents all information about the occurrences on Canadian and other railways in so complete a form that I consider it of the greatest value."

ply in some places than in others, but which, nevertheless, must be enforced in the same manner at all points.

The feature of the order to which the applicants have chiefly addressed themselves is the provision which makes it applicable to any interswitching movement not exceeding four miles from the nearest point of interchange. To quote the application, the Board is asked "to define whether or not the term 'interswitching' as used in the order, embraces the carriage of traffic from one point outside to a point within a terminal involving the haulage of goods from a point of connection which is a station, to a terminal, within a distance of four miles"; in other words, to say that what they recognize to be an interswitching radius of four miles in one place may be cut down to an actual one mile or two mile radius in another. The effect of this would be to destroy the equality of principles of the order, and open the door to the giving of an undue preference to one locality over another. The order clearly means what it says, four miles from the nearest point of interchange, and I cannot see that it was ever the intention of the Board to put any limitation on this four mile provision, and I do not think it would be wise for the Board to do so now.

Apparently some of the companies to which the order applies have not been complying with its provisions, but have collected larger tolls than they are entitled to. In such cases the courts of law provide a means for obtaining redress. The true meaning of the order,

with regard to the four mile limit, was made clear to the companies by circular 45, issued by order of the Board on Jan. 21, 1910, which said:—

"The maximum interswitching distance is unqualified, and means, as stated, 'any distance not exceeding four miles . . . from the nearest point of interchange,' regardless of the location of the point of interchange, or of station yard limits, or any other limits or boundaries."

That being the meaning of the order, and the railway companies having been by that circular told what the meaning was, there is really nothing now to interpret, and the present application should therefore be dismissed.

The other feature of the application relates to clause 10 of the order, the purpose of which was to protect the railway companies at points of interchange against possible misinterpretation by shippers, who might claim the substitution of the interswitching toll for the local tariff rate on a purely local movement of one company. I am unable to see how any railway company could read this clause any other than its true meaning, namely, that the interswitching toll of the company which performs the terminal service does not supersede or modify any local freight rate published by that company to apply to its ordinary or local freight traffic between any two of its own stations.

To dispose of a question which arose at the hearing, I would add that the order was not intended to apply, and is not applicable, to traffic loaded at a point on one railway and destined to a point on another railway within the same switching district, or within adjoining switching districts, covered by local switching tariffs to and from the point of interchange.

Commissioners Mills and McLean agreed with Mr. Scott, and Chief Commissioner Mabee appended the following memo: "In view of the opinions of the other members of the Board and that of the Chief Traffic Officer, I do not dissent from the above disposition of this matter."

In connection with the foregoing, the Board's secretary has issued a circular stating that in view of the fact that the tariffs of many railway companies are not in accordance with the general interswitching order no. 4988, it is directed by the Board that such variation from that order be removed and new tariffs published and filed without delay.

I. C. R. Blacksmiths' Shop, Moncton.

Owing to an unfortunate oversight in proofreading, an article in our last issue on the I.C.R. blacksmith shop at Moncton, N.B., was credited to Arthur Rochell, instead of to Arthur Stockall. Foreman Blacksmith I.C.R., by whom it was written.

Railway Employees and Wages.—The number of persons employed in the service of Canadian railways on June 30, 1910, was 123,768, against 122,341 in the previous year. The distribution is given as follows:—General officers, 372; other officers, 718; general office clerks, 6,835; station agents, 2,879; other stationmen, 12,578; enginemen, 4,419; firemen, 4,885; conductors, 3,323; other trainmen, 7,946; machinists, 2,935; carpenters, 4,348; other shopmen, 15,387; section foremen, 4,539; other trackmen, 30,131; switch tenders, 1,628; telegraph operators, 2,985; employes on floating equipment, 292; all other employes, 17,568. The salaries and wages paid were \$67,167,793, distributed as follows:—Ways and structures, \$15,502,902; equipment, \$14,755,782; traffic expenses, \$1,313,980; transportation expenses, \$32,091,952; general expenses, \$2,483,177. In addition there were 16,709 employes engaged in outside operations to whom was paid \$5,169,922.58 in wages.

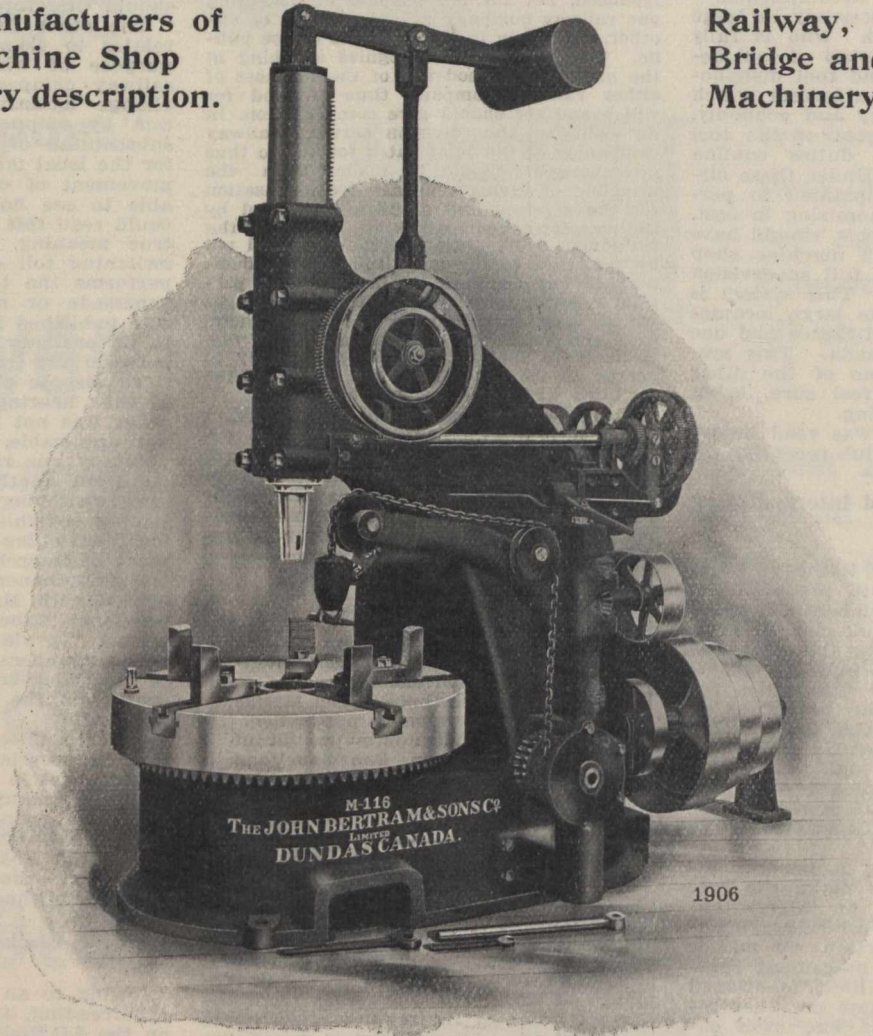


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STEAM RAILWAY STATISTICS FOR YEAR ENDED JUNE 30, 1910

The table given in our last issue showed the financial results of the operations of steam railways for the year ended June 30, 1910. The following table gives the percentages and the principal statistical information compiled by the companies. The table published last issue and the one given below contain all the information given prior to 1909 in our compilation of these statistics, but the columns have been rearranged so as to combine in the first table the financial and in the second the statistical information.

Table with 12 columns: Name of Railway, Proportion of total passenger service train revenue of total earnings, Proportion of freight revenue plus switching revenue, etc., to total earnings, Revenue Train Mileage, Mileage of Non-Revenue Trains, Earnings per Train Mile, Passengers Carried, Passengers Carried One Mile, Passenger Earnings per Train Mile, Tons of Freight Carried, Tons of Freight Carried One Mile, Freight Earnings per Train Mile. Rows include various railway companies like Alberta Ry. & Irrigation Co., Algoma Cent. & Hudson Bay Ry., etc.

(Continued on page 105)

\$761.59 Saved with Three Ounces of Vanadium Steel

A two years' test of Vanadium against ordinary steel in a large railroad shop shows an actual saving of \$761.59 on a single item—a flue cutter weighing three ounces. In one year 1,049 carbon steel cutters were used to cut 145,444 flues; in the next year 68 Vanadium steel cutters cut 152,578 flues. The average number of tubes cut with the carbon steel tool was 139, the average for the Vanadium steel, 2,244. The cost of the carbon steel cutter per hundred flues was 54c., compared with 16-10c. per 100 with the Vanadium steel tool.

This means that there has been a revolution in making steel. What we call steel is a relic of the past compared to the new Vanadium steel. In final cost Vanadium steel is the cheapest high duty metal known. In actual service it is the strongest, toughest, most elastic and longest lived steel that can be made.

In workability it melts, welds, rolls, forges, stamps and machines like ordinary steel. It is made in many types for many uses; you can buy it from any reputable steel maker; it costs less than ordinary steel, service considered.

Vanadium steel means safety, economy, vitality, strength and service. Specify it, use it, save money by it and guarantee your product and your profits on it.

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Steam Railway Statistics for the Year Ended June 30, 1910—(Continued from page 103)

Name of Railway	Proportion of total passenger service train revenue of total earnings	Proportion of freight revenue plus switching revenue, &c., to total earnings	Revenue Train Mileage	Mileage of Non-Revenue Trains	Earnings per Train Mile	Passengers Carried	Passengers Carried One Mile	Passenger Earnings per Train Mile	Tons of Freight Carried	Tons of Freight Carried One Mile	Freight Earnings per Train Mile
Salisbury & Albert Ry.....	33.26	63.34	38,366	.....	.92	14,646	336,653	.30	54,600	1,638,000	.58
Schomberg & Aurora Ry.....	45.74	54.26	21,843	.....	.46	16,902	152,118	.21	8,188	114,632	.20
Stanstead, Shefford & Chambly Ry.	47.02	52.59	90,546	3,074	.86	182,912	1,216,076	.58	120,297	1,379,299	.89
St. Clair Tunnel.....	.....	100.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Lawrence & Adirondack Ry....	37.80	62.13	287,116	5,363	1.79	450,803	11,021,528	1.06	669,564	24,858,622	3.04
St. Martins Ry.....	32.58	66.19	18,020	.....	1.04	11,342	204,155	.34	18,715	330,746	.69
Sydney & Louisburg Ry.....	6.19	93.02	196,715	.....	1.60	41,770	660,490	.53	2,660,644	41,203,162	1.83
Spokane & British Columbia Ry..	3.02	96.42	1,144	.....	2.86	748	2,767	.08	15,235	56,370	2.76
Temiscouata Ry.....	33.09	66.54	161,316	24,435	1.43	88,087	2,755,791	.52	138,254	5,903,922	1.75
Temiskaming & N. Ontario Ry....	39.93	55.65	752,370	157,206	2.30	771,220	25,609,325	1.98	692,387	62,036,261	2.63
Thousand Islands Ry.....	31.88	61.72	33,312	.....	1.12	30,643	183,858	.35	34,513	207,078	.69
Toronto, Hamilton & Buffalo Ry.	28.47	70.68	473,392	19,209	2.15	480,909	13,970,010	1.02	1,643,719	63,868,558	3.81
Vancouver, Victoria & E. Ry.....	30.79	68.38	291,865	130,621	2.18	213,554	6,023,850	.96	1,157,738	32,800,719	2.78
Victoria Term. Ry. & Ferry Co....	48.20	51.26	1,849	.....	2.83	56,609	64,534	1.36	34,252	39,047	2.14
Victoria & Sidney Ry.....	44.65	54.22	22,656	.....	2.05	67,498	880,576	.91	35,766	495,843	1.60
Wabash Rd. in Canada.....	27.81	71.95	1,622,206	29,171	1.47	574,785	36,562,834	.93	1,366,666	324,598,514	1.90
Wellington Colliery Co.....	4.47	95.53	35,704	.....	2.05	5,185	55,738	.72	378,560	4,069,520	1.96
York & Carleton Ry.....	41.23	58.77	8,502	.....	.69	6,950	38,200	.28	8,501	46,756	.40
Totals.....	.....	.....	85,409,241	4,581,534	.....	35,894,575	2,466,729,664	.....	74,482,866	15,712,127,701	.....

February Birthdays.

Many happy returns of the day to—
 S. A. Baker, Canadian Freight and Passenger Agent Chicago Great Western Ry., Toronto, born at Morrisburg, Ont., Feb. 1, 1877
 B. H. Bennett, General Agent Chicago and North Western Ry., Toronto, born at Cobourg, Ont., Feb. 6, 1858.
 F. L. C. Bond, Resident Engineer G.T.R., Montreal, born there Feb. 21, 1877.
 T. Britt, General Fuel Agent C.P.R., Montreal, born there Feb. 3, 1871.
 F. W. Churchill, C.P.R. ticket agent, Collingwood, Ont., born in London, Eng., Feb. 6, 1853.
 H. R. Charlton, General Advertising Agent G.T.R. and G.T.P.R., Montreal, born at St. John's, Que., Feb. 9, 1866.
 F. W. Cooper, Resident Engineer C.P.R., London, Ont., born there Feb. 16, 1880.
 R. Crawford, Northwest Agent Northern Navigation Co., Winnipeg, Man., born at Kingston, Ont., Feb. 21, 1870.
 E. A. Evans, ex-Chief Engineer Quebec Ry., Light and Power Co., Quebec, born at Kensington, London, Eng., Feb. 26, 1855.
 E. H. Fitzhugh, First Vice President G.T.R. and Vice President Central Vermont Ry., Montreal, born in Montgomery County, Mo., Feb. 1, 1853.
 L. O. Genest, General Storekeeper C.P.R. Western Lines, Winnipeg, born at St. Henri, Levis County, Que., Feb. 16, 1856.
 T. C. Hudson, Master Mechanic C.N.Q.R. and Q. & L. St. J. Ry., Joliette, Que., born at Brockville, Ont., Feb. 20, 1873.
 W. Jackson, C.P.R. ticket agent, Clinton, Ont., born there Feb. 4, 1860.
 C. Gardiner Johnson, Lloyds' Agent for British Columbia, Vancouver, B.C., born at Dumblane, Perthshire, Scotland, Feb. 8, 1857.
 R. S. Logan, Assistant to President G.T.R. and G.T.P.R., Montreal, born at St. Louis, Mo., Feb. 13, 1864
 D. C. Macdonald, City Freight Agent C.P.R., Winnipeg, born at Elmsdale, N.S., Feb. 9, 1874.
 D. MacPherson, Assistant Chief Engineer National Transcontinental Ry

Commission, Ottawa, born at Bath, Ont., Feb. 2, 1858.

T. McNabb, Master Mechanic Alberta Ry. and Irrigation Co., Lethbridge, Alta., born in Scotland, Feb. 16, 1849.

J. K. McNeillie, Superintendent District 2 Ontario Division C.P.R., London, Ont., born at Toronto, Feb. 23, 1874.

C. S. Maharg, Superintendent District 2 Alberta Division C.P.R., Calgary, born in Dufferin County, Ont., Feb. 4, 1867.

G. A. Montgomery, Superintendent Michipicoten Division Algoma Central and Hudson Bay Ry., Michipicoten Harbor, Ont., born at Bradford, Ont., Feb. 11, 1871.

A. Z. Mullins, Commercial Agent G.T.R., Grand Rapids, Mich., born at Appin, Ont., Feb. 14, 1862.

G. J. O'Dowd, City Freight Agent C.P.R., Quebec, born at Montreal, Feb. 4, 1874.

J. E. Proctor, District Passenger Agent C.P.R., Brandon, Man., born at Sarnia, Ont., Feb. 17, 1878.

A. H. Robinson, Superintendent Elgin and Havelock Ry., Havelock, N.B., born at Elgin, N.B., Feb. 2, 1862.

J. E. Robitaille, Accountant and Auditor Ha Ha Bay Ry., Chicoutimi, Que., born at Quebec, Feb. 17, 1870.

A. E. Rosevear, Assistant General Freight Agent G.T.R., Montreal, born Feb. 20, 1863.

H. H. Schaefer, Division Freight Agent Intercolonial Ry., St. John, N.B., born at Cologne, Germany, Feb. 10, 1848.

J. G. Scott, ex-General Manager Quebec and Lake St. John Ry., Quebec, born there Feb. 13, 1847.

G. Spencer, Superintendent District 1, Lake Superior Division C.P.R., North Bay, Ont., born in London, Eng., Feb. 21, 1865.

H. E. Suckling, Treasurer C.P.R., Montreal, born at Gibraltar, Feb. 27, 1851.

Hugh Sutherland, Executive Agent Canadian Northern Ry., Winnipeg, Man., born at New London, P.E.I., Feb. 22, 1845.

Sir Wm. C. VanHorne, K.C.M.G., director C.P.R. and President Cuba Co., Montreal, born in Will County, Ill., Feb.

J. Brown, C.P.R. city ticket agent Stratford, Ont., has been elected mayor of Stratford.

A Railway to Hudson Bay.

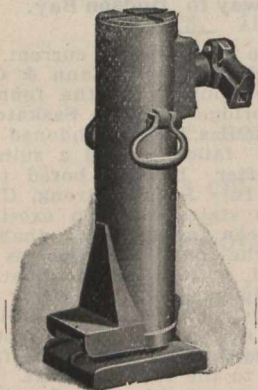
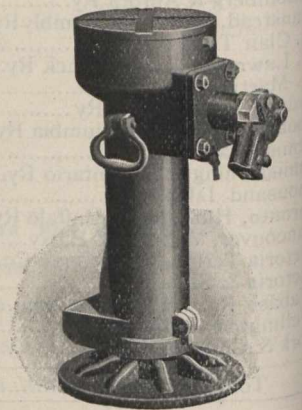
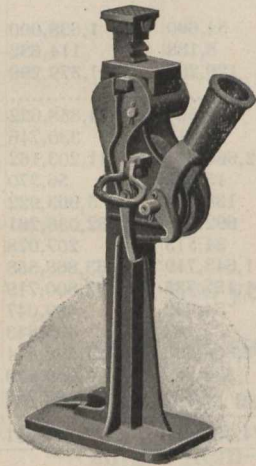
Referring to the reports current recently that Mackenzie, Mann & Co., contractors for putting in the foundations of the bridge over the Saskatchewan River at Le Pas, have abandoned the work having failed to find a suitable foundation after having bored to a depth of 250 ft., J. Armstrong, Chief Engineer, has stated that an excellent bottom had been found at less than 50 ft., and that the foundation work is being proceeded with. The foundations will be on solid hardpan, and piling will be unnecessary. The hardpan will be excavated to a depth of seven feet in order to get below any danger due from scouring, due to the rapid current.

Several meetings with the Dominion Government have been held for the discussion of the building of this line. Sir Wm. Mackenzie and Sir Donald D. Mann and other Canadian Northern Ry. officers had a conference with the Minister of Railways, Jan. 7, and it is reported that a preliminary agreement has been reached by which the Government will build the line, and the Canadian Northern Ry. will operate it at a rental of 3% on the cost, under substantially the same conditions as the G.T. Pacific Ry. is to operate the National Transcontinental Ry. The proposition has to be formally presented to the Government, and it will be brought before Parliament. (Jan. pg. 39.)

Train Dispatching by Telephone.—The use of the telephone for the operation of trains is being extended over a considerable mileage of Canadian lines. The C.P.R. already has several lengthy lines in operation, and a proposition is under consideration for the installation of a telephone dispatching line between St. John, N.B., and McAdam Jct., on the Atlantic Division, during the current year, as well as on several sections of the Western lines. The G.T.R. is distributing wire for a telephone line in the vicinity of London, Ont., and the work is to be gone on with in the spring. The Michigan Central Rd. has ordered wire and instruments for the installation of a telephone circuit between Windsor and St. Thomas, Ont., for train operating purposes.

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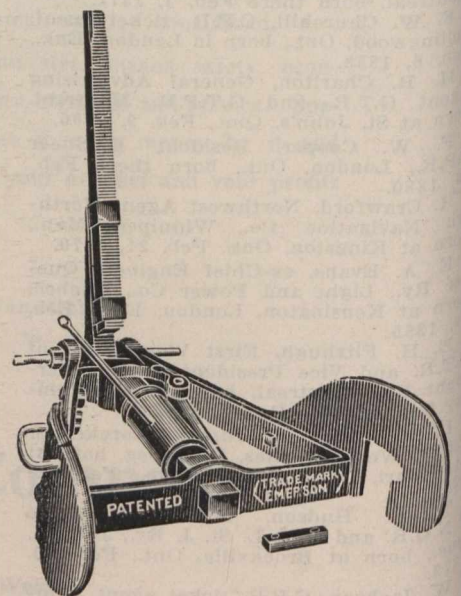
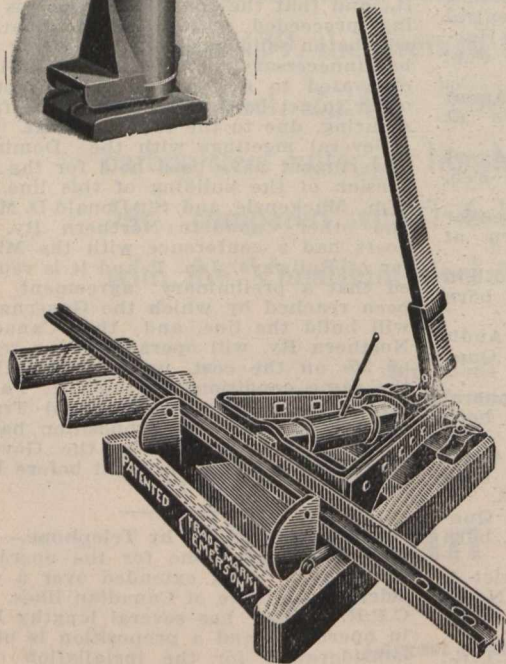
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Railway Statistics for 1909-10.

In submitting his annual statistical report upon Canadian steam railways for the year ended June 30, 1910, J. L. Payne, Comptroller of Railway Statistics, refers to the prompt return of statistical schedules to the department, which has done much to expedite the heavy work of tabulation.

The figures give information as to the operations of 24,730.86 miles of railway, an increase of 626.69 miles over the mileage reported June 30, 1909. The total mileage reported does not include a considerable mileage in actual operation, but officially regarded as under construction. The Grand Trunk Pacific Ry., for instance, is conducting a regular passenger and freight service between Winnipeg and Edmonton, as well as a freight service between Fort William and the junction with the National Transcontinental Ry., and is using the latter line for freight traffic between the junction with the Fort William line and Winnipeg, not a mile of which is included in the 24,730 miles. There are some other mileages under construction, which are being operated over by construction trains, so that it may be assumed that 1,500 miles of additional lines are really available throughout the Dominion, although returned as technically unfinished. The term "under construction" is regarded as being too comprehensive. It covers the work of building the line from the preliminary survey to the driving of the last spike. Assuming, however, that construction implies the active prosecution of positive work toward a completed railway, it is estimated that at least 4,500 miles of line were thus under way on June 30, 1910. The distribution of railway mileage, with the increase for the year, by provinces, is as follows:—

	Miles.	Increase or Decrease.
Ontario.....	8,230.25	+1.14
Quebec.....	3,794.94	+132.00
Manitoba.....	3,220.62	+15.32
Saskatchewan.....	2,981.90	+300.56
British Columbia.....	1,892.28	+36.34
New Brunswick.....	1,521.65	-25.43
Alberta.....	1,488.42	+166.90
Nova Scotia.....	1,350.56	+0.3
Prince Edward Island.....	269.33	.....
Yukon.....	90.91	.....
Total.....	24,730.86	626.86

The decrease in New Brunswick is due to the elimination of the Albert Southern Ry., which has not been operated for many years. During the year there were added 79.43 miles of second track, while yard track and sidings were increased by 393.47 miles. During the four years ended June 30, 1910, there has been an increase of 2,279 miles of main line, 476 miles of second track, and 1,063 miles of yard track and sidings. Combining all these there were at the date of the report 31,767 miles of track in the Dominion in actual operation.

The total of outstanding obligations was \$1,410,297,687, of which \$687,557,387 was represented by capital stock, \$696,677,305 by bonds, \$8,365,077 by miscellaneous obligations, \$5,036,546 by income trust obligations, and \$12,661,372 by equipment work out. In an endeavor to get an approximate idea of the capital per mile of line, it is pointed out that the old method was to add to the total of the stocks and other obligations and to divide the sum produced by the total railway mileage. On this basis of the capital liability of each mile of line on June 30, 1910, was \$64.727. This figure is stated to be delusive, as both the capital liability and the mileage are exaggerated. The capital liability of lines ab-

sorbed by the larger companies is included twice, first as liability of the original company, and secondly in the capital of the purchasing company, issued to acquire the stock, while other lines are owned by mining companies, and there is no separate stock issue in respect of them. The amount to be deducted in respect of these lines is estimated at \$226,298,988, thus reducing the aggregate capital liability to \$1,183,998,699. As regards the mileage there are 2,043.84 miles of Government lines, against which there are neither stocks or bonds outstanding, and 75.36 miles of lines against which no capital liability can be assigned, thus leaving 22,612 miles of line against which a definite capital liability can be assigned. This will give an actual outstanding capital per mile of line of \$52,361. It is impracticable to estimate the actual cost of Canadian railways, but an earnest effort is to be made by the Department during the current year to gather together whatever data is available under that head. The facts in relation to the Government lines are readily available, as follows:—

	Mileage	Cost.	Per Mile.
Intercolonial.....	1,450	\$ 92,273,074	\$63,636
Prince Edward Island.....	267	8,465,365	31,705
Temiskaming and N. Ontario.....	266	15,315,672	57,577
New Brunswick Coal and Ry.....	58	1,964,640	33,873

The cash subsidies paid during the year ended June 30, 1910, amounted to \$1,789,723, of which \$1,382,192 was paid by the Dominion. \$248,531 by the provinces, and \$159,000 by municipalities. From 1876 to June 30, 1910, financial aid was granted as follows:—

Dominion.	
Cash subsidies.....	\$ 78,410,272.58
Loans.....	25,576,533.33
Cost of lines handed over to C.P.R.....	37,785,319.97
Paid to Quebec Government.....	5,160,053.83
Total.....	\$146,932,179.71
Provinces.	
Cash subsidies.....	\$ 32,787,030.16
Loans.....	2,750,030.00
Subscriptions to shares.....	300,000.00
Total.....	\$ 35,837,060.16
Municipalities.	
Cash subsidies.....	\$ 12,739,824.98
Loans.....	2,404,498.62
Subscriptions to shares.....	2,839,500.00
Total.....	\$ 17,983,823.60

In addition land grants have been made as follows:—Dominion, 32,040,378 acres; Quebec, 13,324,950 acres; British Columbia, 8,119,221 acres; New Brunswick, 1,647,772 acres; Nova Scotia, 160,000 acres. The Quebec grants, in nearly every case, gave an option to the company to take 52c. an acre in lieu of the land, and as this has in most cases been taken advantage of, comparatively little land has been alienated. Within the last few years the system of aiding railway building by a Government guarantee of bonds has been adopted, and to date the Dominion and provincial Governments have guaranteed bonds totalling \$127,336,357, distributed as follows:—

Dominion.....	\$ 52,439,865
Manitoba.....	20,899,660
Alberta.....	25,743,000
Saskatchewan.....	11,999,000
Ontario.....	7,800,000
Nova Scotia.....	5,022,000
British Columbia.....	2,196,832
New Brunswick.....	700,000
Quebec.....	476,000
Total guarantees.....	\$127,336,357

The number of passengers carried during the year was 35,894,575; the number carried one mile was 2,466,729,664, and the number of passengers carried one

mile per mile of road was 99,742, representing an increase in the density of passenger traffic of 15,400. The number of passengers carried per mile of line was 1,451, an increase of 96 as compared with the year ended June 30, 1909. Since 1907 there has been an increase of railway mileage of 2,279 miles, while the number of passengers carried per mile of line has increased by but 20, showing that railway construction has proceeded more rapidly than has the development of passenger traffic. The average revenue per passenger per mile was 1.866 cents, a decrease of .055 cent. The number of passengers per train was 59, an increase of eight; the average passenger journey was 69 miles, as compared with 62 miles in the previous year. The average revenue per passenger—that is from ticket sales—was \$1.282, an increase of .087. Passenger trains ran a total distance of 35,022,541 miles, or 2,726,811 miles more than in the previous year, and mixed trains ran 6,441,440 miles, as against 7,061,580 in the previous year. The earnings per passenger train mile—using the aggregate earnings from ticket sales, mails, express, baggage, etc., as one of the factors—were \$1.277, against \$1.150 in the preceding year.

The volume of freight traffic was 74,482,866 tons, a gain of 7,640,608 tons, or 11.4% over the tonnage carried in the previous year. The number of tons hauled one mile was 15,712,127,701, as compared with 13,160,567,550; the number of tons hauled one mile per mile of line was 635,321, a betterment in the density of traffic of 89,330 tons. The average revenue per ton per mile was .739c., against .728c. The revenue from freight was \$116,229,894.06, an increase of 21.4%; this was equal to \$4,699.76 per mile of line, an increase of \$728.85 per mile. The average number of tons hauled per freight train was 311, an increase of 33 tons; the average number of loaded cars per freight train was 18.15, against 16.37; the average number of tons per loaded freight car was 17.13, against 16.98. The average haul was 211 miles, an increase in distance of 14 miles. The revenue freight train mileage was 50,184,108 (including 6,441,440 of mixed train mileage), against 40,304,900 miles. The mileage of loaded cars increased from 775,543,414 to 910,858,711 miles. The tonnage of the different classes of freight carried as compared with the previous year is as follows:—

	1910.	1909.
	Tons.	Tons.
Products of mines.....	26,152,022	23,931,061
Products of forests.....	13,063,940	11,595,007
Products of Agriculture.....	12,891,351	11,963,263
Manufactures.....	10,014,279	7,902,592
Unclassified.....	7,073,078	6,234,372
Products of animals.....	2,765,006	2,807,487
Merchandise.....	2,518,190	2,393,285

The ratio of operating expenses to gross earnings was 69.2, or 2.9 better than in the previous year and the lowest since 1902. The net earnings were \$53,550,776.71, against \$40,456,251.76, a betterment of 32.3%. These net earnings were equal to \$2,165.85 per mile of line, while the gross earnings were \$7,033.93. Twelve lines earned 97% of the net earnings, and 24 lines showed deficits or managed to merely make ends meet. The operating expenses were \$120,405,440.42, against \$104,600,084.43, an increase of 15.1%. The operating expenses represented \$4,868.60 per mile of line, an increase of \$528.07, while the cost of running a train one mile was \$1.409. The distribution of operating expenses compare as follows:—

	1910.	1909.
Way and structures.....	\$27,035,603.46	\$21,153,274.46
Equipment.....	26,002,301.30	21,510,303.59
Traffic expenses.....	4,366,176.92	3,798,824.57
Transportation.....	58,928,170.74	54,284,587.41
General expenses.....	4,073,188.00	3,853,094.40

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PRESIDENT

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Albert and Moncton Ry.—Application is being made to the Dominion Parliament for the incorporation of a company with this title to build a railway from Albert Mines in Hillsboro parish, via Hillsboro to Moncton, N.B., and a railway and general traffic bridge across the Petitcodiac River at Moncton. Pringle and Guthrie, Ottawa, are solicitors for applicants. (July, 1910, pg. 547.)

Alberta and Great Waterways Ry.—Among the acts passed last session of the Alberta Legislature was one providing that "any person or corporation claiming to have suffered damages in consequence of the passing of the act of forfeiture of the A. and G.W.R. Bonds Act," may file the same within three months with the Government, which will consider and report. Two claims were filed Dec. 20, one by T. K. Wright, for cutting and clearing about 20 miles of the right of way, and a second by a company for \$10,000 worth of ties. The company's offices in Edmonton have been closed.

Two of the banks holding part of the proceeds of the bond issue have paid the money into court, but the third bank is going to fight the case, and has entered an appearance. The matter came before Justice Beck in chambers, Jan. 27, for the settlement of some preliminary questions.

The Dominion Government, on Jan. 9, seized the timber cut along the right of way for unpaid stumpage dues. (Jan., pg. 21.)

Alberta Central Ry.—The Board of Railway Commissioners has extended to July 1 the date by which the branch line at Rocky Mountain House, Alta., may be completed. (Dec., 1910, pg. 1013.)

Alberta Northwestern Ry.—A company with this title was incorporated by the Alberta Legislature in 1906, to build railways from Edmonton to Peace River, and from Edmonton to the International boundary, via Medicine Hat. It has been granted an extension of time for construction on several occasions, the latest being at the last session of the Legislature. (Dec., 1910, pg. 1013.)

Alberta Pacific Ry.—The Alberta Legislature, at its last session, changed the name of the Pincher Creek, Cardston and Montana Ry. Co. to that of the Alberta Pacific Ry. Co., and granted an extension of time for construction. A clause was inserted providing that a 30 mile section of the line has to be started at once. The annual meeting of the company was held at Pincher Creek, Alta., Jan. 2, when ordinary routine business was transacted. O. E. Culbert, Pincher Creek, is Secretary.

Plans for the projected railway from Pincher Creek to the International boundary are reported to have been approved by the Alberta Government, and it is said that further consideration is to be given to the plans for the line in the vicinity of South Kootenay Pass. (See Pincher Creek, Cardston and Montana Ry., Dec., 1910, pg. 1015.)

Alberta Western Ry.—The Alberta Legislature last session incorporated a company with this title to build railways in the province, with Lloydminster as a centre. The notice of application gave the proposed title of the company as the Lloydminster and Northwestern Ry., but it was changed to the above in passing through the Legislature. It is understood that the interests promoting this line are also behind the application being made to the Dominion Parliament for the in-

corporation of a company to build lines from Lloydminster to Fort McMurray, to Hudson Bay, to the International boundary at Milk River, Alta., and other points. (See Lloydminster and North Western Ry., Dec., 1910, pg. 1015, and Lloydminster to Fort McMurray, Jan., pg. 23.)

Algoma Central and Hudson Bay Ry.—The main line extends from Sault Ste. Marie to mileage 68, just beyond the crossing of the Chippewa River. From that point to the Montreal River the grade completed some years ago has been cleared up, and track will be laid, so as to get on with bridge construction over the Batchawana and Montreal rivers. Some grading was done beyond that point some years ago, and this is now being cleaned up and completed to Hawk Lake Jct., mileage 164.25. The route winds around between the Montreal and the Agawa rivers, and then follows the canyon of the Agawa River, keeping on the east bank, until clear of the canyon, and then proceeds in an almost straight line to Hawk Lake Jct., crossing the Michipicoten River, close to the mouth of the Shequamka River. From this point the line is under construction almost in a straight line to Hobon, on the C.P.R. transcontinental

From A Chief Engineer of Surveys and Construction.

Canadian Northern Pacific Railway,
Office of the Chief Engineer,
Vancouver, B.C., Jan. 4, 1911.

My Dear Burrows,—I am sending you today the information asked for on your new form, which makes it easier to keep you posted.

Knowing how much pains you always have taken to have your paper absolutely reliable, and considering the great amount of information interesting to railway men in all the departments which it always contains, I am glad to do what little I can to help. I feel that my subscription is quite inadequate to the value I receive in being kept in touch with all that is going on, connected with railways all over Canada, as well as with the men engaged in doing it.

Yours very truly,
T. H. WHITE.

line, mileage 194.5. Track was laid in 1910 on the extension at the south end from mileage 69 to 81.6, and at the north end from mileage 170.5 to mileage 151.5, making altogether 31.6 miles of new track laid on the main line. Between Sault Ste. Marie and Hawk Lake Jct. there is only one short branch, at mileage 39.43, to the Superior Copper Mine.

The Michipicoten branch has been in operation for some years, and extends from Michipicoten Harbor, on Lake Superior to Hawk Lake Jct., about 20 miles, with the following spur lines: To Helen Mine, 1.96 miles; to Magpie mine, 9.08 miles; to Josephine mine, 0.96 mile. The spur to the Magpie mine was built during 1910, and an extension of 4.4 miles is being built. The O'Boyle Construction Co., Sault Ste. Marie, Ont., has the contract.

The Ontario Government is being asked to provide for an extension of time within which the lines under construction may be completed.

A Sault Ste. Marie press report states that two survey parties are shortly to be put in the field, to assist the one already at work on the location of an extension from Hobon, on the C.P.R., to a junction with the National Transcontinental Ry., a distance of 106 miles. (Jan., pg. 21.)

Atlantic, Quebec and Western Ry.—The Board of Railway Commissioners has authorized the company to open for traffic the portion of its line between Newport, mileage 35, and Grand River, mileage 51.5, and has approved plans for station buildings at St. Adelaide de Pabos, Grand River and Cape Cove, Que.

The Receiver in charge of the estate of the Charing Cross Bank, London, Eng., which was financing the construction of the line, is quoted as having stated that about 25% of the line to Gaspé had yet to be completed, and that the work would be continued during the present year. (Jan., pg. 21.)

British Columbia and Alaska Ry.—The President, J. Wolkenstein, and G. C. Moore, of New York, spent some time in Vancouver, B.C., in Dec., 1910. In an interview, the President stated that financial arrangements necessary for starting construction during 1910 had been completed, and that the company had secured power to build a line in Alaska, in continuation of the Canadian section. (Dec., 1910, pg. 1027.)

British Columbia and Alberta Ry.—See Northern Empire Ry.

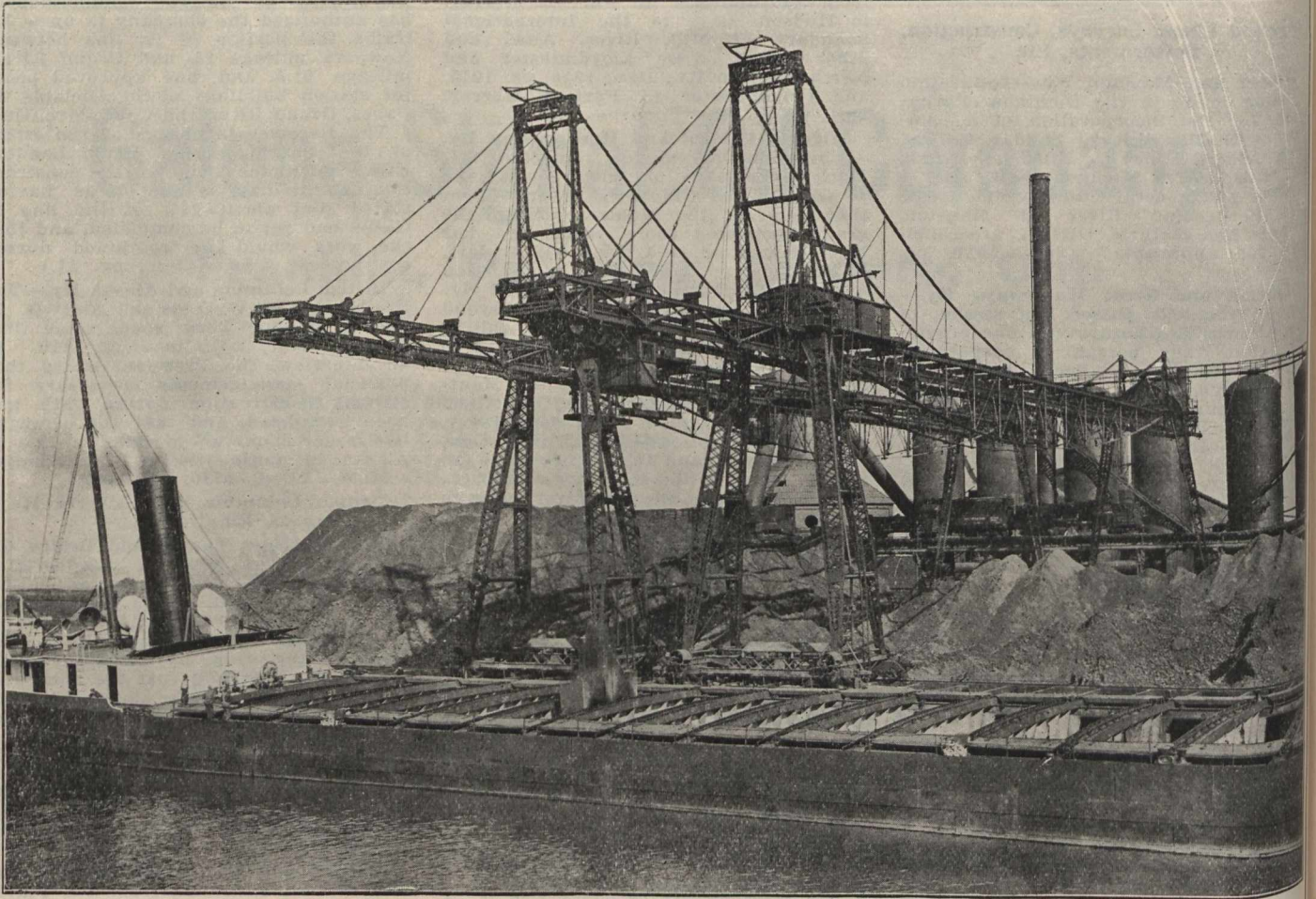
Burrard Inlet Tunnel and Bridge Co.—A proposition is under consideration by the city of Vancouver for taking \$200,000 of shares in this company, towards the erection of a bridge across the Second Narrows of Burrard Inlet. The plans for the bridge have not been made public, but it is said that the span over the deepest part of the channel will be 150 ft. long, and have its bottom chord 35 ft. above high water at the highest spring tides; while there will be a 450 ft. span adjoining. The borings for the foundations show that it will only be necessary to clear away a few feet of deposit before reaching solid rock. (Jan., pg. 21.)

Canada and Gulf Terminal Ry.—The first section, extending from Ste. Flavie, on the Intercolonial Ry., to Matane, Que., 36 miles, was opened for traffic Dec. 29. A charter for building this line was originally granted to the Gaspesian Ry. Co. in 1883, but nothing was done. In 1902, the name of the company was changed to the Matane and Gaspé Ry., and a new charter obtained, and subsequently the name was changed to the C. and G.T. Ry. About two years ago the company was reorganized, and construction was started, the contract being let to H. Doheny, Montreal. Tracklaying was started May 7, 1910, and the completed section was taken over by the company for operation Dec. 7. The chief settlements secured by the line are Grand Metis, Little Metis, Sandy Bay, Riviere Blanche, Tessierville, and Matane, at which point the St. Lawrence is about 30 miles wide. The line is built to a high standard, and the track is laid with 80 lb. steel, with steel bridges over the larger rivers. The present rolling stock consists of three locomotives, two passenger coaches, 15 box cars, and 30 flat cars.

Surveys are being made for an extension from Matane easterly to Gaspé Basin, 178 miles, and it is proposed at an early date to have surveys made for an extension westerly from Ste. Flavie to St. Eleuthere, on the National Transcontinental Ry., about 100 miles. (Jan., pg. 21.)

Chestermere and Calgary Suburban Ry.—The Alberta Legislature at its last session incorporated a company with this title to build a railway to be operated by "electricity or by any other motive or mechanical power" from Calgary to Chestermere Lake, in tp. 24, range 28, west of the fourth meridian. E. F. Ryan, Calgary, Alta., was solicitor for the applicants.

Chibougamou, Que.—The report of the investigation into the resources of



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the Chibougamou district of Quebec, with a view to the building of a railway by the Quebec Government was laid before the Legislature Jan. 9. The Commissioners say that having weighed all the evidence collected "they cannot find the mineral deposits so far discovered are of sufficient merit to justify the spending of public money on the building of a railway as proposed from Lake St. John to Lake Chibougamou." (July, pg. 547.)

Chicago, Milwaukee and Puget Sound Ry.—There have been some purchases of large areas of land along the Fraser River, in the vicinity of Westminster Jct., reported recently, and it is stated that the purchaser is the C.M. and P.S. Ry. That company has secured a right of way for a line to the International boundary, and has been on the lookout for some time for a suitable property at deepwater in the vicinity of Vancouver for yards, warehouses, wharves and other terminal facilities. The reports state that the whole water front, from the Industrial cannery to Toby Island, a distance of two miles, has been purchased or is under option, that some 240 acres of other lands have been purchased, and that options have been obtained on about 300 acres additional. The reports further state that it is proposed to build a bridge across the river from Sunbury. (Jan., pg. 21.)

The Diamond Coal and Ry. Co. laid some additional switches at its collieries at Diamond City, Alta., during 1910, and has under construction an additional mile and a half of switches, also at the collieries. Its line extends from Diamond City to Kipp, Alta., on the C.P.R. (Nov., 1910, pg. 909.)

Dominion Central Ry.—The Dominion Parliament is being asked to extend the time for the construction of this projected railway authorized by chap. 90 of the statutes of 1904. The company desires to increase its bonding powers to \$50,000 a mile. The application during the session of 1909-10 fell through. (Dec., 1909, pg. 881.)

The Empire Coal and Tramway Co.'s property and rights have been taken over by the Atlantic Coal Co., which has been organized under the Dominion Companies Act, with a capital of \$290,000. The directors are: J. B. Shaffner, Halifax, N.S.; J. B. Sherry, Memramcook, N.S.; T. Nagle, P. M. O'Neill, S. E. Elkin, St. John, N.B.; J. H. Harris, Moncton, N.B.; W. S. Montgomery, Dalhousie, N.B. The colliery which the company is at present working is situated on the Maritime Coal, Ry. and Power Co.'s line, near Maccan, N.S., and it is not likely, therefore, that the company will undertake the building of any railway lines.

Essex Terminal Ry.—An additional mile of track between Walkerville and Windsor, Ont., was laid on this switching railway during 1910. No additional construction work is in hand or in contemplation at present. (Dec., 1910, pg. 1013.)

Ha Ha Bay Ry.—During 1910 the company laid 25 miles of new track, 20 miles being on the line from Chicoutimi to Bagotsville, Que., and five miles from Chicoutimi to Mathias station. A branch from the main line to L'Arriere village, seven miles, is under construction, the contractors being Boulianne and Boulianne. Surveys are being made for a line from Mathias station to Roberval, on Lake St. John, 120 miles. J. F. Grenon, Chicoutimi, Que., is Chief Engineer.

The Quebec Public Utilities Commission has authorized the opening for traffic of the line between Chicoutimi and St. Alphonse, Que., 18.10 miles, subject to certain conditions as to the provision of safety switches, etc., and per-

mitting a junction with the Quebec and Lake St. John Ry. at Chicoutimi, subject to an arrangement between the two companies. (Aug., 1910, pg. 627.)

Halifax and Eastern Ry.—A New Glasgow, N.S., press report says:—"It is now reported that the construction of a trunk railroad from Dartmouth to Guysboro via the Musquodoboit and St. Mary's Valleys, is to be abandoned, and the provincial government will make an effort to get the Dominion Government to build a spur of the Intercolonial into Musquodoboit and another from New Glasgow to Guysboro." (Jan., pg. 21.)

High River and Hudson's Bay Ry.—The Alberta Legislature last session incorporated a company with this title to build a railway as previously described. (Dec., 1910, pg. 1013.)

The Howe Sound and Northern Ry. is reported to be under construction from Newport, at the head of Howe Sound, B.C., in the direction of Pemberton Meadows. Some track is reported to have been laid, and the line is being used for logging purposes. A press report states that J. D. Nelson is engineer in charge of a party engaged in making a survey between Anderson and Seaton Lakes, and that the party started from some westerly point, and is working towards Lillooet. (Aug., 1910, pg. 627.)

Intercolonial Ry.—The lines under construction are:—A diversion of 8.28 miles from Nelson to Chatham, N.B., the contractors for which are Morrison and Clarke, Summerside, P.E.I., and a diversion of 9.2 miles between George River and Sydney Mines, N.S., the contractor for which is D. G. Kirk, Antigonish, N.S. (Dec., 1910, pg. 1015.)

International Ry. of New Brunswick.—The accounts of the province for the year ended Oct. 31, 1910, show that \$43,000 was paid on account of the subsidy of this line. (Jan., pg. 23.)

Kamouraska and L'Islet Ry.—The Quebec Legislature is being asked to incorporate a company with this title to build the following lines:—From Ste. Anne de la Pocatiere to the Intercolonial Ry., southerly to the National Transcontinental Ry. in the parish of St. Perpetue, and on to a junction with the Quebec Central Ry. in L'Islet county; from Ste. Anne de la Pocatiere northerly to Pointe Riviere Ouelle, and on to the wharf there, making a junction with the Intercolonial Ry. branch line. A. Stein, Fraserville, Que., is attorney for applicants.

Kettle Valley Lines.—In addition to the powers previously announced as being applied for at the current session of the Dominion Parliament, the Kettle Valley Ry. is asking authority to build a railway to Allison or Princeton in the Similkameen Valley, B.C., and thence to the Granite Creek coal areas, near the junction of Granite Creek with the Tulameen River. Authority is also being asked to change the name of the company to the Kettle Valley Ry. Co.

The Board of Railway Commissioners has approved of the location of the extension of the line, now under construction, from station 0 to station 513, division 1A, west of Midway, B.C. The construction programme in Canada includes the building of about 250 miles of line, connecting up the existing line at Midway to Merritt, B.C., of which there are under contract a ten mile section from Midway to Rock Creek, which had been partially graded by the old Midway and Vernon Ry., and a 30 mile section from Merritt to the Coldwater summit. The contractors are L. M. Rice & Co., at Midway, and Macdonell, Gzowski & Co. at Merritt. Press reports in Dec. stated that track had been laid between Midway and Rock Creek, and that it was expected to lay a further ten miles by the end of the year, but

we were advised, Jan. 6, that no track had been laid.

The United States end of the line is the Spokane and British Columbia Ry., which has in contemplation the building of a line from Republic, the present southerly terminus of the line, southerly to Spokane, Wash., 140 miles. (Jan., pg. 23.)

London and Port Stanley Ry.—The mayor of London, Ont., who, by virtue of his office, is President of the L. and P.S. Ry., in his inaugural address, Jan. 9, suggested that the question of the use of electricity as motive power be considered at an early date. This matter was of importance in view of the fact that the lease to the Lake Erie and Detroit River Ry. (Pere Marquette Rd.) will expire Jan. 1, 1914. (July, 1910, pg. 549.)

Manitoulin and North Shore Ry.—The extensions for which tenders are under consideration, will connect up the section completed between Sudbury and Crean Hill, Ont., and the 61 mile section under construction from Whitefish Bay to Little Current, on Manitoulin Island. The contract is being let in two sections, from Crean Hill, mileage 22.7, from Sudbury to Espanola, mileage 44.5, and from Espanola to mileage 61 at Whitefish Bay. The first of these two sections is on a revised location, and is some miles shorter than the route originally surveyed. The maximum gradient is 1.25, compensated at the rate of 0.04 per degree for curvature, the maximum curvature being 10 degrees. The bridge structures over the rivers and the large openings will be of steel on concrete abutments, but temporary timber structures will be erected. The location plans show that the line will trend southerly from Crean Hill, and run between the Spanish River, and the C.P.R. crossing that line west of Nairn Centre, and crossing the Spanish River some distance south of the C.P.R. The Vermillion River will be crossed west of the point where the Spanish River runs in, and the old location will be joined at Tullock Lake. The alternate location, starting from Crean Hill, will run through the northern portions of Denison and Drury tps., and southerly and westerly through Hyman and Baldwin tps. to Espanola, on the C.P.R., crossing that line and working southerly and easterly to Tullock Lake. From that point the line will run between Anderson and Loon lakes, past Raven Lake, crossing the northwest corner of the Indian reservation, and entering the reservation again south of Charlton Lake, to the Indian village at Whitefish.

A locomotive repair shop has been built at Clara Belle Jct., just outside of Sudbury, Ont. (Jan., pg. 23.)

The Michigan Central Rd. is building a bridge over the Welland Canal at Welland, Ont. It is a double track structure of the Baltimore truss centre bearing swing type, having a total length of 260 ft. centre to centre of end bearings, 35 ft. chords, 42 ft. chords on tower, and 31 ft. 8 in. centre to centre of trusses. Its weight complete is about 1,000 tons, and it will be swung by electric power. The foundations are of concrete, 0 ft. deep, using coffer dams, and the superstructure will be erected on falsework. Temporary trestles have been erected around the side of the old bridge to carry the traffic during the construction of the new bridge. The cost is estimated at \$300,000. (Nov., 1910, pg. 911.)

Montreal and Northern Colonization Ry.—Application is being made to the Quebec Legislature to incorporate a company with this title to build a railway, to be operated by steam or electricity, from Montreal north and north-westerly, "up to a point to be fixed by engineers and approved by the Lieut-

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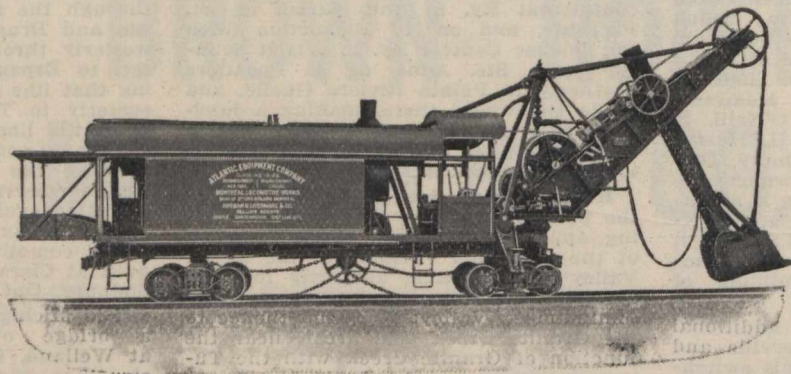
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Governor in Council." Geoffrion, Geoffrion and Casson, Montreal, are solicitors for applicants.

Montreal and Southern Ry. and Power Co.—The Quebec Legislature is being asked to incorporate a company with this title to construct "a steam or electric railway," from Caughnawaga, southwesterly to the International boundary near St. Francis, Que., "to develop water powers and electricity, and to construct an artificial canal along the Beauharnois canal." Geoffrion, Geoffrion & Casson, solicitors. Montreal, are solicitors for applicants.

Montreal Central Terminal Ry.—A proposition has been laid before the Montreal board of control by C. L. Armstrong and J. M. Shanly, civil engineers, on behalf of the company. The board promised to give consideration to the proposals if they were submitted in writing, and accompanied by plans. (July, 1910, pg. 549.)

Naas and Peace River Ry.—The British Columbia Legislature is being asked to incorporate a company with this title to build a railway to be operated by steam, electricity or other motive power, from the head of Nasoga Gulf, up the Naas River, the Kitmacool River, the Babine River, the Neel-Kit-Kwa River, the Nation River, the Pine River, and through the Pine River pass to the eastern boundary of the province, and such branch lines as may be desirable. A. Martin, Victoria, B.C., is solicitor for applicants.

Naas and Skeena River Ry.—The British Columbia Legislature is being asked to incorporate a company with this title to build a railway from Groundhog Valley, down the south side of the Skeena River to its junction with the Sian Geest River, following that river to the fifth cabin on the Yukon telegraph line, and westerly to above Blackwater Lake and down Blackwater River to the Naas River, thence along Naas River to Naas Bay, with a branch line from the junction of the Skeena and Carrier rivers to Blackwater River. Barnard and Robertson, Victoria, B.C., are solicitors for applicants.

New Brunswick Coal and Ry. Co.—The financial statement of the province for the year ended Oct. 31, 1910, showed that there had been expended by the Commission on repairs to the N.B.C. & Ry. Co.'s line, \$3,297.45. (Dec., 1910, pg. 1015.)

Northern Empire Ry.—Suit has been entered by H. Roy, Ottawa, against the N.E. Ry. Co. and its associated company, the British Columbia and Alberta Ry., and the directors, for \$25,000 damages for breach of contract. Roy is a civil engineer and was practically the owner of the two charters named. It is alleged that C. W. Patton, one of the defendants, undertook to organize a company, Roy to receive \$15,000 cash and certain stock. (May, 1910, pg. 353.)

Pacific and Hudson Bay Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a railway from Kimsquit at the head of Dean channel on the Pacific coast, northeasterly following the Dean River, Sigutla Lake, Kwalchola Lake, the Entiaco River and the upper Nechaco River to Fort Fraser, thence northeasterly to Fort McLeod, thence across the Parsnip River, through Pine River Pass and along the Pine River to Coalbrook, and Dunvegan and along the Peace River to Peace River Landing, thence easterly, passing the headquartars of the Bear River to the Athabasca River and Fort McMurray, thence crossing the Athabasca River and following the Clearwater and Churchill rivers to a junction with the proposed railway to Hudson Bay, south of Washaiowaka

Lake, and thence to Churchill or Nelson, on Hudson Bay. W. F. Brougham, Vancouver, B.C., is solicitor for applicants.

Pacific Coast Mines.—During 1910 the company built a line from Fiddicks Jet., on the Esquimalt and Nanaimo Ry., to its mines near South Wellington, B.C., 1.8 miles, and has under construction a mile of line from the main line to the low level at Boat Harbor. Surveys have been made for a branch from Port McNeill to Squach, seven miles. S. H. Reynolds, Victoria, B.C., is Managing Director. (Jan., 1910, pg. 23.)

Peace River Great Western Ry.—The Alberta Legislature at its last session incorporated a company with this title to build a railway from Edmonton to the Peace River Pass, crossing the Athabasca River at Holmes Crossing, and skirting the west end of Lesser Slave Lake. (Jan., pg. 23.)

Pincher Creek, Cardston and Montana Ry.—See Alberta Pacific Ry.

Prince Edward Island Ry.—There is under construction a branch line from Harmony to Elmira, 9.9 miles, the contractors for which are Whitehead Bros., Fredericton, N.B.

Tenders were received to Jan. 17 for the supply of 20,000 cedar ties, 20,000 hemlock ties, and for a quantity of switch ties.

Prince Rupert and Port Simpson Ry.—Press reports state that surveys have been made for a line from Port Simpson to Prince Rupert, B.C., 27 miles. The surveys are said to show two summits between the terminals, one at Georgetown of 300 ft., and the second close to Prince Rupert, of 240 ft. The gradient to the Georgetown summit will be one per cent., and the other 1.8%, with a 1.2% gradient coming back to the harbor. (Aug., 1909, pg. 575.)

Quebec and Great North Western Ry.—The Dominion Parliament is being asked to incorporate a company with this title to build the following railways: from Port Arthur, Ont., easterly to New Liskeard, to some point between Baskatong Lake and Maniwaki, Que., and on to Quebec city from about 75 miles west of Maniwaki northerly to a junction with the National Transcontinental Ry., and southerly via the valley of the Coulonge River to Ottawa, Ont.; from New Liskeard to the National Transcontinental Ry. east of Lake Abitibi, Ont.; from New Liskeard southerly to Timiskaming station on the C.P.R. from Mattawa, from the point of crossing the Missinaibi River to Michipicoten on Lake Superior, Ont. Power is asked to build branches of the above, such branches not to exceed in any one case 25 miles. E. J. Daly, Ottawa, is solicitor for applicants.

Quebec and New Brunswick Ry.—Application is being made to the Dominion Parliament to extend the time for the building of this projected railway. (July, 1910, pg. 549.)

Quebec Central Ry.—Some little time ago the roundhouse at L'Enfant Jesus, Beauce county, was destroyed by fire, and when the company started to rebuild it the municipality filed a complaint with the Public Utilities Commission. The municipality objects to the continuance of the roundhouse, tank and shunting yard. The Chairman and the engineer of the Commission visited the place Dec. 22, heard what was urged by the municipality, and will report.

The company has under survey an extension of its St. Francis branch from St. Sabine road, to which track was laid in 1910, to Cabano, Que., about 100 miles, and from Scotts to Quebec Bridge, about 19 miles. (Jan., pg. 1015.)

Quebec, Montreal and Southern Ry.—The Dominion Parliament is being asked to extend the time for the comple-

tion of the lines authorized to be built by chap. 150 of the statutes of 1906. (Aug., 1909, pg. 575.)

Richmond, Magog and Stanstead Ry.—Application is being made to the Quebec Legislature to incorporate a company with this title to build a railway from Richmond to Magog, thence to Stanstead Plain, and branch lines, not to exceed 20 miles in any one case, together with power to build a bridge across the St. Francis River between Richmond and Melbourne. Hurd, Fraser, Macdonald and Rugg, Sherbrooke, Que., are solicitors for applicants.

St. John River Valley Ry.—The cost of the surveys made on behalf of the New Brunswick Government for the projected railway from St. John to Woodstock, during the past season, is given in the provincial accounts for the year ended Oct. 31, 1910, as \$19,290.46. (Jan., pg. 23.)

Shaw Lumber and Ry. Co.—Application is being made to the Saskatchewan Legislature to incorporate a company with this title, having power, among other things, to build the following railway lines:—From Shaw siding in tp. 45, range seven, west of the second meridian, southwesterly for a distance of about 30 miles to timber berth 981; a branch line from the above, at the southwest corner of tp. 44, range eight, west second meridian, for a distance of 15 miles to timber berth 960, in tp. 43, range ten; and from Shaw's Siding for a distance of 30 miles, to timber berth 960, in tp. 49, range seven. The application is signed by T. Shaw, Regina, Sask.

Skidegate to Indian Village.—In connection with the application to the British Columbia Legislature for the incorporation of a company to build a line on Graham Island, connecting up the above points, it is to be noted that the terminal point is at Naden Harbor, where the whaling and fishing company, in which Mackenzie, Mann & Co.'s interests are prominent, is building. (Jan., pg. 23.)

The Sydney and Louisburg Ry. during 1910 built one mile of track on a new location in substitution for a mile of old location, and relaid 1.5 miles of the Sydney branch with 80 lb. steel. It has under survey a branch from Balls Creek to Limestone Quarry, 1.5 miles, and a branch from Morien station to Birch Grove Mine, 2.5 miles. C. M. Odell, Sydney, is Resident Engineer. (Jan., pg. 23.)

Temiskaming and Northern Ontario Ry.—One half mile of track between mileposts 60 and 60½ represents the total additional track laid during 1910, but a second track was laid between Cobalt and North Cobalt, Ont., five miles. The contractor was A. J. McGar. A branch from Iroquois Falls, near Matheson, into the Porcupine country, 32 miles is under construction. In a recent interview the Ontario Minister of Public Works, said the steel will be laid to Frederick House by the end of March, and it is expected to reach the Mettagami River by the end of the year. If the developments west of that point warrant, a bridge will be built across the river and the line continued to Godfrey.

Montreal press reports that the G.T.R. or the G.T. Pacific Ry. is negotiating with the Ontario Government for a lease of the line are denied by the Premier of Ontario, and the Chairman of the T. and N.O. Ry. Commission, but it is said that the G.T.R. wishes to secure running rights over it.

The Chairman of the Commission stated Jan. 13 that about eight miles of the right of way of the Porcupine branch had been cleared, that there had been 2.5 miles of grading done, and that about 22 miles of the right of way had been marked out. (Jan., pg. 23.)

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The Toronto, Hamilton and Buffalo Ry.'s Chief Engineer and the city engineer of Hamilton had a conference Jan. 10 with respect to the operation of the line by electricity. The Chief Engineer, in an interview, said he had been directed to prepare plans and estimates as to the cost of electrification of the entire line from Hamilton to Welland, and Hamilton to Waterford, but he could not say anything as to the company's intention. The city engineer, in a subsequent interview, said at one time the T.H. and B. Ry. carried all the local passenger traffic between Brantford and Hamilton, but that it now nearly all went over the electric line, known as the Brantford and Hamilton Ry. He was of opinion that the T. H. and B.R. has an idea of operating the Hamilton-Brantford section of the line by electricity, obtaining power from the Hydro-Electric station at Dundas. (Jan., pg. 25.)

Western Alberta Ry.—The Dominion Parliament is again being asked to extend the time within which the company may build the lines authorized by chap. 90 of the statutes of 1898, as amended by subsequent acts in 1900, 1903, 1905 and 1908. Smith and Johnson, Ottawa, are solicitors for applicants. (Jan., 1909, pg. 23.)

The Western Canadian Lumber Co. is building a logging railway in the Comox district of Vancouver Island. As the timber is being cleared the land is being taken up for agricultural purposes, and a general traffic over the line is expected to be developed. (See Comox Ry. and Logging Co., Aug., 1910, pg. 627.)

Winnipeg to Springfield.—The Manitoba Legislature is being asked to incorporate a company to build the following lines of railway, which may be operated by electricity or other motive power:—From Winnipeg through the municipalities of St. Paul, Kildonan and Springfield, and from St. Boniface through the same municipalities. A. E. Hoskin, Winnipeg, is solicitor for applicants.

York and Carleton Ry.—No advance was made during 1910 with the projected extension of the line from Ryan Brook to Napdoggan, N.B., the divisional point on the National Transcontinental Ry., a distance of 9.5 miles, previously reported. (June, 1909, pg. 453.)

Accidents on Canadian Railways.

During the year ended June 30, 1910, 615 persons were killed and 2,139 injured on Canadian railways, against 505 killed and 2,186 injured in the previous year. Of these 524 were killed and 1,441 were injured as the result of the movement of trains. Those killed included 60 passengers, 214 employees, 175 trespassers, 74 non-trespassers, and one postal clerk, and those injured included 270 passengers, 926 employees, 148 trespassers, 77 non-trespassers, and 20 postal clerks. In accidents caused otherwise than by the movement of trains, two passengers, 81 employees, and eight postal clerks were killed, and nine passengers, 679 employees and 10 postal clerks injured. From the movement of trains one passenger in every 598,243 was killed and one in every 132,943 was injured. One trainman in every 199 was killed, and one in every 33 injured; one trackman in every 550 was killed, and one in every 98 injured; one switch tender in every 181 was killed, and one in every 65 was injured. Through accidents at highway crossings 63 were killed and 61 injured; 23 being killed and 45 injured at urban crossings, while 35 were killed and 16 injured at rural crossings.

Railway Freight Statistics.

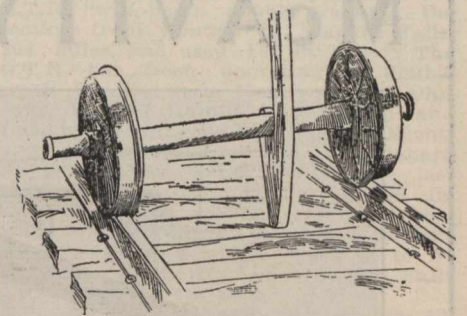
The aggregate tonnage of freight carried by Canadian railways during the year ended June 30, 1910, was 74,482,866 tons, against 66,830,019 tons in the previous year. Of the total tonnage 42,279,812 tons originated on the home roads, against 36,075,101 the previous year, and 32,203,054 tons were received from other lines, against 30,754,918 tons the previous year. The following table gives the details for the various lines:—

NAME OF RAILWAY.	Tonnage originating on road.	Tonnage received from connecting roads and other carriers.	Total freight tonnage.
Alberta Railway and Irrigation Co.	72,170	105,920	178,090
Algoma Central and Hudson Bay	268,580	9,366	277,946
Atlantic and Lake Superior	15,858	15,311	31,169
Atlantic, Quebec and Western	4,069	10,905	14,974
Bay of Quinte	78,145	80,952	159,097
Bedlington and Nelson	6,542	58	6,600
Bessemer and Barry's Bay	24,975	.....	24,975
Brandon, Saskatchewan and Hudson Bay	66,263	360	66,623
British Yukon	23,744	.....	23,744
Brockville, Westport and Northwestern	8,959	13,497	22,456
Canada Southern	692,134	6,060,113	6,752,247
Canadian Gov. Railways	.....	.....	.....
Intercolonial	2,888,061	1,145,993	3,984,054
Prince Edward Island	103,100	.....	103,100
Canadian Northern	2,987,236	822,620	3,809,856
Can. Northern Ontario	389,194	42,067	431,261
Can. Northern Quebec	292,213	348,839	641,052
Canadian Pacific	14,456,851	6,094,517	20,551,368
Cape Breton	1,543	1,326	2,869
Caracquet	16,384	9,334	26,218
Carillon and Grenville	13	32	45
Central Ontario	190,995	82,143	273,143
Crow's Nest Southern	78,291	145,875	224,166
Cumberland Railway & Coal Co.	79,346	13,418	92,764
Dominion Atlantic	282,205	60,052	342,257
Elgin and Havelock	10,394	3,137	13,531
Eastern British Columbia	111,162	1,326	112,488
Grand Trunk	6,088,800	10,663,043	16,751,343
Grand Trunk (Canada Atlantic)	1,117,820	417,164	1,534,984
Halifax and Southwest'n	189,876	23,974	213,850
Hereford	162,202	3,026	165,228
Inverness Railway and Coal Co.	280,365	10,293	290,658
Ironclad, Bancroft and Ottawa	26,679	2,428	29,107
Kaslo and Slovan	14,834	247	15,081
Kent Northern	2,701	4,260	6,961
Kettle River Valley	2,104	.....	2,104
Kingston and Pembroke	79,134	27,849	106,983
Klondike Mines	14,961	.....	14,961
Liverpool and Milton	40,503	.....	40,503
London & Port Stanley	296,202	190,100	486,302
Lotbiniere & Megantic	53,275	2,599	55,874
Manitoulin and North Shore	412,456	30	412,486
Maritime Coal Railway and Power Co.	190,566	8,734	199,300
Massachusetts Valley	125,039	368,680	493,719
Manitoba Great Northern	61,205	41,231	102,436
Moncton and Buctouche	21,031	8,224	29,255
Montreal and Atlantic	143,048	967,516	1,110,564
Montreal and Province Line	15,187	58,618	73,805
Montreal and Vermont Junction	2,293	92,622	94,915
Morrissey, Fernie and Michel	554,515	18,634	573,149
Napierville Junction	5,910	222,969	228,879
Nelson and Fort Sheppard	28,220	10,274	38,494
New Brunswick Coal and Railway Co.	56,967	10,670	67,637
New Brunswick & Prince Edward Island	26,875	9,425	36,300
New Brunswick South'n	20,108	454	20,562
New Westminister Southern	40,644	.....	40,644
North Shore	8,173	.....	8,173
Nova Scotia Steel and Coal Co.	6,039	1,070	7,109
Orford Mountain	22,472	4,534	27,006
Ottawa and New York	40,821	100,665	141,486
Pere Marquette (in Canada)	1,695,893	466,354	2,162,247
Phillipsburg Railway & Quarry Co.	5,401	7,880	13,281
Princeton Branch of Washington Ry.	160,474	.....	160,474

NAME OF RAILWAY.	Tonnage originating on road.	Tonnage received from connecting roads and other carriers.	Total freight tonnage.
Quebec Central	545,913	142,238	688,151
Quebec & Lake St. John	160,206	99,928	260,134
Quebec Ry. Light & Power Co.	103,248	8,069	111,317
Quebec, Montreal and Southern	62,238	210,808	273,046
Red Mountain	19,570	152	19,722
Rutland and Noyan	222	170,722	170,944
Salisbury and Albert	47,358	7,242	54,600
Schomberg and Aurora	5,349	2,839	8,188
Stanstead, Shefford and Chambly	2,996	117,301	120,297
St. Clair Tunnel	.....	.....	.....
St. Lawrence and Adirondack	10,237	659,327	669,564
St. Martins	16,155	2,560	18,715
Sydney and Louisburg (Dominion Coal Co.)	2,563,591	97,053	2,660,644
Spokane and British Columbia	14,603	632	15,235
Temiscouata	112,029	26,225	138,254
Temiskaming & Northern Ontario	367,056	325,331	692,387
Thousand Islands	15,179	19,334	34,513
Toronto, Hamilton and Buffalo	190,902	1,452,817	1,643,719
Vancouver, Victoria and Eastern	1,153,398	4,340	1,157,738
Victoria & Sidney, B.C.	22,297	13,469	35,766
Victoria Terminal and Ferry Co.	7,022	27,230	34,252
Wabash Railway Co., in Canada	1,366,666	.....	1,366,666
Wellington Colliery Co.	375,572	2,988	378,560
York and Carleton	7,285	1,216	8,501
Total	42,279,812	32,203,054	74,482,866

Lever for Lifting Car Wheels on Axles.

Sometimes it is necessary to turn a pair of car wheels in the shop, and this is a difficult matter without some means of raising the flange of one wheel over the rail. A lever cut from an old piece of scrap hard wood, as shown in the



sketch, will make the job easy. The hook is placed under the axle and the wheel is raised by pushing against the lever. As the height of axles varies, the lever should be made to fit the lowest, and a plank or board may be used under the lever to adjust it for higher axles.—U. A. Towle, Portland, Me.

Railway Lands Patented.—During Nov., 1910, letters patent were issued, covering Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acre.
Calgary and Edmonton Ry.	471.00
Canadian Northern Ry.	5,476.33
Canadian Pacific Ry. grants	1,116.838
Canadian Pacific Ry. grants, Souris Branch	252.00
Grand Trunk Pacific Ry.	326.26
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	800.00
Total	8,442.428

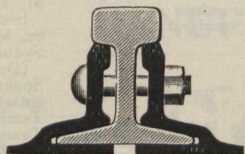
At the opening of the British Columbia Legislature recently, it was announced that among the new legislation proposed was a bill for the inspection of railway construction camps.

ADDITIONAL SAFETY AND ECONOMY IN TRACK MAINTENANCE

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.

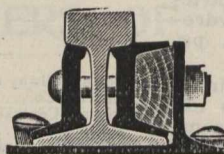
HIGHEST AWARDS

Paris, 1900;
Buffalo, 1901; St. Louis, 1904



Continuous Joint

Over
50,000
miles
in use



Weber Joint

Rolled
from Best
Quality
Steel



Wolhaupter Joint

Catalogues at Agencies

Baltimore, Md.
San Francisco, Cal.

Boston, Mass.
Portland, Ore.
London, E.C., Eng.

Chicago, Ill.

Denver, Colo.
St. Louis, Mo.
New York City

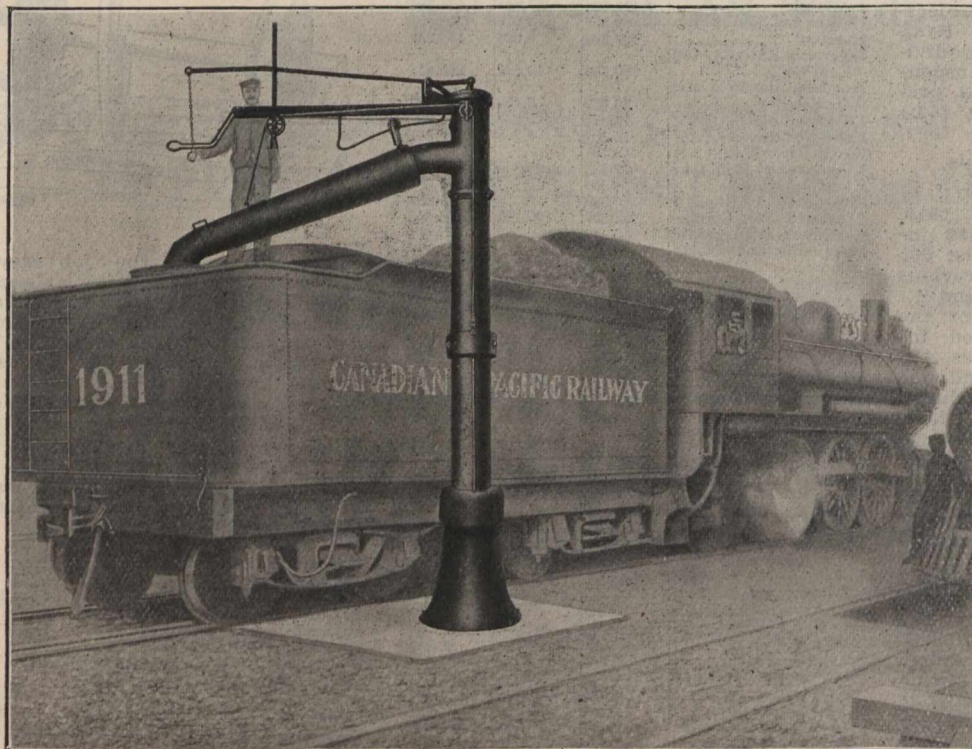
Pittsburg, Pa.
Troy, N.Y.

THE RAIL JOINT COMPANY OF CANADA, LIMITED

OFFICES: BOARD OF TRADE BLDG., MONTREAL, CAN.

Makers of Base Supported Rail Joints for Standard and Special Rail Sections, also Girder, Step or Compromise, Frog and Switch, and Insulating Rail Joints, protected by Patents.

McAVITY DIRECT ACTING STAND PIPE



Telescopic Spout and Sheffield Type Valve

Operating rods outside of column when not in use automatically returns to and locks parallel with track.

Operated by one Man from Tender

SELF DRAINING
NON-FREEZING

In use on C. P. R.,
G. T. P. and I. C. R.

T. McAVITY & SONS, Limited,

St. John. N.B.

National Transcontinental Railway.

In a recent interview at Montreal E. J. Chamberlin, Vice President and General Manager G. T. Pacific Ry., said the last spike of the line from Moncton to Prince Rupert would be driven early in 1913. Whether this prediction will be realized is a matter upon which more than one opinion is expressed, but the reports from all parts of the line indicate that the work is being pushed forward with the object of having the entire line in operation by the fall of 1913. It is stated that while perhaps 166 miles from Moncton westerly may be opened for traffic during the current year, it will be well into 1912 before the line is ready for traffic to Point Levis. The 166 miles referred to carries the line from Moncton to McGivney Jct., where it crosses the Intercolonial Ry. Canada Eastern section, and beyond this point, there is a very heavy piece of bridge work across the Salmon River valley, the structure being 4,000 ft. long and 200 ft. high. Considerable progress has been made on the several contracts for the rest of the distance between Salmon River and Point Levis, Que., some sections having been completed, with the exception of ballasting, and others requiring the erection of bridge superstructures, before further track laying or ballasting can be done, while on some other sections there is a small percentage of grading to be done. During 1910, track was laid on an additional 130 miles, on the sections in New Brunswick, and some 30 miles of track has been laid between the New Brunswick boundary and Point Levis, while altogether in the district east and west of the Quebec Bridge track was laid on 135 miles, to about five miles west of Weymontachene. On the section north of the St. Lawrence River, a good deal of ballasting has been done, and the superstructures for a number of the bridges are ready for the steel work. On the next district, east and west of Cochrane, Ont., and easterly from Graham (Lake Superior Jct.), track was laid on 172 miles during 1910. This makes 437 miles of track laid during 1910, which added to the 565 miles laid to Dec. 31, 1909, makes a total of 1,002 miles of track laid, leaving 801 miles of line on which track has to be laid between Moncton and Winnipeg.

Replying to questions in the House of Commons Jan. 11, the Minister of Railways said the work of the arbitration board constituted to determine questions as to overbreak, overclassification, etc., on the eastern division of the N.T.R., had been completed, with the exception of making the award. The time occupied by the first board of arbitrators—H. D. Lumsden, B. B. Kelliher and C. Schreiber, C.M.G., in investigating the matter was 39 days, and the second board, on which G. Grant succeeded H. D. Lumsden, spent 58 days upon the investigation. On the following day, Jan. 12, the Minister stated that he expected to be able shortly to lay on the table the report of the arbitrators. Press reports from Ottawa, state that the amounts disallowed aggregate \$400,000 of which \$275,000 is on the Lake Superior Division.

Tenders have been asked by the Commissioners for the demolition of the buildings at Champlain market, Quebec, the site for the station building.

A return made to the House of Commons, Jan. 16, with respect to the Quebec Bridge, showed that the old company did not take any steps to notify the guarantee company of the failure of the contracting company to carry out its contract, on the collapse of the bridge, and that the notice subsequently given by the Government was not the "prompt notice" which the terms of the bond

called for. The Government is therefore unable to collect the \$100,000 mentioned in the bond.

GRAND TRUNK PACIFIC RAILWAY.

During 1910 the company laid 335 miles of new line, exclusive of second track and sidings, distributed as follows: branch lines in Saskatchewan;—northerly from Melville, mileage 17 to Canora; southerly from Melville, from Balcarres to mileage 48; from Young to mileage 25, on the projected branch to Prince Albert; total in Saskatchewan, 77 miles; and mileage 879 on main line to Prairie Creek, Alta., and Tofield-Calgary line, from Camrose to Red Deer River; total in Alberta, 153 miles, and from Prince Rupert to Copper River, B.C., 100 miles. The lines under construction include the remainder of the main line from Prairie Creek to Copper River, 665 miles, of which about 400 miles is not yet under contract; and the following branch lines:—Melville to Regina, from mileage 48 to Regina, 48 miles; from Regina towards the International boundary, to mileage 90; from Regina westerly to Moose Jaw, 45 miles; Young to Prince Albert, from mileage 25 to Prince Albert—37 miles; from Oban to Battleford, 48 miles; Tofield-Calgary line, from Red Deer River to Calgary, 121 miles; from Bickerdike, Alta., south-westerly, 59 miles. In addition to these lines, surveys are being made from mileage 90, southerly from Regina to the International boundary, 52 miles.

Provision is being made for the enlargement of the yards at Edmonton, Alta., an additional area of about 20 acres having been acquired. The construction on the main line is expected to make rapid progress during the year, special efforts having been made by the contractors to obtain men for the work from Europe during the winter. On the branch lines it is expected that track will be laid into Regina by about July, and that the extension westerly to Moose Jaw and southerly towards the International boundary, will have some miles opened for traffic by the end of the year. It is reported that some surveys have been made for a line from Wainwright, Alta., to Battleford, Sask. The line to Prince Albert is expected to be completed this season. In connection with the Tofield-Calgary line, no further track laying will be proceeded with until the bridge at Lignite is completed. The bridge will be over 1200 ft. long, and 125 ft. high. A good deal of the concrete work has been completed, and the steel girders are at work. It is expected that the bridge will be finished during the summer and that track will be laid into Calgary by the end of the year. The plans for the entry into Calgary have been filed and show a route crossing the Bow River, about 200 ft. north of the C.P.R. bridge, and on to the R.N.W.M.P. barracks between Sixth and Seventh sts.

A branch from Edson to the Brazeau River coal fields is under construction and recent reports state that the right of way has been cleared for 55 miles, and that the grading outfits have reached mile 36. Surveys for the line from Fort George to Vancouver, B.C., continue, but no definite statement as to construction has been made. Land for terminal purposes is reported to have been purchased in Vancouver, and a passenger and ticket office is being built at Victoria. (Jan. pg. 37.)

The Canadian Ticket Agents Association has admitted the following as members: J. Connolly, C.P.R., Cornwall, Ont.; T. C. Lockwood, G.T.R., Brighton, Ont.; R. A. Harrison, C.P.R., Dunnville, Ont.; L. J. Rivet, C.N.Q.R., Montreal; G. A. Boyd, C.P.R., Sault Ste. Marie, Ont.; W. R. Thom, N.N. Co., Sault Ste. Marie, Ont.; H. W. Sanders, C.P.R., Stouffville, Ont.

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

The Southern New England Ry. obtained power to build a line in Massachusetts and Rhode Island, in 1910, to give the Central Vermont Ry., which is controlled by the G.T.R., an outlet at Providence. To reach this line the C.V. Ry. has running powers over a section of the Boston and Maine Rd. in Vermont. The control of the B. and M. Rd. has recently passed to the New York, New Haven and Connecticut Rd., and this line has withdrawn the privilege of running rights. As a result the C.V. Ry. has applied to the Vermont Legislature for permission to build a 50 mile line paralleling the B. and M. Rd. in the State, over which it now has running powers.

Ottawa-Toronto Line.—We are advised that while there is no question but what the G.T.R. will eventually have a direct line from Ottawa to Toronto, there is nothing in contemplation at present. Press reports referring to this matter state that the new line from Ottawa to Toronto, instead of passing through Coteau Jct., as at first planned, would run almost direct from Ottawa to Brockville, and pass through Perth and Smiths Falls.

Deviation at Barrie, Ont.—The Board of Railway Commissioners has authorized a deviation from the existing line in Vespra tp., and on lot 5 east of Bradford St., Barrie, Ont.

Toronto Belt Line.—The section of the old Belt Line from Fairbank Jct., on the Toronto-North Bay line, easterly to Yonge St., was reopened for traffic recently.

Waterdown, Ont.—The Board of Railway Commissioners has authorized the replacing of the bridge across the tracks at milepost 0.45, west of Waterdown station, Ont., by a steel structure.

Niagara Falls to London, Ont.—Press reports dated Jan. 11 stated that the G.T.R. "will begin double tracking the section from London to Niagara Falls, 204 miles, and used 100 lb. rails." The G.T.R. has been operating a double track line between Montreal and Chicago, Ill., via Hamilton, Brantford and London, except for a few miles in Michigan, and from Hamilton to Niagara Falls for some years. Within the last three years it has been laying 100 lb. steel on certain sections of the double track line, and using the 80 lb. steel taken up elsewhere. This work is to be done between London and Niagara Falls during the current year.

Superintendent Bowker stated Jan. 12, that the relaying of the double track between Niagara Falls and London, will be started Mar. 15, three gangs being employed, one working from each end, and the third at some intermediate point. It is expected that the work will be completed by the end of the year. A. Cordasco, Montreal, will provide the labor.

Guelph, Ont.—The city engineer has approved the company's plans for improvements at its station. The building will have a frontage on the tracks of 120 ft., with a depth of 43 ft. Two subways and a foot passage way will be provided under the tracks adjacent to the station, and additional sidings will be laid on a strip of land adjoining the Jubilee Park.

Branch Line at Mount Bruno, Que.—An order has been issued by the Board of Railway Commissioners for the building of a branch or spur line to Mount Bruno station, Que.

The C.P.R. has offered a prize of \$1,000 for the best hard red wheat produced from its irrigated lands in Alberta to be shown at land and irrigation fair at New York in Nov.

The Cars which are building the new Railroads of Canada



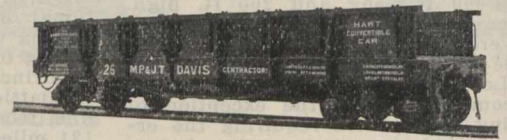
The Cars which are maintaining the old Railroads of Canada

HART CONVERTIBLE CARS

are being used extensively

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THE HART-OTIS CAR CO., LIMITED

MONTREAL

POLSON IRON WORKS

LIMITED

TORONTO, CANADA

Steel Shipbuilders, Engineers and Boilermakers

Hydraulic and Dipper Dredges, Steel and Composite Steamers and Yachts, Marine and Stationary Engines and Boilers.

Agents for Quebec: Watson Jack & Co., 709 Power Building, Montreal

OFFICE AND WORK

ESPLANADE STREET EAST, TORONTO

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. Earnings.	Net Increase.
July	\$1,225,100	\$876,900	\$348,200	118,600
Aug.	1,093,000	830,000	263,000	58,600
Sept.	1,279,000	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
Inc.	\$6,791,200	\$4,659,400	\$2,131,800	\$358,200
Inc.	\$1,162,100	\$803,900	\$358,200	.....

Approximate gross earnings for Dec. 1910, \$1,255,400 and for two weeks ended Jan. 14, \$372,000 against \$1,160,300, and \$360,000 for same periods, 1909 and 1910 respectively.

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
July	\$8,869,214.32	5,384,594.73	\$3,484,619.50	1,004,748.86
Aug.	9,255,331.67	5,563,659.34	3,691,672.33	727,614.46
Sept.	9,315,213.67	5,403,614.03	3,911,599.64	479,710.47
Oct.	10,229,370.77	5,724,210.25	4,505,160.52	118,863.33
Nov.	9,413,238.22	5,676,115.96	3,737,122.26	44,784.31

\$47,082,368.65 \$27,752,104.31 \$19,330,174.34 \$2,375,721.43
Inc. \$5,371,615.27 \$2,995,893.84 \$2,375,721.43

Approximate gross earnings for Dec. 1910, \$3,603,000, and for two weeks ended Jan. 14, \$2,503,000 against \$3,112,000 and \$2,657,000 for same periods 1909 and 1910 respectively.

DULUTH, SOUTH SHORE AND ATLANTIC RY.—

Operating revenue for Nov., 1910, \$257,525.93; operating expenses, \$177,336.53; net revenue, \$80,189.40, against \$270,967.59 operating revenue; \$193,187.57 operating expenses; \$77,780.02 net revenue for Nov., 1909. Aggregate operating revenue for five months ended Nov. 30, 1910, \$1,485,194.68; operating expenses, \$959,483.65; net revenue, \$525,711.03, against \$1,483,377.76 aggregate operating revenue; \$984,981.55 operating expenses; \$498,396.21 net revenue for same period 1909. Approximate earnings for Dec., 1910, \$233,192. and for two weeks ended Jan. 14, \$97,821, against \$235,080 and \$91,877 for same periods 1909 and 1910 respectively.

MINERAL RANGE RD.—

Operating revenue for Nov., 1910, \$62,782.24; operating expenses, \$65,369.10; net expenses, \$2,586.86, against \$70,833.12 operating revenue; \$59,705.72 operating expenses; \$11,127.40 net revenue for Nov., 1909. Aggregate operating revenue for five months ended Nov. 30, 1910, \$314,941.15; operating expenses, \$318,047.67; net expenses, \$3,106.52, against \$369,495.17 aggregate operating revenue; \$308,188.37 operating expenses; \$61,306.80 net revenue for same period 1909. Approximate earnings for Dec., 1910, \$56,011, and for two weeks ended Jan. 14, \$24,276, against \$72,484 and \$29,102 for same periods 1909 and 1910 respectively.

MINNEAPOLIS ST. PAUL AND SAULT STE. MARIE RY.—

Operating revenue for Nov., 1910, \$1,209,891.80; expenses and taxes, \$759,701.49; operating income, \$450,190.31, against \$1,613,666.45 operating revenue; \$790,740.86 expenses and taxes; \$822,925.59 operating income for Nov., 1909. Aggregate operating revenue for five months ended Nov. 30, 1910, \$6,161,759.74; expenses and taxes, \$3,810,925.89; operating income, \$2,350,833.85, against \$7,547,707.71 aggregate operating revenue; \$3,889,505.62 expenses and taxes; \$3,658,202.09 operating income for same period 1909. Approximate earnings for Dec., 1910, \$1,692,881, and for two weeks ended Jan. 14, \$683,426, against \$1,586,725 and \$682,846 for same periods 1909 and 1910 respectively.

CHICAGO DIVISION.—

Operating revenue for Nov., 1910, \$769,205.09; expenses and taxes, \$597,842.78; operating income, \$171,362.31, against \$720,135.71 operating revenue; \$537,049.24 expenses and taxes; \$182,486.37 operating income for Nov., 1909. Aggregate operating revenue for five months ended Nov. 30, 1910, \$3,996,689.69; expenses and taxes, \$2,925,745.77; operating income, \$1,070,740.92, against \$3,703,604.71 aggregate operating revenue; \$2,490,302.81 expenses and taxes; \$1,213,301.90 operating income for same period, 1909.

Grand Trunk Ry. Earnings, Expenses, Etc.

The following figures show the earnings, expenses, etc., of the G.T.R., C.A.R., G.T. Western Ry., and D.G.H. & M.R. for Nov., 1910, and 1909, respectively:

	GRAND TRUNK RAILWAY.	1910.	1909.
Earnings	\$2,989,500	\$2,965,000

Expenses	.....	2,340,100	2,209,000
Net earnings	.....	\$ 649,400	\$ 756,000

CANADA ATLANTIC RAILWAY.

Earnings	1910.	1909.
Expenses	\$ 176,700	\$ 209,000
		138,800	143,000

Net earnings	\$ 37,900	\$ 66,000
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GRAND TRUNK WESTERN RAILWAY.

Earnings	1910.	1909.
Expenses	\$ 477,100	\$ 492,000
		427,800	392,000

Net earnings	\$ 49,300	\$ 100,000
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DETROIT, GRAND HAVEN AND MILWAUKEE RY.

Earnings	1910.	1909.
Expenses	\$ 202,200	\$ 173,000
		136,000	123,500

Net earnings	\$ 66,200	\$ 49,500
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Approximate gross receipts for Dec., 1910, \$3,857,822, and for two weeks ended Jan. 14, \$1,506,798, against \$3,564,380 and \$1,379,910 for same periods 1909 and 1910 respectively.

TRAFFIC RECEIPTS OF THE SYSTEM.

Aggregate from July 1 to Dec. 31:—		
	1910.	1909.
Grand Trunk Ry.	£3,696,455	£3,605,806
Canada Atlantic Ry.	199,456	227,217
G.T. Western Ry.	627,425	629,514
D.G.H. & M. Ry.	218,388	215,591
Totals	£4,741,724	£4,678,128

Great Northern Ry. Lines in Canada.

Manitoba Great Northern Ry.—A letter was received by the Winnipeg city clerk Dec. 27, 1910, stating that construction would not be proceeded with on the proposed yards, etc., in Winnipeg, before the spring.

Kaslo and Slocan Ry.—A resolution has been passed by the Kaslo, B.C., Board of Trade, asking the B.C. Government to cancel the charter, owing to the company's failure to live up to its obligations.

Victoria and Sidney Ry.—A station building has been erected on Blanchard St., Victoria, B.C., replacing the public market building, which had been used for some time.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—

J. J. Hill, on the occasion of his recent visit to Vancouver, B.C., said it would be impossible at present to fix a time when the line would be completed, but it was being built from both ends. The difficult section was that through the Hope Mountains, and the engineers had, after a great deal of trouble and many surveys, found a feasible route, without having to bore an eight mile tunnel. It was an expensive piece of construction, however, and it would take time and money to put it through. As to the Vancouver terminals, work would be started immediately on the filling in of the north and east shores of the head of False Creek, and when this was done, the laying out of yards and the erection of the station and other terminal buildings would be taken in hand. The plans for the reclamation of False Creek were submitted to the Vancouver city council, Jan. 6, and after having been approved will go to the Board of Railway Commissioners. (Jan. pg. 17).

Atlantic, Quebec and Western Ry.—

Quebec Oriental Ry., etc.—Notice was given in the House of Commons, Jan. 11, of a motion asking for copies of all correspondence of every description between the liquidators of the Charing Cross Bank or of A. W. Carpenter, or any one on their behalf, or any member of the government or official thereof, regarding the affairs of the A. Q. & W. Ry., the Quebec Oriental Ry., or the New Canadian Co., Limited. Hon. R. Lemieux, Postmaster General, who returned from England Jan. 17, said there was no truth in the reports as to his connection with these railways, and it was his intention to make a statement on the subject in the House of Commons shortly.

Duty on Re-Rolled Steel Rails.

The Dominion Government passed an order in council, Dec. 23, 1910, stating that it being satisfied that a mill had been established in Canada, adapted and equipped for re-rolling in substantial quantities rails for railway tracks weighing not less than 56 lbs. per lineal yard when re-rolled, the customs duty specified in the Customs Tariff 1907, item 388a, be abolished upon publication of the order, and that thereafter all such rails, when imported, shall be subject to such duty as otherwise provided in the tariff.

Item 388a reads as follows:—

"Iron or steel railway bars or rails, which have been in use in the tracks of railways in Canada, and which have been exported from Canada and returned thereto after having been re-rolled, and weighing not less than 56 lbs. per lineal yard when re-rolled, and which are to be used by the railway company importing them on its own tracks, under regulations prescribed by the Minister of Customs. Provided that the value for duty of such re-rolled rails shall be the cost of re-rolling the same. Provided also that whenever the Governor in Council is satisfied that a mill adapted and equipped for re-rolling such rails in substantial quantities has been established in Canada, the Governor in Council may by order in council, to be published in the Canada Gazette, abolish the duty specified in this item, and thereupon all such rails when imported shall be subject to such duty as otherwise provided in the Customs Tariff."

Under the foregoing item the duty was 25%, being the same under the British preferential, the intermediate and the general tariff. By the abolition of that item, the duty will be under the British preferential tariff, \$4.50 a ton, under the intermediate tariff \$6 a ton, and under the general tariff, \$7 a ton.

The mill referred to in the order in council is that of the Provincial Steel Co., Ltd., at Cobourg, Ont., of which A. L. Reading is Manager.

Recent Alberta Legislation.

At the last session of the Alberta Legislature the following acts affecting steam and electric railways were passed:

Alberta and Great Waterways Ry.—Respecting alleged claims in connection with the company, and a second respecting the guarantee of the company's bonds.

Alberta Northwestern Ry.—Amending act of incorporation.

Alberta Pacific Ry.—Changing name of the Pincher Creek, Cardston and Montana Ry., and extending time for construction.

Alberta Ry. and Irrigation Co.—Providing for registration of a transfer of Galt Park from the company to the city of Lethbridge.

Alberta Western Ry.—Incorporation. Chestermere and Calgary Suburban Ry.—Incorporation.

High River and Hudson Bay Ry.—Incorporation.

Edmonton Interurban Ry.—Incorporation.

Lacombe and Blindman Valley Electric Ry.—Extending time for building authorized lines.

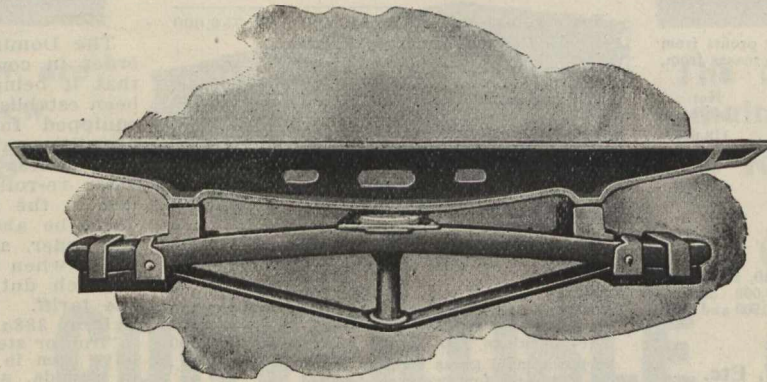
Lacombe, Bullocksville and Alix Electric Ry.—Extending time for construction.

Peace River Great Western Ry.—Incorporation.

The Canadian Society of Civil Engineers' Toronto Branch, at its annual meeting, Jan. 8, elected the following officers for the current year: Chairman, Prof. E. T. Haultain; Secretary, A. C. D. Blanchard; Executive Committee, T. C. Irving, Jr., P. Gillespie, E. A. James, W. E. Douglas and G. G. Powell.

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Orders by the Railway Commissioners.

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

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

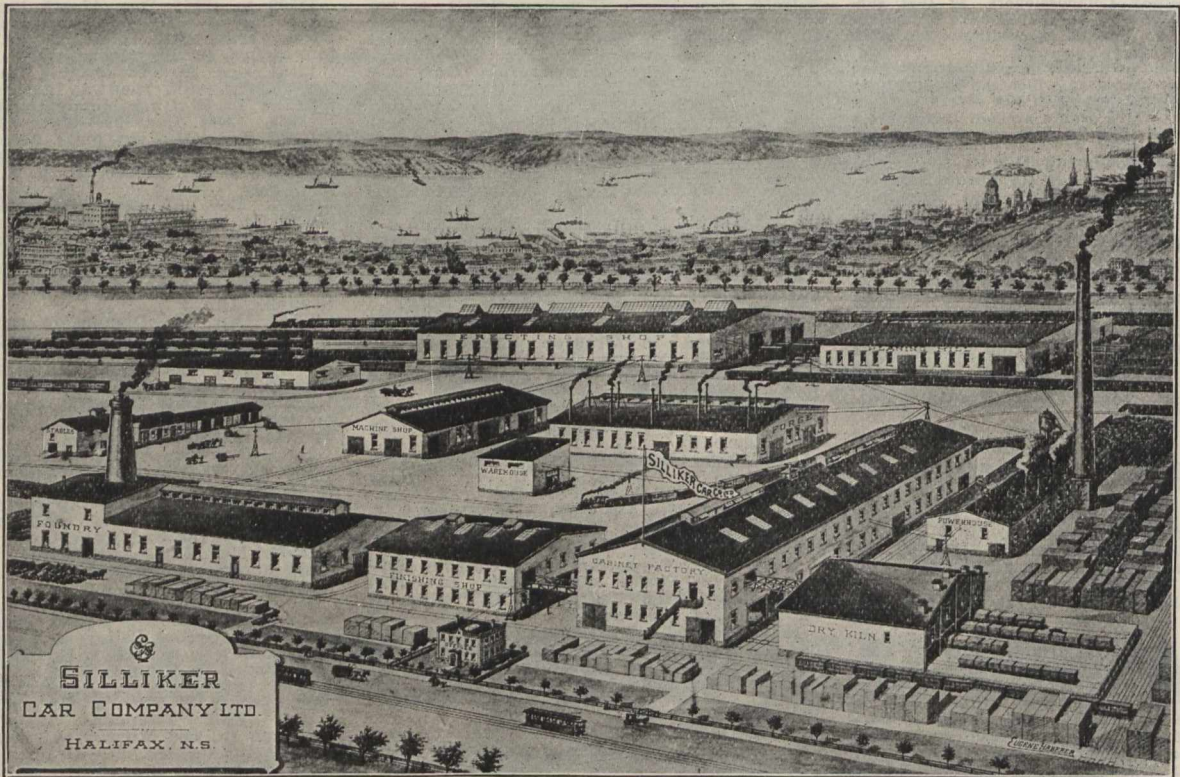
- 12504. Dec. 9.—Ordering G.T.R. to establish and maintain tri-weekly passenger service between Ste. Martine and Beauharnois, Que., effective Jan. 1, 1911; to remove weeds and other combustible matter from right of way between those points and provide station and agent at Beauharnois.
- 12505. Sept. 17.—Ordering city of Calgary, Alta., to repay C.P.R. half cost of building bridge over C.P.R. yard there.
- 12506. Sept. 15.—Dismissing C.P.R. application for approval of station location at Kipp, Alta.
- 12507. Dec. 12.—Authorizing city of St. Boniface, Man., to lay sewer under C.P.R. on Mission St.
- 12508. Dec. 16.—Authorizing C.N.O.R. to build bridge over Riviere des Milles Isles, between Two Mountains and Laval counties, at mileage 37.9, from Hawkesbury.
- 12509. Dec. 15.—Authorizing Ontario Hydro-Electric Power Commission to use its wires erected at eight points.
- 12510. Dec. 13.—Authorizing C.P.R. to build spur and siding for Lethbridge Collieries, Ltd., across road allowance on west boundary, s.w. ¼ sec. 21, and across said ¼ sec. and s.e. ¼ sec. 21, tp. 9, r. 22, w. 4 m., Alta.
- 12511. Dec. 16.—Authorizing city of St. Boniface, Man., to build Marion St. across C.P.R. Emerson branch.
- 12512. Dec. 15.—Ordering White Pass & Yukon Route and British Yukon Ry. to permit J. H. Conrad to load ore where he had previously been permitted to load it, at or near Caribou crossing, until application for siding is disposed of or same is built.
- 12513. Dec. 6.—Dismissing application of White Pass and Yukon Route for re-hearing as to order 11819, Sept. 7, 1910, re J. H. Conrad's complaint, alleging excessive freight rates charged by White Pass & Yukon Route on ores from Carcross to Skaguay and on mining machinery and camp supplies from Skaguay to Carcross.
- 12514 to 12516. Dec. 9.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across C.P.R. telegraph wires in Brantford tp., and Bell Telephone Co.'s wires in Wilmot and Etobicoke tps.
- 12517. Dec. 13.—Authorizing S. Hamilton, Amaranth tp., Ont., to lay pipe under C.P.R.
- 12518. Dec. 12.—Authorizing Niagara, St. Catharines & Toronto Ry. to erect trolley wires across M.C.R. and T.H. & B.R., in Welland, Ont.
- 12519. Dec. 12.—Authorizing C.P.R. to open for traffic its second track in Lambton, Ont., to east end of bridge over Etobicoke River, mileage 6.6 to 8.6.
- 12520. Dec. 10.—Ordering C.P.R. and G.N.R. to publish and file new freight tariffs, to take effect not later than Apr. 1, 1911, removing discrimination existing to points in Manitoba, Saskatchewan and Alberta, from Fort William, Port Arthur and points east, in favor of Winnipeg and other points in Manitoba, and against points west thereof, by reducing rates from Fort William, Port Arthur and points east to Regina, and Moose Jaw, Sask., and other points west of the said favored points.
- 12521. Dec. 13.—Authorizing C.P.R. to build three spurs for West Canadian Collieries, Ltd., at Bellevue, Alta.
- 12522. Dec. 12.—Authorizing C.N.R. to build across nine highways in r. 20, 21 and 23, w. 2 m., Sask.
- 12523. Dec. 16.—Authorizing C.P.R. to build two tracks across McKellar and Duncan Sts., Fort William, Ont.
- 12524. Dec. 13.—Authorizing C.N.R. to build bridge over Red Deer River, sec. 9, tp. 29, r. 20, w. 4 m., Alta.
- 12525. Dec. 12.—Ordering C.P.R. to provide means whereby water brought down by s.d. on lot 1, con. 9, on the town line between Rawdon and Huntingdon, near Crookston, Ont., may be carried off.
- 12526. Dec. 16.—Authorizing C.P.R. to build two tracks across road allowance on east boundary of s.e. ¼ sec. 20, tp. 8, r. 14, w. 2 m., at Weyburn, Sask.
- 12527. Dec. 12.—Authorizing C.P.R. to build additional track across road allowance between n.e. ¼ sec. 2, tp. 17, r. 11, w. 3 m., and n.e. ¼ sec. 1, tp. 17, r. 11, w. 2 m., at Rush Lake, Sask.
- 12528. Dec. 14.—Authorizing Western Fuel

- Co. to lay pipe under Esquimalt & Nanaimo Ry., near Nanaimo, B.C.
- 12529. Dec. 16.—Extending to July 1, 1911, time within which C.P.R. may build spur across Jarvis St., Winnipeg.
- 12530. Dec. 12.—Authorizing G.T.R. to replace by iron bridge present bridge carrying highway between lots 8 and 9, con. 1, East Flamboro tp., over its tracks at mileage 3.77, west of Waterdown station, Ont.
- 12531. Dec. 12.—Dismissing application of city of Hamilton, Ont., for order directing T.H. & B. Ry. to provide protection at retaining walls built by company at east end of its tunnel on Hunter St.
- 12532. Dec. 12.—Approving proposed deviation of G.T.R. as already constructed between n.e. ¼ lot 21, con. 12, Vespra tp., and lot 5, east of Bradford St., Barrie, Ont.
- 12533. Dec. 12.—Amending order 10055, Mar. 22, 1910, by providing that gates at Tillson Ave. crossing, Tillsonburg, Ont., be operated day and night, cost to be borne, 10% by the town and 90% by the company.
- 12534. Dec. 12.—Authorizing C.N.O.R. to build branch in Trenton across certain streets and through Gilmour Door Co.'s property to junction with Central Ontario Ry.
- 12535. Dec. 12.—Authorizing Consumers Gas Co. to lay pipe under G.T.R. on Ellis Ave., Toronto.
- 12536. Dec. 17.—Authorizing Niagara, St. Catharines & Toronto Ry. to erect trolley wire across G.T.R. at Port Colborne, Ont.
- 12537. Dec. 17.—Authorizing N. St. C. & T. Ry. to erect trolley wires across G.T.R. at station 13.91 miles from Thorold, Ont.
- 12538. Dec. 16.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at lot 1, con. 3, Downie tp.
- 12539. Dec. 17.—Authorizing C.P.R. to open for traffic that portion of its Ingersoll Branch from Ingersoll Jct., mileage 0 to 4.8, Ont.
- 12540. Dec. 17.—Approving location of C.N.R. through tps. 46-44, r. 6-8, w. 3 m., Sask.
- 12541. Dec. 2.—Ordering C.N.Q.R. to provide platform and shelter for freight and passenger traffic at Pointe aux Trembles, which is to be made a regular stop for local trains between Joliette and Montreal, and also to afford facilities for handling express traffic.
- 12542. Dec. 9.—Authorizing railway companies to use Blaugas gas for lighting passenger cars, subject to certain conditions.
- 12543. Dec. 19.—Amending order 12444, Dec. 1, re application of W. Raymond, of Ste. Agathe des Monts, Que., regarding farm crossings.
- 12544. Dec. 19.—Recommending to Governor-in-council for sanction, lease entered into between New Brunswick Southern Ry. and C.P.R., Oct. 6, 1910.
- 12545. Dec. 16.—Authorizing Canadian Light & Power Co. to lay pipes under G.T.R. at Cote St. Paul, Que.
- 12546. Dec. 16.—Authorizing Canadian Light & Power Co. to erect wires across N.Y.C. & H.R. Rd. at Primeau Road, Que.
- 12547. Dec. 19.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.N.W. Telegraph Co.'s wires at lot 51, con. 2, Ancaster tp.
- 12548, 12549. Dec. 19.—Authorizing Canadian Light & Power Co. to erect wires across N.Y.C. and H.R. Rd.'s siding at Beauharnois, and near St. Louis River, Que.
- 12550. Dec. 19.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across G.N.W. Telegraph Co.'s wires at Mill St., Ingersoll.
- 12551. Dec. 17.—Authorizing C.N.R. to build spur from Russell to Fifth St. and between Van Horne and College Aves., Brandon, Man.
- 12552. Dec. 19.—Extending to July 1, 1911, time within which Alberta Central Ry. may complete branch at Rocky Mountain House.
- 12553. Dec. 19.—Ordering C.N.R. to build farm crossing at west end of station platform at Banning, Ont., to be completed, with the exception of gates, by Dec. 31, 1910, gates to be installed by June 1, 1911.
- 12554. Dec. 19.—Amending order 12500, Dec. 10, 1910, made upon application of C.P.R. regarding spur for University of Saskatchewan.
- 12555. Dec. 19.—Authorizing Walkerton & Lucknow Ry. (C.P.R.) to operate passenger trains over Hanover Portland Cement Co.'s narrow gauge railway at mileage 29.1, in lot 69, con. 2, north of Durham Road, Brant tp., at a rate not to exceed 10 miles an hour, Hanover Portland Cement Co.'s trains to be brought to a stop before passing crossing.
- 12556. Dec. 19.—Approving revised location of C.N.O.R., mileage 57.11 to 58.23, from Sudbury Jct.
- 12557. Dec. 17.—Approving C.N.O.R. drawing for one 24 I beam span at mileage 24.96, Pickering tp.

- 12558. Dec. 19.—Authorizing C.N.O.R. to build across Foster Ave., Belleville.
- 12559. Nov. 7.—Authorizing C.P.R. to build bridge 28.0 on its Muskoka section, Ontario Division.
- 12560 to 12563. Dec. 17.—Authorizing Ontario Power Co., Niagara Falls, to erect wires across Bell Telephone Co.'s wires at four points in St. Catharines.
- 12564. Dec. 20.—Authorizing Burrard Lumber Co. to build roadway across C.P.R. at mileage 123.53 from North Bend, B.C.
- 12565, 12566. Dec. 20.—Authorizing G.T.P. Branch Lines Co. to build across highway in s.w. ¼ sec. 36, tp. 26, r. 4, w. 2 m., and across highway in sec. 1, tp. 28, r. 4, w. 2 m., Sask.
- 12567. Dec. 17.—Authorizing Bell Telephone Co. to lay wires under Montreal Terminal Ry. at Dickson St., Parc Terminal, Que.
- 12568. Dec. 19.—Authorizing C.P.R. to build across highway at mileage 10.2, Lethbridge Branch, Alta.
- 12569. Dec. 12.—Dismissing application of city of Hamilton, Ont., for further protection at Main St.
- 12570. Dec. 19.—Ordering C.P.R. to install improved crossing signal bell at crossing of public road by Guelph & Goderich branch, between Moffatt and Corwhin stations, Ont., by Jan. 21, 1911.
- 12571. Dec. 20.—Authorizing G.T.P. Branch Lines Co. to divert road in sec. 21, tp. 30, r. 24, w. 4 m., Alta.
- 12572, 12573. Dec. 20.—Approving Atlantic, Quebec & Western Ry. plans for stations at Grand River and Cape Cove, Que.
- 12574. Nov. 28.—Authorizing C.N.R. to build across 48 highways west of principal meridian.
- 12575, 12576. Dec. 20, 19.—Authorizing Ontario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires in Middlesex tp., and G.N.W. Telegraph Co.'s wires in Brantford tp.
- 12577 to 12579. Dec. 20.—Authorizing Seymour Power & Electric Co. to erect wires across Bell Telephone Co.'s wires in Brighton tp. and Murray tp., Ont.
- 12580, 12581. Dec. 21.—Ordering G.T.R. to erect shelters at Barrytown and Quays, Ont., before June 1, 1911.
- 12582. Dec. 20.—Authorizing New Brunswick Southern Ry. to build spur across Prince William St., Nepean tp.
- 12583. Dec. 20.—Extending to May 20, 1911, time within which G.T.P.R. may construct shelter at Redford, Sask.
- 12584. Dec. 21.—Authorizing C.P.R. to use bridges 3.2, 4.1, and 5.0 on its St. Marys Branch, Ont.
- 12585. Dec. 21.—Approving C.N.O.R. Standard Passenger Tariff C.R.C. 89, Dec. 15, 1910, at 3c. a mile between all its stations.
- 12586. Dec. 19.—Authorizing C.P.R. to open for traffic that portion of its double track on its Broadview subdivision from mileage 0 to 8.2, being a diversion of line for improving alignment.
- 12587. Dec. 21.—Authorizing C.P.R. to build spur for Empire Sand & Gravel Co., Ste. Elizabeth parish, Que.
- 12588 to 12590. Dec. 20.—Authorizing C.P.R. to build spurs for Saskatchewan Cartage & Warehouse Co., Saskatoon; Burn Grain Co., Sedgewick, Alta.; and Bitulithic & Contracting Co., Regina, Sask.
- 12591. Dec. 20.—Approving location and plans of Atlantic, Quebec and Western Ry. station at Ste. Adelaide de Pabos, Que.
- 12592. Dec. 19.—Authorizing G.T.R. to build spur for Love Brothers, Toronto.
- 12593. Dec. 20.—Extending to Sept. 30, 1911, time within which C.P.R. may build branch for the Provincial Reformatory, Guelph, Ont.
- 12594. Dec. 19.—Authorizing C.P.R. to build spur for Wilson Box Co., at mileage 13.41, north of its St. John section, N.B.
- 12595. Dec. 20.—Ordering that crossing of New Westminster Southern Ry. by Vancouver Power Co.'s tracks at Cloverdale, B.C., be protected by interlocking plant.
- 12596, 12597. Dec. 20.—Authorizing G.T.P. Branch Lines Co. to build across the highways in s.w. ¼ sec. 1, tp. 27, r. 4, and s.w. ¼ sec. 25, tp. 27, r. 4, w. 2 m., Sask.
- 12598. Dec. 20.—Extending to June 1, 1911, time within which Montreal Terminal Ry. may complete spur across Victoria Ave., Montreal East.
- 12599. Dec. 21.—Reporting to Governor-in-council for sanction, lease of St. Maurice Valley Ry. to C.P.R., dated Oct. 6, 1910, for 999 years.
- 12600. Dec. 21.—Amending order 4420, Mar. 6, 1908, which authorized junction of Essex Terminal Ry. with Lake Erie & Detroit River Ry., respecting protection.
- 12601. Dec. 21.—Authorizing Bethesda & Stouffville Telephone Co. to install telephone in G.T.R. station at Unionville, Ont., on party wire instead of private wire, as stipulated in agreement with G.T.R., June 28, 1909.

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12602. Dec. 21.—Reporting to Governor-in-council for sanction lease of Kootenay Central Ry. to C.P.R., Oct. 6, 1910, for 999 years.
12603. Dec. 20.—Authorizing C.N.O.R. to erect telegraph wires across private wires at stations 149.31 and 151.09, York tp.
12604. Dec. 21.—Authorizing Ontario Power Co., Niagara Falls, to erect wires across C.P.R. telegraph wires at Frank St., St. Catharines, Ont.
12605. Dec. 20.—Authorizing Seymour Power and Electric Co. to erect wires across North American Telegraph Co.'s wires, Murray tp., Ont.
12606. Dec. 21.—Authorizing C.P.R. to build spur for Canadian Linderman Co., Woodstock, Ont.
12607. Dec. 21.—Authorizing G.T.R. to build two branches to St. Lawrence Pressed Brick & Terra Cotta Co., Laprairie, Que.
12608. Dec. 21.—Authorizing Ontario Hydro-Electric Power Commission to use its wires at lots 11-12, con. 2, Brantford tp.
12609. Dec. 21.—Extending for one month from Dec. 15 time within which T.H. & B.R. may file detail plan of gates to be installed at Wentworth St., Hamilton, Ont.
12610. Dec. 22.—Authorizing N. St. C. & T.R. to erect wires across G.T.R. 13.91 miles from Thorold, Ont.
12611. Dec. 22.—Authorizing Consumers Gas Co. to lay pipe under G.T.R. on Ellis Ave., Toronto.
12612. Dec. 22.—Authorizing Armstrong Cartage & Warehouse Co. to lay sewer under T.H. & B.R. and G.T.R. in Hamilton, Ont.
12613. Dec. 22.—Authorizing town of Blairmore, Alta., to lay pipes under C.P.R. at two points.
12614. Dec. 23.—Authorizing Stratford, Ont., Light & Heat Commission to erect wires across G.T.R. at Victoria Park.
12615. Dec. 23.—Authorizing village of Dundalk, Ont., to erect wires across C.P.R. at Grey St.
12616. Dec. 23.—Authorizing A. Doughty, Moulton, Ont., to lay pipe under G.T.R. in lot 5, con. 3.
12617. Dec. 23.—Certifying correction of range 23 to range 24 in plan approved under order 7934, Aug. 21, 1909, re G.T.P.R. construction in Edmonton, Alta.
12618. Dec. 23.—Certifying amendments in plan approved under order 11074 made upon application of G.T.P. Branch Lines Co., re location of its Melville-Regina Branch.
12619. Dec. 23.—Approving proposed reinforcement and strengthening of east abutment of G.T.R. bridge over public road east of canal at Ste. Anne de Bellevue, Que.
12620. Dec. 22.—Authorizing C.P.R. to build spur across s.e. ¼ sec. 17, tp. 11, r. 4, e. p. m.; n.e. ¼ sec. 8, tp. 11, r. 4, e. p. m., and sidings allowance between same, and three sidings from said spur, in Winnipeg, Man.
12621. Dec. 22.—Authorizing G.T.R. to build branch for Municipal Construction Co., Loehel tp., Ont.
12622. Dec. 12.—Authorizing C.P.R. to build subway across Jane St., York tp., Ont.
12623. Dec. 24.—Authorizing C.P.R. to build additional track across Dominion Ave., Frank, Alta., and to build highway across its main line, the centre being about 523 ft. westerly along the main line from its intersection with east boundary of British Columbia Ave.
12624. Dec. 24.—Approving corrections in plan approved by order 7052, May 21, 1909, re the G.T.P.R. construction in North Alberta.
12625. Dec. 14.—Ordering Bell Telephone Co. to file tariffs applying same tolls with- in the present limits of Toronto, as now change limits for Toronto exchange ser- vice, to become effective not later than Jan. 1, 1911, and to be without prejudice to the company filing tariffs covering that section of the city, which was formerly local or limited service to those who do not desire the whole of the Toronto ex- change service.
12626. Dec. 24.—Authorizing Ontario Power Co., Niagara Falls, to erect wires across G.N.W. Telegraph Co.'s wires at Frank and Queenston Sts., St. Catharines, Ont.
12627. Dec. 24.—Authorizing Canadian Nia- gara Power Co. to erect wires across B-11 Telephone Co.'s wires at Jarvis St. and Central Ave., Bridgeburg, Ont.
12628. Dec. 24.—Authorizing Seymour Pow- er and Electric Co. to erect wires across G.N.W. Telegraph Co.'s wires, Murray tp., Ont.
12629. Dec. 24.—Authorizing Ontario Hy- dro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at lot 6, con. A, London tp.
12630. Dec. 12.—Approving, subject to cer- tain terms, extension of Grand Valley Rv. in Brantford, Ont., except that portion on Marlborough St. between Murray and Clar- ence Sts., and ordering that crossings of G.T.R. on Nelson St.; Brantford & Hamil- ton Ry. on Murray St.; T.H. & B. Ry. on Cayuga St., and Western Counties Electric Co.'s canal, be protected by half interlock- ing plants to be installed by Grand Valley Rv., with the exception of the canal cross- ing.
12631. Dec. 24.—Extending to Mar. 5, 1911, time within which electric bell may be in- stalled at C.P.R. crossing at Mechanicsville, Ottawa.
12632. Dec. 24.—Extending to Apr. 15, 1911, time within which electric bell may be installed at C.P.R. crossing at William St., Carleton Place, Ont.
12633. Dec. 24.—Authorizing C.P.R. to build spur for Burrard Grain Co., Bays- land, Ont.
12634. Dec. 24.—Extending to Apr. 23, 1911, time within which electric bell may be in- stalled at C.P.R. crossing, Lake Ave., Carle- ton Place, Ont.
12635. Dec. 28.—Approving C.N.O.R. loca- tion between Sydenham and Harrowsmith, mileage 159.70 to 162.27.
12636. Dec. 28.—Authorizing Kettle River Valley Ry. to build across road at station 223.60, subdivision 1a, west of Midway, B.C.
12637. Dec. 28.—Approving revision in grade of C.P.R. main line from mileage 65.63 to 69. Ops and Fenelon tps., Ont.; the revision in location from mileage 69 to 70.5, and location from mileage 70.5 to 72.88 in Lindsay, Ont.
12638. Dec. 28.—Approving location of Ket- tle Valley Lines from stations 0.00 to 513, division 1a, west of Midway, B.C.
12639. Dec. 24.—Authorizing Kilmer and Holland to lay pipe across C.P.R. from D.L. 186 known as Vancouver Heights, B.C.
12640. Dec. 21.—Authorizing Woodstock Gas Light Co. to lay pipe under C.P.R. at Tecumseh St., Woodstock, Ont.
12641. Dec. 28.—Authorizing Hamilton Cat- aract Power, Light & Traction Co. to erect wires across G.T.R. at con. 1, West Flam- boro tp., Ont.
12642. Dec. 27.—Authorizing Ontario Hy- dro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at Mutual and Carnegie Sts., Ingersoll.
12643. Dec. 27.—Declaring that at present no further protection is necessary at C.P.R. Dundas and Church Sts. crossings, Etobico- ke tp., Ont.
12644. Sept. 1.—Declaring conditions under which draw or swing bridge of Esquimalt & Nanaimo Ry. across northern arm of the harbor, Victoria, B.C., shall be operated.
- 12645, 12646. Dec. 28.—Authorizing Ontario Power Co., Niagara Falls, to erect wires across G.T.R. at two points in St. Cathar- ines.
- 12647 to 12649. Dec. 28.—Authorizing Ont- ario Hydro-Electric Power Commission to erect wires across Bell Telephone Co.'s wires at two points in London tp., and in Brantford tp.
12650. Dec. 28.—Authorizing town of Galt, Ont., to erect wires across C.P.R. at Kerr St.
12651. Dec. 12.—Authorizing C.N.O.R. to build branch in Trenton, from south side of Dundas St. through Gilmour Door Co.'s property and to connect with its main line by transfer tracks running north and south between Meyers and Paul Sts., crossing James and Peter Sts.
12652. Dec. 20.—Ordering Bell Telephone Co. to maintain connection of D. Crozier, Merrickville, with A. Newsome, Kilmar- nock, Ont.
12653. Dec. 28.—Rescinding order 12413, May 12, 1910, made upon application of G. Taylor, Winnipeg, re rates charged by C.N.R. on grain from Buchanan, Sask., to Headingly, Man.
12654. Dec. 12.—Approving revised location of James Bay & Eastern Ry. from mileage 7.46 to 9.93, from Roberval, Outaouchean Indian Reserve, and Ashuapmouchouan tp., Que.
12655. Sept. 20.—Declaring that applica- tion of W. S. Tilston, Manager Montreal Board of Trade Transportation Bureau, on behalf of Laprairie Brick Co., for order prescribing joint through rate of 3c. per 100 lbs. on brick from Laprairie to Mile, Que., falls within terms of General Interswitch- ing Order, 4988, July 8, 1908.
12656. Dec. 29.—Authorizing Atlantic, Quebec & Western Rv. to open for traffic that portion of its line between Newport Station, mileage 35, and Grand River Sta- tion, mileage 51.5, Que.
12657. Dec. 29.—Authorizing Seymour Pow- er & Electric Co. to erect wires across G.T.R. between lots 8 and 9, con. 1, Mur- ray tp., Ont.
12658. Dec. 29.—Approving plans and spec- ifications of Dauphinais drain, to be built across G.T.R. lands and track in Roches- ter tp., Ont.
12659. Dec. 28.—Authorizing C.P.R. to erect wires under the Orillia municipal power lines at five points in South Orillia tp., Ont.
12660. Dec. 30.—Authorizing Erindale Pow- er Co. to erect wires across G.T.R. on Church St., Etobicoke, Ont.
12661. Dec. 30.—Authorizing Seymour Power and Electric Co. to erect wires across Central Ontario Ry. at lot 5, con. 2, Murray tp. 32½ miles from Picton, Ont.
12662. Dec. 29.—Authorizing G.T.P. Branch Lines Co. to build across seven highways in Saskatoon District, w. 2 m., Sask.
12663. Dec. 30.—Authorizing C.N.O.R. to build between lots 78 and 80, St. Eustache parish, Two Mountains county.
- 12664, 12665. Dec. 30.—Authorizing G.T.P. Branch Lines Co. to build across highway in s.w. ¼ sec. 30, tp. 32, r. 23, and across highway in s.w. ¼ sec. 5, tp. 33, r. 23, w. 4 m., South Alberta District.
12666. Dec. 30.—Approving changes of C.P.R. Regina, Saskatoon and North Sas- katchewan branch.
12667. Dec. 30.—Extending to June 30, 1911, time within which Guelph & Goder- ick Ry. shall remove mound on southeast side of highway at crossing of road between cons. 9 and 10, Morris tp., Ont., at mileage 62.5.
12668. Dec. 31.—Approving C.P.R. plan of 20 ft. arch at bridge 78.7, Toronto sub- division.
12669. Dec. 31.—Authorizing G.T.P. Branch Lines Co. to divert road in n.w. ¼ sec. 29, tp. 41, r. 21, w. 4 m., on its Calgary branch, Alta.
12670. Dec. 30.—Authorizing C.P.R. to build spur for C. C. Snowden at Calgary Jct., Alta.
12671. Dec. 30.—Authorizing Ontario Hy- dro-Electric Power Commission to erect wires across G.N.W. Telegraph Co.'s wires at Queen St., St. Marys.
12672. Dec. 31.—Authorizing Trenton Elec- tric & Water Co. to erect wires across G.T.R. between Trenton and Belleville, at lot 28, con. 2, Sidney tp., Ont.
12673. Dec. 31.—Approving C.N.R. revised location through tps. 29 and 28, r. 23, w. 3 m., Sask., mileage 125.
12674. Dec. 20.—Declaring illegal, rates on finnan haddies, charged higher than third class, in less than carloads, and fifth class in carloads.
12675. Dec. 12.—Authorizing C.P.R. to change location of its line crossing Era- mosa Road, Norwich St., and City lane, and approving location of proposed station, Guelph, Ont.
- 12676, 12677. Dec. 31.—Authorizing C.P.R. to build spurs for Imperial Oil Co., and Canadian Oil Co., in Calgary, Alta.
12678. Jan. 3.—Ordering G.T.R. within 48 hours to remove its tracks at east end of Richmond Road viaduct, Ottawa, and di- recting that it be liable to a penalty of \$100 a day for every day it shall be in de- fault in carrying out the order.
12679. Jan. 3.—Authorizing C.P.R. to build spur for Ontario Wind Engine & Pump Co., in Winnipeg, Man.
12680. Jan. 4.—Extending until June 30 time within which C.P.R. shall build spur for Great West Felt Co., Elmira, Ont.
- 12681 to 12683. Jan. 4.—Authorizing Lon- don, Ont., Water Commissioners to erect wires across London and Port Stanley Ry. at two points, in city of London, Ont., and across G.T.R.
12684. Jan. 4.—Authorizing Canada At- lantic Ry. Co. (G.T.R.) to operate trains past southeast corner Somerset Street Bridge abutment, Ottawa, by a clearance of 3¼ ft.
12685. Sept. 23.—Ordering C.P.R. to pub- lish and file, on or before Feb. 15, 1911, freight tariff, placing the rates from Port Arthur and Fort William, Ont., to all sta- tions intermediate to Winnipeg upon same relative scale, with due regard to mileage, as rates from Port Arthur and Fort Wil- liam to Winnipeg; and further ordering that on or before same date it publish and file special town tariff of rates on general merchandise distributed from Kenora and Keewatin, Ont.
12686. Jan. 4.—Authorizing G.T.R. to build branch to Mount Bruno Station, Que.
12687. Jan. 4.—Authorizing C.P.R. to build spur for Riverside Lumber Co., Calgary, Alta.
12688. Dec. 1.—Authorizing Quebec Ry., Light & Power Co. to build branch from Beauport Station, in a northeasterly direc- tion to Montmorency village.
12689. Dec. 2.—Ordering Montreal and Southern Counties Ry. to improve condi- tion of right of way in Montreal South.
12690. Jan. 3.—Authorizing C.N.O.R. to take certain lands in Darlington tp. for diverting highway.
- 12691, 12692. Jan. 4.—Authorizing Ontario Hydro-Electric Commission to erect wires across Bell Telephone Co.'s wires, and M.C.R. at Concession St., Tillsonburg.

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THROUGH TRAINS between BOSTON (via Boston & Maine R.R. and Cent. Vermont Ry.) MONTREAL, TORONTO and CHICAGO.

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W. E. DAVIS, Passenger Traffic Manager, Montreal.

G. T. BELL, Asst. Pass. Traffic Manager, MONTREAL.

G. W. VAUX, Gen. Passenger Agent, MONTREAL

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

12693. Jan. 4.—Authorizing London, Ont., Water Commissioners to erect wires across G.T.R. at Clarence St.

12694. Nov. 11.—Authorizing city of Lethbridge, Alta., to maintain sewer under C.P.R. and Alberta Ry. and Irrigation Co.'s line at Galt St.

12695. Jan. 5.—Authorizing Canadian Northern Pacific Ry. to build under Esquimalt and Nanaimo Ry. near Parson's Bridge, Esquimalt District, B.C.

12696. Jan. 5.—Authorizing C.P.R. to build spur for Canadian Cooperage Mfg. Co., Smiths Falls, Ont.

12697. Jan. 7.—Authorizing town of Galt, Ont., to maintain drain under G.T.R. at James St.

12698. Jan. 7.—Authorizing W. J. Aikens, Dunnville, Ont., to lay main under G.T.R. on Hamilton Road, Cainsville.

12699. Jan. 3.—Rescinding order 11246, July 14, 1910, which authorized C.P.R. to build spur to G. F. & J. Galt's premises, Calgary, Alta., on application of J. I. Case Threshing Machine Co., Calgary.

12700. Dec. 12.—Authorizing C.P.R. to build additional track across Main St., Clive, Alta.

12701. Jan. 5.—Authorizing C.P.R. to join city of Toronto's industrial track on east side of River Don.

12702. Jan. 3.—Ordering C.N.O.R. to insert diamond in G.T.R. track at its Harwood Branch crossing, Cobourg, to be protected by interlocking plant, derails and home and distant signals.

12703. Jan. 9.—Authorizing C.P.R. to change main line as located through Kamloops, B.C., and to cross Lorne St. with new location.

12704. Jan. 9.—Approving rebised location Georgian Bay & Seaboard Ry. (C.P.R.) from lot 6, con. 11, Thorah tp., at mileage 44.22, in a southeasterly direction to lot 17, con. 1, Eldon tp., at mileage 47.42, Victoria county, Ont.

12705. Jan. 9.—Amending order 12504 re inadequate train service by G.T.R. between Ste. Martins and Beauharnois, Que.

12706. Jan. 9.—Ordering C.N.R. to provide suitable highway crossings at highway between lots 5 and 6, Palpoonge tp., work to be completed by May 15.

12707. Jan. 4.—Authorizing Armstrong Cartage and Warehouse Co. to build sewer under T.H. & B.R. and G.T.R. in Hamilton, Ont.

12708. Jan. 9.—Approving plans of subway under C.P.R. at Broad St., Regina, Sask.

12709. Jan. 9.—Approving revised location of C.N.O.R. Shannonville Station grounds, Tyendinaga tp.

12710. Jan. 9.—Authorizing Saraguay Electric and Water Co. to erect wires across C.N.O.R. at Broadway Ave., Montreal East.

12711. Dec. 30.—Authorizing Richmond municipal council, B.C., to lay pipes under Vancouver and Lulu Island Ry.

12712. Jan. 4.—Authorizing Montreal Park and Island Ry. to build branch to Dominion Bridge Co.'s yard, Jacques Cartier county, Que.

12713. Jan. 9.—Authorizing C.P.R. and C.N.R. to operate their trains over crossing brought to a stop.

12714. Dec. 12.—Authorizing G.T.R. to expropriate lands required for diversion of highways at Raikie's and Woodlands crossings, Oro tp., Ont.

12715. Dec. 12.—Approving location of proposed C.P.R. station at Guelph, Ont.

12716. Dec. 6 to Jan. 9.—Authorizing C.N.O.R. to build between lots 20 and lots 11 and 22, con. 2; lots 10 and 11, ley Ave., and across and divert Station 18, by overhead structure, Gloucester tp.

12723. Dec. 6.—Authorizing C.N.O.R. to build across Hurdman's Road, Nepean tp., subject to certain conditions.

12724. Jan. 10.—Ordering C.N.R., before May 1, to install proper crossing signs and cattle guards along its line between Lloydminster and Aberfeldy, and directing a fine of \$25 a day for failure to do so.

12725. Jan. 10.—Authorizing city of Toronto to erect wires across G.T.R., the G.N.W. and Niagara Power Co.'s wires.

12726. Jan. 10.—Authorizing Seymour Power and Electric Co. to erect wires across C.N.O.R. in lot 27, con. B, Brighton tp.

12727. Jan. 10.—Authorizing Weston village, Ont., to erect wires across G.T.R. at Weston Road.

12728. 12729. Jan. 10.—Authorizing Ontario Hydro-Electric Commission to erect wires across Bell Telephone Co.'s wires at lot 3, Concession St., Tillsonburg.

12730. Jan. 10.—Authorizing Canadian Light and Power Co. to erect wires across C.P.R. at Lachine Canal, South Bank.

12731. Jan. 11.—Authorizing Quebec Ry., Light and Power Co. to erect wires across

C.P.R. on Prince Edward St., Quebec.

12732. Jan. 11.—Authorizing city of Winnipeg to alter its wires across C.P.R.

12733, 12734. Jan. 11.—Authorizing city of Winnipeg to lay pipes under C.P.R. at Magnus and Pritchard Aves.

12735, 12736. Jan. 11, 10.—Relieving M.C.R. from further protection of crossing ½ mile south of ship yards, Niagara Division, and at Town Road crossing, Townsend Station, Ont.

12737. Jan. 10.—Approving location of Alberta Central Ry. from mileage 40 to 80 easterly from Red Deer.

12738. Jan. 11.—Authorizing Qu'Appelle, Long Lake and Saskatchewan Ry. to build across Short St. produced and Beaver St. produced, and to close and divert Government road allowance between secs. 3 and 4, tp. 44, r. 2, w. 3 m., Duck Lake, Sask.

12749. Jan. 10.—Approving plans of train shed for elevated passenger yard Union Terminal, Winnipeg.

12740. Jan. 11.—Authorizing Alberta Government to build highway across C.N.R. in sec. 11, tp. 38, r. 5, w. 3 m.

12741. Jan. 11.—Authorizing Tilsonburg, Lake Erie and Pacific Ry. to build spur to Ingersoll Nut Co.'s premises, Ingersoll, Ont.

12742. Jan. 11.—Authorizing C.P.R. to build additional main track across Main and Tupper Sts., Portage la Prairie, Man.

12743. Jan. 11.—Authorizing G.T.R. to build spur upon and across Thackeray St., Dickens St. and Carlaw Ave., Toronto.

12744. Jan. 11.—Authorizing C.P.R. to build spur for Pine Lumber Co., mileage 129.96, Chapleau Subdivision, Ont.

12745. Jan. 9.—Approving forms used in transmitting messages by C.P.R., G.N.W., Canadian Northern, North American, Western Union, Anglo-American, Marconi Wireless, and G.T.P. Telegraph Cos., and White Pass and Yukon Route for four months from date, or until further order.

Transportation Conventions etc. in 1910.

Feb. 15, 1911.—American Association of General Baggage Agents, San Antonio, Tex.

Mar. 14-15.—International Association of Ticket Agents, Norfolk, Va. Side trip to Havana, Cuba.

Mar. 21, 22, 23.—American Railway Engineering and Maintenance of Way Association, Chicago, Ill.

Mar. 30.—Eastern Association of Car Service Officers, Washington, D.C.

April 26.—Association of American Railway Accounting Officers, New Orleans, La.

May 15-18.—International Railway Fuel Association, Chattanooga, Tenn.

May 17.—American Railway Association, at New York City.

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.

Highway Crossings of Railways.—The statistical report of the condition of Canadian railways for the year ended June 30, 1910, shows that there were 20,012 crossings of highways, of which 1,187 were protected and 18,825 unprotected. Of the protected crossings, 161 were protected by gates, 345 by overhead bridges, 400 by subways, 147 by bells, and 134 by watchmen. There were 630 protected and 1,902 unprotected crossings in urban districts, and 557 protected and 16,923 unprotected crossings in rural districts.

The Cowan Construction Co. is applying to the Manitoba Government for an order changing its name to the Union Construction Co.

Reduction of Pullman Car Fares.

Upon the cases of G. S. Loftus vs. Pullman Co. being called for rehearing, the Interstate Commerce Commission decided Dec. 12 that the orders heretofore entered should be modified so that the maximum rate for a lower berth from St. Paul to Seattle shall not exceed \$11, and for an upper berth, \$8.80; from St. Paul to Chicago the upper-berth rate not to exceed \$1.60; from St. Paul to Superior, the upper-berth rate not to exceed \$1.25; and from St. Paul to Fargo or to Grand Forks, the upper-berth rate not to exceed \$1.60.

In the cases of the State of Oklahoma intervener and the States of Kansas, Indiana and Arkansas vs. the Pullman Co. et al, the Commission on the same day made an order directing the Pullman Co. to fix rates upon upper berths not exceeding 80% of the rates applicable under its tariffs upon lower berths, whenever such lower-berth rate is \$1.75 or over, and in cases where the lower-berth rate is \$1.50, the upper-berth rate shall be fixed at a rate not to exceed \$1.25. The reductions in lower berths which are proposed by the Pullman Co., not being involved in the complaints filed by the various states, have not been made the subject of an order by the commission.

Eastern Canadian Passenger Association.

At a meeting in Montreal Jan. 10, the following were elected for the current year:

Chairman.—E. O. Grundy.
Executive Committee—G. W. Vaux, W. Stitt, T. Henry.

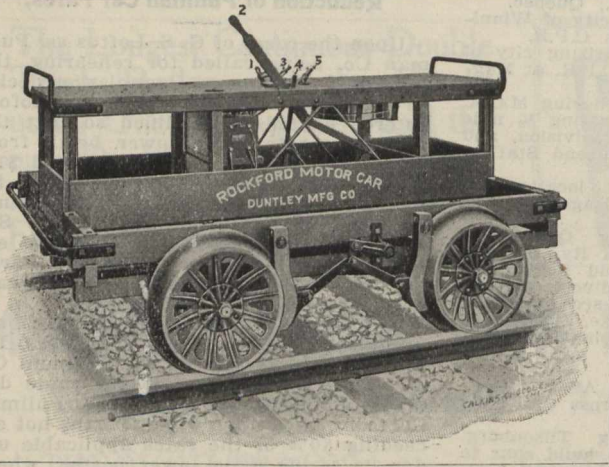
Rules Committee.—G. W. Vaux, W. Stitt, G. Tombs, J. W. Hanley, C. Hartigan, F. F. Backus, W. H. Underwood, J. M. Lyons, Neil Mooney.

Secretary.—G. H. Webster.

Railway Rolling Stock Statistics.

During the year ended June 30, 1910, the additions to the rolling stock of the various Canadian railways included 110 locomotives, 138 passenger cars, 1,934 freight cars, and 789 cars for the company's own service. On that date there were in service 4,079 locomotives, 4,320 passenger cars, 119,713 freight cars, and 8,648 company cars. In addition there are 71 locomotives and 1,729 cars under lease. The returns show 1,090 passenger, 2,601 freight, and 388 switching locomotives, a total of 3,989, or 90 less than the number of locomotives stated to be in service. The cars in the company's service consisted of 80 officers' and pay, 2,645 gravel, 127 derrick, 1,893 caboose, and 3,892 miscellaneous cars. The aggregate capacity of the cars of the various classes in freight service was 3,514,106 tons, of which 2,211,963 tons represented the capacity of the 75,983 box cars. The average capacity of box cars was 29.1 tons, against 27.6 tons in the year ended June 30, 1909. The tractive power of locomotives has also considerably increased within the same period. The available supply of rolling stock per 1,000 miles of line has been computed as follows:—Locomotives, 165; freight cars, 4,840; passenger cars, 174. The service performed by each freight car during the year was equivalent to the moving of 622 tons, equal to 55 tons better than the performance of the previous year. This increase is due to the use of heavier units and the steady extension of double trackage. Of the 132,681 cars of all classes, 125,831 were fitted with air brakes, and 128,321 with automatic couplers.

R. A. Waite, who was the architect of the G.T.R. general office building, Montreal, died in New York, Jan. 7, aged 62, of pneumonia.



SAVE MONEY
WITH
**ROCKFORD
MOTOR CARS**

Workmen are taken to and from work in one third of the time.
All of their energy is saved for track work.

WHERE WE EXCEL

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OF COBOURG, LIMITED

MODERN HIGH-CLASS

ROLLING STOCK

Passenger, Freight and Electric Railway

Ruggles' Rotary Snow Plows

CAR CASTINGS, FORGINGS AND REPAIR PARTS

How to run in Transition Curves without Tables.

By C. P. Howard, M. Am. Soc. C. E.

There are a number of fieldbooks and tables for transition curves which are more or less satisfactory to those who use them, but an ordinary spiral of given length can be run in without fieldbook or tables.

When running in by transit the main thing is to put in the intermediate deflections with transit at one end. Beyond this it is only necessary to know a few important characteristics of the spiral (practically the cubic parabola within the limits of ordinary railway practice). The principal facts to be remembered are:

1. The total angle, I, of spiral is equal to its length multiplied by half the degree of curve; that is, calling D the degree of the circular curve and L the length of the spiral $I = \frac{1}{2} L D$, or where L is in feet $I = L D / 200$.
2. The total deflection angle at the tangent end of spiral is one-third the total angle I. At the curve end it is two-thirds; or Angle $T = \frac{1}{3} I$; angle $C = \frac{2}{3} I$.
3. Deflections from the tangent end to points on spiral are as the squares of their distances from tangent ends.
4. The middle point of spiral bisects the gap, p, between the P. C. and tangent.

EXAMPLE.—Approaching the curve from the tangent; degree of circular curve $D = 6^\circ 00'$; length of spiral $L = 240$ ft.; P. C. of circular curve to be opposite station $38+20$.

The ends of spiral by Principle 4 will be 120 ft. each way from the P. C., making the tangent end, S T, at $37+00$ and the curve end, S C, at $39+40$. Suppose we run it in by chords of any convenient length, say 6 chords of 40 ft. Then by Principle 1 the total angle I of the spiral is equal to 240 ft. of 3° curve $= 7^\circ 12'$. By Principle 2, with transit at S T the total deflection angle to S C, the curve end of spiral, is $T = \frac{1}{3} I = 2^\circ 24'$. By Principle 3 the deflection for each intermediate chord point is to the total deflection as the square of its distance to the square of the whole distance. Taking the distance from S T in fractions of the total length we multiply $2^\circ 24'$ by $(1/6)^2$, $(1/3)^2$, $(1/2)^2$, $(2/3)^2$, and $(5/6)^2$ to get deflections to the intermediate chord points, making

37 S T		
+40	$0^\circ 04'$	
+80	$0^\circ 16'$	
38+20	$0^\circ 36'$	
+60	$1^\circ 04'$	
39	$1^\circ 24'$	
39+40 S C	$2^\circ 24'$	

With transit at S C and backsight on S T turn the angle C, or $\frac{2}{3} I = 4^\circ 48'$, to set on the common tangent to circular curve and spiral. That is all there is to it. If, however, it is desired to locate points at the even stations and +50's, the deflections would be figured similarly. The distances to intermediate points being 50, 100, 150 and 200, their deflections would be $2^\circ 24'$ multiplied by $(50/240)^2$, $(100/240)^2$, $(150/240)^2$, and $(200/240)^2$.

If we approach the spiral from the curve, we note another characteristic:

5. Starting at the curve end the spiral diverges from the circular curve produced the same as it does from the tangent end. Therefore to get the deflections from the curve end of spiral we compute them the same as from the tangent end, except that we subtract them from the deflections of the circular curve produced instead of turning them from the tangent.
- For instance, in the example above

if we wish to run in the deflections from the curve end, we start with a tangent to the curve at S C, write out the deflections for the chord points on the circular curve produced, and subtract the deflections figured above thus:

Station.	Circular Curve.	Deductions.	Spiral.
37 S T	$7^\circ 12'$	$2^\circ 24'$	$4^\circ 48'$
+40	$6^\circ 00'$	$1^\circ 40'$	$4^\circ 20'$
+80	$4^\circ 48'$	$1^\circ 04'$	$3^\circ 44'$
38+20	$3^\circ 36'$	$0^\circ 36'$	$3^\circ 00'$
+60	$2^\circ 24'$	$0^\circ 16'$	$2^\circ 08'$
39	$1^\circ 12'$	$0^\circ 04'$	$1^\circ 08'$
39+40 S C			

Then having put in the spiral by deflections $1^\circ 08'$, $2^\circ 08'$, $3^\circ 00'$, $4^\circ 48'$, we move transit to tangent end, S T, and with backsight on S C, turn the angle $T = 2^\circ 24'$ to get on tangent.

The division of the spiral into equal chord lengths has the advantage of using the same deflections, no matter which way we run it, turning from the tangent in one case and from circular curve deflections in the other.

OFFSETS.—If it is desired to compute the offsets with the tangent, the following additional characteristics may be noted:

6. Offsets from tangent to points on the spiral are as the cubes of their distances from the tangent end. This is indicated by the name "cubic parabola." The distances may be taken approximately as measured on the centre line of spiral.
7. Offsets from the circular curve produced to points on the spiral are also as the cubes of their distances from the

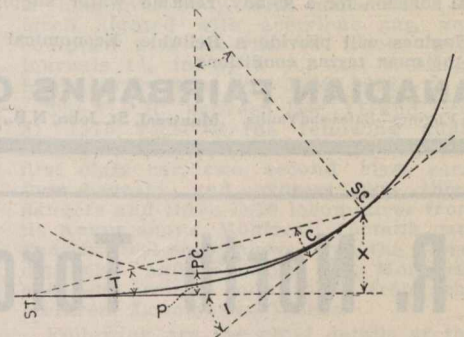


Diagram of Transition Curve.

curve end of spiral, being the same as offsets from tangent to spiral for corresponding distances from the tangent end.

8. The gap, p, between tangent and P C of the circular curve is one-fourth the offset, X, from tangent to end of spiral.

The main offset, X, at the end of spiral is evidently equal to the sine of the angle T times the long chord of spiral, and as the chord nearly equals the length of spiral, approximately:

$X = L \sin T$ (1)*
and by Principle 8 the gap, p, $= \frac{1}{4} X$.

If the transitman happens not to have a table of sines with him, he need not worry, so long as he remembers the sine of $1^\circ 00'$. As the sines of angles are practically proportional for any probable value of T, he has simply to mul-

*The main offset $X = L \sin T$ is more correctly $X = C \sin T$; C being the long chord of spiral, whence $p = \frac{1}{4} C \sin T$. The difference is hardly appreciable. The long chord of spiral is approximately that of a simple curve of same length whose degree of curve is half that of the main curve. The error in value of p, using L instead of C, for certain spirals of different lengths and degrees of curve is as follows:

Degree.	L.	Length L.	Error in p.
4°	$7^\circ 12'$	360'	0.0027 ft.
6°	$7^\circ 12'$	240'	0.0016 ft.
10°	$10^\circ 00'$	200'	0.0038 ft.
10°	$12^\circ 30'$	250'	0.0098 ft.

It will be observed that the error does not approach 0.01 ft., except for the 10° curve with total angle of $12^\circ 30'$.

tly T in degrees and decimals by .01745.

Occasionally, on location where the profile is rough, it may not be possible to see from one end of the spiral to the other. In this case, perhaps the simplest and easiest way is by offsets as follows:

Offset the distance $p = \frac{1}{4} X$ from tangent to P. C. of circular curve, or vice versa, and put in the points S T and S C at distances $\frac{1}{2}$ each way. For points on the half-length of spiral next S T offset from the tangent, and for points on the other half offset from the circular curve.

For instance, in the preceding example the main offset is $X = L \sin T = 240 \sin 2^\circ 24' = 10.05$, and $p = \frac{1}{4} X = 2.51$.

The offsets from the tangent to spiral, according to the cubes of their distances from S T in fractions of L, are X multiplied successively by $(1/6)^3$, $(1/3)^3$, $(1/2)^3$, etc., making 0, 0.05, 0.37, 1.255, etc.; but we need only these three. The offsets from the circular curve for corresponding points and distances from S C are the same, namely, 0.05, 0.37, and 1.255, the last offset, 1.255 in each case being the offset to the middle point of spiral at the P. C. of circular curve. Added together they make the gap $p = 2.51$.

Approaching the curve from the tangent, and reading up the page, curve being to the left, notes may be shown as follows:

Station.	Def.	Offsets.
39+40°	$3^\circ 36'$	S C, 0.0
39	$2^\circ 24'$	0.05 R
+60	$1^\circ 12'$	0.37 R
38+20°	Offset 2.51' L to P.C. 6° L (spiral 1.25')	
+80		0.37 L
+40		0.05 L
37°		S T, 0.0

OTHER POINTS ABOUT THE SPIRAL.—If the gap, p, between P. C. and tangent is given, the length of spiral, L, may be obtained approximately by the rule of thumb.

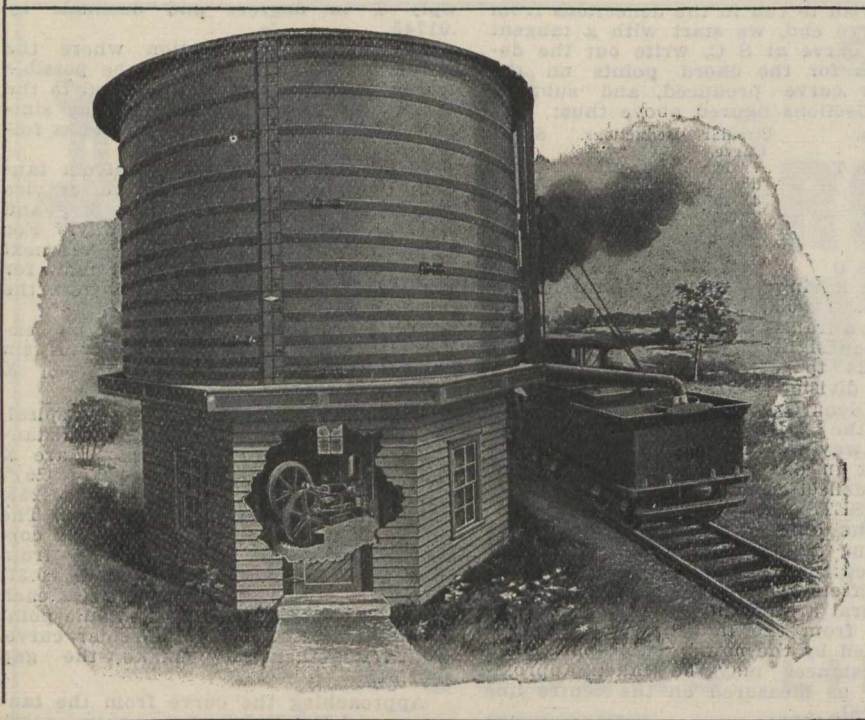
$L = 371 \sqrt{\frac{p}{D}}$

taking L to the nearest foot.

A suggested length for spirals is: elevation of main curve in inches multiplied by speed in miles per hour.* A six-degree curve elevated 6 ins. corresponds to a speed of 39 mi. per hr. Multiplying this speed by 6, we would get a length of 234 ft.; or 258 ft. for 43 mi. per hr., which is 10% excess speed. Where practicable, longer spirals might be of some advantage in giving a longer run off for the elevation.

SUGGESTIONS AS TO TRACK CENTRES.—Attention should be called to the necessity for accurate instrumental work in running the track centres, and to the doubtful advantage of putting the points very close together. For instance, on a spiral 360 ft. long, one or two points may be 300 ft. or more from the transit. An error of $\frac{1}{2}$ minute in deflection in that distance would throw the point off $0.00145 \times 3 = 0.043$ ft. If the centres are 50 ft. apart, one centre off line that much would increase the middle ordinate of 100 ft. by the same amount, changing the degree of curve $0^\circ 12'$; but if centres are 25 ft. apart, it would change the degree of curve $0^\circ 48'$ for 50 ft., and perhaps give the trackman a poor idea of the transitman's ability, especially if the next centre and others are similarly off in opposite directions. However, if the transitman has any doubt of the accuracy of points at the far end of spiral, he may readily check back on one or two points with transit at the other end.

It may also be suggested as a good plan in running track centres between two hubs on a curve or spiral, that the chaining be done towards the instrument



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Our Combined Gasoline Engine and Pump makes a very economical outfit for pumping water and one that in many places is the only practical solution for a steady, reliable water supply. The engine is easily started under no load by throwing out a clutch.

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Fairbanks Scales—Fairbanks-Morse Gas Engines—Safes and Vaults. Montreal, St. John, N.B., Toronto, 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.

SLEEPING CAR SPACE HELD

Toronto City Office, 16 King St. East

North Toronto Station

King Edward Hotel

West Toronto Station

so that any error in distance will fall at the instrument instead of at the far end, where the line of sight is at a considerable angle across the track.—Engineering News.

Robt. S. Beard, of Kansas City, Mo., writes in reference to the above:—Mr. Howard's article prompts me to submit a formula for the length of spiral, which I developed several months ago while converting tables of spirals into metric units for use in Mexico.

Using the following notation:
E=elevation of curve in inches.
g=gauge of track.
V=velocity in miles per hour.

v=velocity in feet per second= $\frac{22}{15}V$

D=degree of curve.
R=radius of curve.

L=Length of spiral in feet.
The formula for theoretical superelevation is,

$E = \frac{g \times v^2 \times 12}{15} \times \frac{D}{1000}$

$\frac{32.16 R}{1000000} \times \frac{D^2}{V^2} \times 12$
= .001404 DV²
= .000661 DV₂ when g=4 ft. 8½ ins.
= .000689 DV₂ for 85-lb. rail with 2 9-16-in. head.

= .000685 DV₂ for 55-lb. rail with 2¼-in. head.
Prof. A. N. Talbot's formula, E=.00069 DV₂, is based on the fact that the track level gauge is the width of the rail head wider than the track gauge.

The reports on spirals from all the main roads in the country to the American Railway Engineering and Maintenance of Way Association in 1909 brought out the fact that the maximum rate of attaining elevation on curves without discomfort to passengers is about 1¼ in. per sec. on tangent and spiral, and according to the New York Central report by C. J. Parker, Prin. Asst. Engr., ¾ in. per sec. where the runoff is on straight track (see pp. 420, 422, Part 1, Vol. 10 of the A. R. E. & M. W. Assoc. Proceedings).

Since the elevation of the curve is E inches, at the rate of 1¼ inches per second it would take $\frac{E}{1.25}$ or $\frac{4}{5}E$ seconds to attain the full curve elevation. The distance traveled in attaining this elevation would be $\frac{6}{7}E v$ feet.

Therefore the length of spiral, $L = \frac{6}{7}E v$

$L = \frac{6}{7} \times .00066 DV^2 \times \frac{22}{15} V = .000830 DV^3$

Calling a the rate of change of degree of curve in 100 ft., $a = \frac{100 D}{L} = \frac{120000}{L V^3}$

To find the formula for any other rate multiply the above formula by the inverse ratio of the new rate to the rate of 1¼ ins. per sec. The run-off rate of ¾-in. a second requires that

$L = \frac{7}{5} \times .00083 DV^3 = .00116 DV^3$

Using Prof. Talbot's formula for elevation, E=.00069 DV₂, and a rate of 1 in. per sec., the formulas are,

$L = \frac{D V^3}{1000}$ and $a = \frac{100000}{L V^3}$

The value found from the above agrees with his recommended lengths of spirals for different speeds.

It is my opinion that the spiral should receive the same grade compensation as the curve with which it connects as a rough allowance for the extra resistance on the spirals due to the force required to twist the trucks, change the relative position of the cars, and attain the curve elevation.

W. G. Raymond writes from the Iowa State University as follows:—If the curve be laid in chord with six equal chords, the deflection for the first feet multiplied by the degree of the central curve, and the following deflections are 4, 9, 16, 25, and 36 times this.

If the curve be laid in with ten equal chords, the first deflection in minutes is the length of the chord stations multiplied by the degree of the central curve, and the following deflections are as before.

These are both approximate rules, but entirely good for spirals whose total central angles do not exceed 15°. Both rules are given in the subscriber's Railroad Field Geometry. The second rule is due to Jenks B. Jenkins.

Railway Rolling Stock Notes.

The G.T.R. has received the last consignment of 1,000 box cars, which were ordered in the U.S. last May.

The G.T. Pacific Ry. has received 162 flat cars, nos. 361438 to 361599, and 132 box cars, nos. 312325 to 312456, from the Canadian Car and Foundry Co., Montreal.

The G.T.R. has received 101 automobile cars, being the last consignment of 500, of which we have already given details, and which were ordered in the U.S.

The C.P.R., between Dec. 11 and Dec. 31, 1910, ordered 50 vans, 50 freight refrigerator cars, 50 passenger refrigerator cars and six D.10 locomotives, to be built at its Angus shops, Montreal.

The Algoma Central and Hudson Bay Ry. has ordered 10 superheater consolidation freight locomotives, weight in working order 194,000 lbs.; cylinders, 22½ in. by 28 in.; driving wheels 56 in. dia., from the Montreal Locomotive Works.

The Intercolonial Ry., between Dec. 17 and Jan. 18, placed the following replace orders at its Moncton shops: 50 steel frame box cars, 60,000 lbs. capacity; 50 wood box cars, 60,000 lbs. capacity; three colonist cars, 36 platform cars, 80,000 lbs. capacity.

The five second class and baggage cars, which the Canadian Northern Ry. is having built by the Preston Car and Coach Co., Preston, Ont., will be 72½ ft. long over body, with inside finish of birch, lighted with acetylene gas, and equipped with six-wheeled trucks with journals 4¼ in. by 8 in., and Westinghouse air brakes, type P.M. 1612.

The C.P.R., between Dec. 11 and Dec. 31, 1910, received the following additions to rolling stock: Six horse cars, one first class car, two second class cars, four baggage and express cars, three flangers and three D.10 locomotives from its Angus shops, Montreal; 20 tank cars and six steel snow plows from the Canadian Car and Foundry Co., Montreal, and one rotary snow plow from the Montreal Locomotive Works.

Following are the chief details of the 250 steel underframe flat cars, which the Canadian Northern Ry. is having built by the Canadian Car and Foundry Co., Montreal:

Table with 2 columns: Item and Weight/Dimensions. Includes Capacity (80,000 lbs), Truck centres (31 ft. 2 in), Length over end sills (41 ft. 0¼ in), Width over side sills (8 ft. 10 in), Height from rail over flooring (4 ft. 2¾ in), Flooring (2% in. ship lapped), Couplers (Janney 5 in. by 7 in), Truck bolsters (Simplex), Brake beams (Simplex 6 in), Journal boxes (McCord Mall. Iron), Journal bearings (M.C.B. lead lined), Truck springs (M.C.B. class C).

Following are the chief details of the one eight-wheeled hump switching locomotive which the C.P.R. is building at its Angus shops, Montreal, as mentioned in our last issue:—

Table with 2 columns: Item and Weight/Dimensions. Includes Weight in working order (188,000 lbs), Weight of tender loaded (134,000 lbs), Weight of tender, light (59,000 lbs), Capacity, water (5,000 imp. gals), Capacity, coal (12 tons), Heating surface, firebox (182 sq. ft), Heating surface, tubes (2,305 sq. ft), Heating surface, total (2,487 sq. ft), Grate area (49 sq. ft), Tubes, no. and dia. (349 2 in), Boiler, type (Extended wagon top, radial stayed), Boiler pressure (200 lbs), Wheel base, driving (15 ft. 10 in), Cylinders (21 in. by 28 in), Valves (11 in. piston), Driving wheels, dia. (52 in), Axles, main (9½ in. by 12 in), Axles, others (9 in. by 12 in), Axles, tender (5½ in. by 10 in), Brake (Westinghouse ET6), Lubricator (Detroit 21).

Following are the chief details of the 10 six-wheeled switching locomotives which the C.P.R. is building at its An-

gus shops, Montreal, as mentioned in our last issue:—

Table with 2 columns: Item and Weight/Dimensions. Includes Weight in working order (130,000 lbs), Weight of tender loaded (90,000 lbs), Weight of tender light (44,000 lbs), Capacity, water (3,500 imp. gals), Capacity, coal (10 tons), Heating surface, firebox (138 sq. ft), Heating surface, tubes (1,406 sq. ft), Heating surface, total (1,544 sq. ft), Grate area (29 sq. ft), Tubes, no. and dia. (234 2 in), Boiler, type (Straight top, radial stayed), Boiler pressure (200 lbs), Wheel base, driving (11 ft. 6 in), Cylinders (18 in. by 26 in), Valves (11 in. piston), Valve gear (Walschaert), Driving wheels, dia. (52 in), Axles, driving (8½ in. by 10 in), Axles, tender (5 in. by 9 in), Brakes (Westinghouse ET6), Lubricators (Detroit 21).

Following are the chief details of the 10 six wheeled switching locomotives which the Canadian Northern Ry. is having built by the Canadian Locomotive Co., Kingston, Ont.:

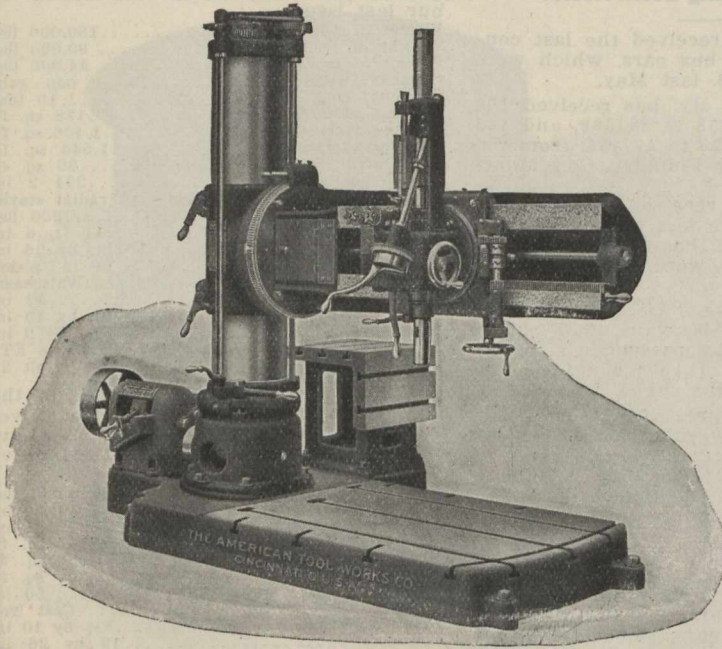
Table with 2 columns: Item and Weight/Dimensions. Includes Weight in working order (123,000 lbs), Wheel base of engine, rigid (11 ft. 0 in), Wheel base, engine and tender (39 ft. 1 in), Heating surface, firebox (131 sq. ft), Heating surface, tubes (1,206 sq. ft), Heating surface, total (1,337 sq. ft), Driving wheels, dia. (50 in), Driving wheel centres (Cast iron), Driving journals (8½ by 10 in), Cylinders (19 by 26 in), Boiler, type (Radial stayed), Boiler pressure (180 lbs), Tubes, no. and dia. (223 2 in), Tubes, length (10 ft. 5 in), Brakes (Westinghouse American), Weight of tender loaded (86,000 lbs), Capacity, water (3,500 imp. gals), Capacity, coal (5 tons), Tank style (Sloping back), Truck (Arch bars with steel bolsters), Wheels, dia. (33 in), Wheels, type (Steel tired), Journals (4¼ by 8 in), Brake beam (Steel trussed).

Following are the chief details of the six D.10 locomotives which the C.P.R. is building at its Angus shops, Montreal, as mentioned in our last issue:—

Table with 2 columns: Item and Weight/Dimensions. Includes Weight on drivers (143,000 lbs), Total weight (193,000 lbs), Weight of tender loaded (134,000 lbs), Capacity, water (5,000 imp. gals), Capacity, coal (10 tons), Heating surface, firebox (180 sq. ft), Heating surface, flues (2,238 sq. ft), Heating surface, total (2,418 sq. ft), Heating surface, superheater (408 sq. ft), Grate area (49 sq. ft), Tubes, no. and dia. (240 2 in. 24 5 in), Wheel base, rigid (14 ft. 10 in), Wheel base of engine (26 ft. 1 in), Wheel base, engine and tender (54 ft. 10¼ in), Boiler, type (Extended wagon top), Boiler, pressure (200 lbs), Superheater (Vaughan-Horsey), Staying (Radial), Cylinders (21 in. by 28 in), Driving wheels, dia. (63 in), Valve gear (Walschaert), Valve, type (11 in. piston), Axles, main (9½ in. by 12 in), Axles, others (9 in. by 12 in), Axles, tender (5½ in. by 10 in), Axles, engine truck (6 in. by 10 in).

Following are the chief details of the 20 consolidation locomotives which the Canadian Northern Ry. is having built, as mentioned in our last issue:—

Table with 2 columns: Item and Weight/Dimensions. Includes Tractive effort (45,000 lbs), Weight in working order (215,000 lbs), Weight on drivers (190,000 lbs), Weight on leading truck (25,000 lbs), Wheel base, driving (16 ft. 6 in), Wheel base, total (25 ft. 5 in), Cylinders (Simple, 24 in. by 32 in), Boiler, type (Extended wagon top), Boiler pressure (180 lbs), Boiler, outside dia. of first ring (72 in), Firebox, length and width (110 in. by 64 in), Firebox plates, thickness, crown and back (tube 5 in. side 5-16 in), Firebox, water space (Front 5½ in. sides and back 4¼ in), Tubes, no. and dia. (272 2 in), Valves (12 in. piston), Driving wheels, dia. (63 in), Driving wheels, thickness of tires (3¼ in), Driving journals (10 in. by 14 in), Truck wheels, dia. (30 in), Truck journals (6 in. by 12 in), Tender, wheels, dia. (33 in), Tender, journals (5½ in. by 10 in), Capacity, water (6,000 imp. gals), Capacity, coal (10 tons).



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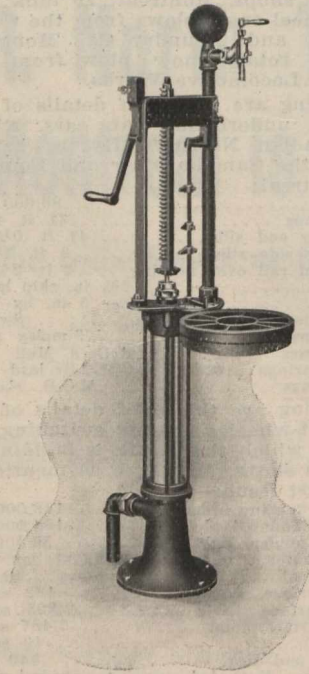
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MAINLY ABOUT PEOPLE.

E. B. Osler, M.P., left Toronto in the middle of January for a visit to Egypt.

E. Hickson, of the Intercolonial Ry. advertising department, died at Moncton, N.B., recently.

H. McDonald, for a number of years engaged in contracting on the C.P.R., died at Ottawa, Dec. 30.

W. G. Payton, C.P.R. baggage master, Vancouver, B.C., was presented with a gold watch by the local staff recently.

Mrs. Cunard, widow of the late Wm. Cunard, formerly of S. Cunard and Co., Halifax, N.S., died at Nice, France, recently.

F. C. Young, who was, at one time, Treasurer Quebec Central Ry., for a short period, died at Berlin, Ont., Jan. 11.

J. C. Hays, accountant in the C.P.R. ticket department, Montreal, died there, Jan. 11, after a three months' illness, aged 50.

A. Begg, who was a contractor on the Ottawa, Arnprior and Parry Sound Ry., now part of the G.T.R., died at Ottawa recently.

Mrs. Gormally, who died in Toronto, Jan. 17, aged 63 years, was widow of W. C. Gormally, at one time Superintendent Union Station, Toronto.

H. G. Kelley, Chief Engineer G.T.R., returned to Montreal from a short trip through Texas and the South West, early in January.

Mrs. G. R. Joughins, wife of the Superintendent of Motive Power Intercolonial Ry., Moncton, N.B., is seriously ill, at Dannsville, N.Y.

J. B. Marks, operator and ticket agent, M.C.R., at Windsor, Ont., pleaded guilty to the theft of \$15 and a ticket to San Francisco, and was liberated on suspended sentence.

E. Pennington, President Minneapolis, St. Paul and Sault Ste. Marie Ry., sailed from St. John, N.B., Dec. 30 for a holiday trip to Europe.

G. McL. Brown, European Manager, C.P.R., London, Eng., and Mrs. Brown visited Canada in January, and sailed from New York for England Jan. 21.

D. T. Kyle has been appointed Assistant General Secretary of the C.P.R., centre of the St. John Ambulance Association Eastern Lines, with headquarters at Montreal.

C. M. Hays, President G.T.R. and G.T.P.R., responded to the toast of the railways at the annual dinner of the Canadian Manufacturers' Association, Montreal Branch, Jan. 9.

P. F. Weisbrod, C.P.R. Trainmaster, Brandon, Man., was presented with a gold watch by the passenger staff of the district at Winnipeg, on his transfer to Cranbrook, B.C., recently.

Miss A. E. Lanigan, daughter of W. Lanigan, Assistant Freight Traffic Manager Western Lines C.P.R., Winnipeg, was married there recently to E. D. McCallum.

R. M. Boyd, Commercial Agent Chicago, Milwaukee and Puget Sound Ry., and of the Chicago, Milwaukee and St. Paul Ry., at Seattle, Wash., is a native of Brockville, Ont.

Lieut.-Colonel Higinbotham, who died at Guelph, Ont., Jan. 9, was one of the principal promoters of the Wellington, Grey and Bruce Ry., now part of the G.T.R. system.

The engagement is announced of Miss Elma Reid, elder daughter of the late Robt. Reid, one of the National Transcontinental Ry. Commissioners, to Gordon Ingram, of London, Ont.

G. B. Hyde, Chief Engineer St. Mary's and Western Ontario Ry., was presented

with an arm chair, by the congregation of Knox Church, St. Marys, Ont., on his leaving for Calgary, Alta., recently.

W. R. Cunningham, Superintendent Sleeping, Dining and Parlor Cars and News Service, Calgary, Alta., was presented with \$100 by the department staff there, Jan. 5, on leaving Calgary for Montreal.

In connection with the report that C. G. Bowker, Assistant Superintendent G.T.R., London, Ont., had resigned to enter Lehigh Valley Ry. service, we are officially advised that there is no truth in the statement.

S. S. Underwood, chief draughtsman G.T.R. Car Department, Montreal, was presented, recently, with a fitted travelling bag, and a brooch for his wife, by the staff, on his leaving the service, to enter that of Taylor & Arnold, Ltd.

J. R. Gilhula, heretofore Trainmaster Pere Marquette Rd., St. Thomas, Ont., resigned the position, Jan. 20, when he left for St. Louis, Mo., where he has been appointed Superintendent Illinois Traction Co.

A. J. Grant has been appointed Superintendent of Construction Eastern Division C.P.R. Telegraphs, vice J. Townsley, retired, and S. L. Elliott has been appointed General Inspector Eastern Division.

E. L. Cousins, formerly Resident Engineer G.T.R., Toronto, and now in charge of the railway work of the Toronto city works department, has also been appointed to take charge of the city bridge work.

W. B. Bulling, Assistant Freight Traffic Manager C.P.R., Montreal, has returned to duty after several months absence, principally in Europe, on account of ill health. W. M. Kirkpatrick, General Freight Agent (Through Freight) acted in his stead.

Toronto Mail.—It is pleasant to believe that the recent knighthoods are not inflating their recipients, and making them too aristocratic. In one instance, at least, it is clear that the rank is but the guinea stamp, and that

"A Mann's a Mann for a' that."

Sir William Mackenzie, President Canadian Northern Ry., has purchased a block of property on Queen St., West, Toronto, opposite University Avenue, which local reports wrongly stated, was to be used for the erection of new headquarters of the company.

J. W. Loud, Freight Traffic Manager G.T.R., and G. W. Stephens, Chairman Montreal Harbor Commission, have been elected President, and a member of the committee of management, respectively, of the Church of the Messiah, Montreal, for the current year.

E. E. Cain, who was some time, ago, Trainmaster Pere Marquette Rd., at St. Thomas, Ont., and later at Detroit, Mich., has been appointed Superintendent Wellston Division, Cincinnati, Hamilton and Dayton Rd., vice J. W. Anderson.

W. H. Grant, of Mackenzie, Mann and Co.'s Construction Department, who was Manager of Construction Portland Canal Short Line Ry., Stewart, B.C. has been much benefited by his stay at Mount Clemens, Mich., and has returned to headquarters at Toronto.

W. M. Heath, who died at Portage la Prairie, Man., recently, was a river freighter in the early days of the settlement of the Northwest. At one time he had among his employes J. J. Hill, now Chairman of the Board of Great Northern Ry.

J. P. Mabee, Chief Railway Commissioner, returned to Canada, Jan. 4, from Washington, D.C., where he had been in connection with the conference relating to the establishment of an interna-

tional board for dealing with railway matters affecting Canada and the U.S.

H. W. Williamson, who was for some years station agent and latterly chief freight clerk C.P.R. at Fredericton, N.B., has retired from active service. He started work at Fredericton station in Dec., 1869, and has remained there ever since under the different companies which have had control of the line.

C. L. Clarke, Bridge and Building Master District 1, Atlantic Division, C.P.R., Fredericton Jct., N.B., was presented with a fur coat and cap, a gold headed cane, hand bag and \$50, by a number of fellow employes, Jan. 3, on his retiring from active service.

J. S. Dennis, Manager C.P.R. Irrigation and Land interests in Alberta and British Columbia, was expected to return to Canada from Great Britain, at the end of January. During his visit, he lectured before the Royal Geographic Society in London, Edinburgh, Glasgow, and at other points.

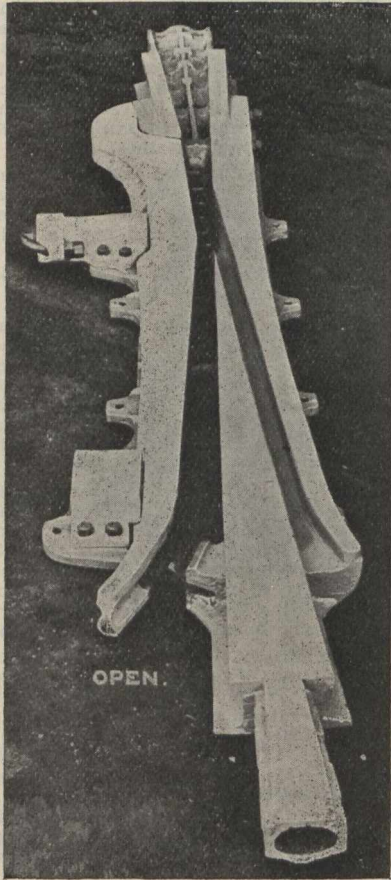
Sir Geo. C. Gibbons, whose name was included in the list of New Year honors granted by the King, is Chairman of the Canadian Section of the International Waterways Commission, and was especially identified with the negotiations leading up to the Boundary Waters Treaty between Canada and the U.S.

X. H. Cornell, who has been appointed Inspector of Transportation, Toledo, St. Louis and Western Rd., and Chicago and Alton Rd., Chicago, Ill., was, from 1903 to Nov. 30, 1909, consecutively, Chief Dispatcher, Train Master and Master of Transportation Western Division G.T.R., Durand, Mich., which last position he resigned to become Chief Supervisor Michigan Car Demurrage Supervising Bureau.

J. T. B. Caron, whose appointment as a member of the Government Railways Managing Board, was announced in our last issue, was born at Garneau, Que., Nov. 29, 1869, and was educated in Ontario public schools and Laval University, Quebec, where he obtained the A.B. degree in 1894. He subsequently practised law at Osgoods Hall, Toronto, and was called to the bar in 1898. He took a prominent part in the elections in Eastern Ontario, and was elected to the House of Commons in 1907, and was a candidate in L'Islet county in 1908, when he was defeated.

H. D. Annable, Export Freight Agent C.P.R., New York, who died there, Jan. 10, was born at Ottawa, Aug. 6, 1871, and entered C.P.R. service in 1891, since when, he was to 1892, in the Freight Department at Ottawa; 1892 to 1898, in Freight Department, Montreal; 1898 to 1901, Travelling Freight Agent; 1901 to 1903, Foreign Freight Agent, London, Eng.; 1903 to Apr. 1910, General Freight Agent, London, Eng.; in April, 1910, he was appointed Export Freight Agent at New York, which position he held up to the time of his death. W. G. Annable, General Passenger Agent C.P.R. Atlantic Steamship Service, is a brother.


Sir Donald D. Mann, on whom a knighthood was conferred Jan. 1, was born at Acton, Ont., Mar. 23, 1853. In his earlier years he was chiefly connected with the lumber trade, and became a contractor for the construction of a portion of the C.P.R. in 1880, working between Whitemouth and the Selkirk mountains. He entered into partnership with Wm. Mackenzie in 1886, since when they have been associated in contracting, and later in the building up of the Canadian Northern Ry. system. Among the positions held by him are: Vice President Canadian Northern Ry., Winnipeg Electric Ry., President North Star Mining Co., Director Dominion of Cana-



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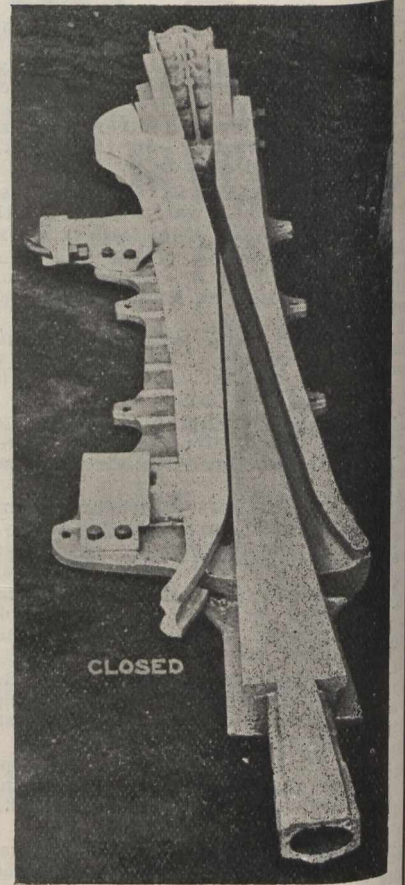
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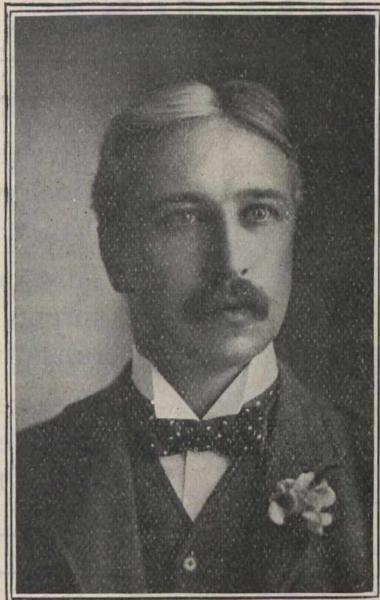


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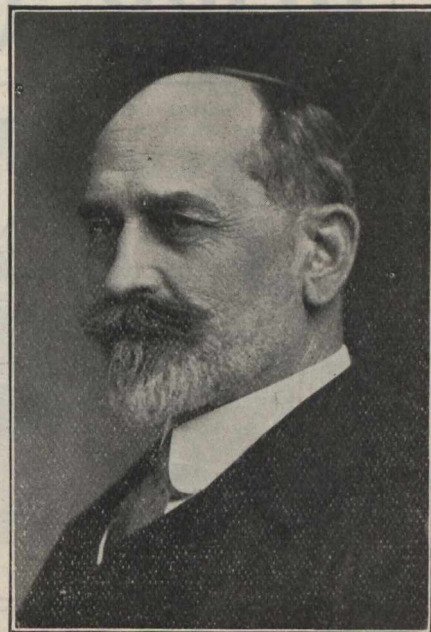
CANADA'S THREE NEW RAILWAY KNIGHTS



Sir Donald D. Mann.



Sir Thomas Tait.



Sir William Mackenzie.

da Guarantee and Accident Insurance Co., Manufacturers Life Insurance Co., etc.

Frederick Passmore Gutelius, who has been appointed General Superintendent Eastern Division C.P.R., Montreal, was born at Mifflinburg, Pa., Dec. 21, 1864, and graduated from Lafayette College as civil engineer, in 1887. He entered railway service in 1888, since when he has been consecutively, to 1892, Assistant Engineer and Assistant Supervisor Pennsylvania Rd., Pittsburg, Pa.; 1885 to 1898, General Superintendent Columbia and Western Ry.; 1898 to 1900, Superintendent C.P.R., Nelson, B.C.; 1900 to 1902, in various positions in the C.P.R. Engineering Department; 1902 to Mar. 1906, Assistant Chief Engineer Eastern Lines Montreal; Mar., 1906, to Sept. 15, 1908, Assistant Chief Engineer Eastern Lines Montreal; Sept. 15, 1908, to Dec. 30, 1910, General Superintendent Lake Superior Division, C.P.R., North Bay, Ont.

E. W. Duval, whose appointment as Superintendent District 1, Saskatchewan Division, C.P.R., Moose Jaw, was announced in our last issue, was born at Toledo, Ohio, June 5, 1885, and entered railway service July 1, 1902, since when he has been, to June 1, 1905, in Superintendent's office, C.N.R., Winnipeg; and at Port Arthur, Ont.; June 1, 1905 to Jan. 2, 1911, successively, secretary to General Superintendent Central Division C.P.R., Winnipeg; chief clerk to Superintendent District 2, Central Division, C.P.R., Winnipeg, assistant chief clerk to General Superintendent Central Division C.P.R., Winnipeg; chief clerk to General Superintendent Western Division C.P.R., Calgary, Alta.; chief clerk to Assistant General Manager and later Assistant General Manager Western Lines C.P.R., Winnipeg; and Trainmaster C.P.R. terminals, Calgary, Alta.

Miss Grace Mackenzie, daughter of Sir William Mackenzie, President Canadian Northern Ry., was married to Comte Jacques de Lesseps, at St. James Church, Spanish Place, London, Eng., Jan. 25. The bride was attended by her sisters, Mrs. W. W. Beardmore and Miss Ethel Mackenzie, and her cousin, Miss Mabel Meagher, Gilbert Griffin acting as train bearer. Among those pres-

ent at the ceremony were Sir William and Lady Mackenzie, J. M. Mackenzie, Mrs. Grantham, W. W. and Mrs. Beardmore, Scott and Mrs. Griffin, R. M. and Mrs. Horne Payne, Mrs. Meagher, Lord Strathcona, etc. A reception was subsequently held at Claridge's Hotel, and later the bride and groom left for Upper Egypt, where the honeymoon will be spent. On their return it is probable that they will reside in Paris, France.

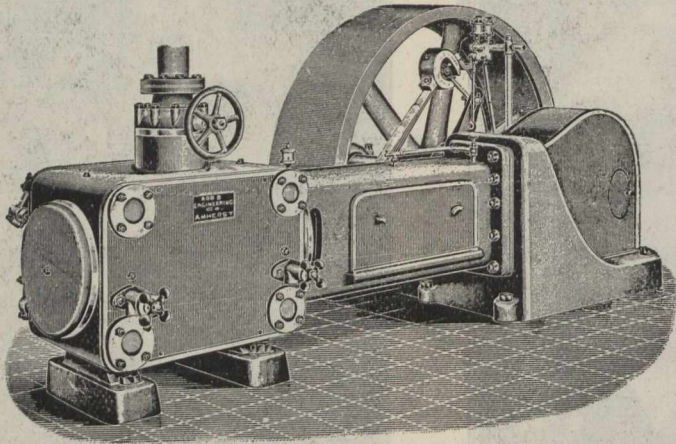
"No other man knows the Canadian West any better than Wm. Whyte knows it; there is some reason to doubt whether any other man knows it as well. He has been standing guard over C.P.R. interests at Winnipeg for a quarter of a century, and Winnipeg is by common consent the gateway of the West. During these 25 years he has filled the positions of General Superintendent of the Western Division, Manager of the lines west of Lake Superior, Assistant to the President, Second Vice President and Vice President. He has seen the C.P.R. system develop into one of the greatest railway systems in the world, and he has had much to do with promoting that development. He has seen the process of settlement going on, slowly at first, but quite rapidly in recent years, and he has watched with intelligent and sympathetic interest the evolution of the great agricultural industry."—Toronto Globe.

Wm. Bunton, G.T.R. city ticket agent, Peterboro, Ont., died at Toronto, Jan. 17, of Bright's disease. He was one of the best known of ticket agents on the continent, and was a most active member of the Canadian Ticket Agents Association, in which he had been a member of the executive committee, Vice President, and President. The funeral took place at Burlington, Ont., Jan. 19, a special car being provided from Toronto. The following acted as pall bearers: B. H. Bennett, General Agent Chicago and North Western Ry.; A. J. Taylor, Canadian Freight and Passenger Agent Chicago, Milwaukee and St. Paul Ry.; H. G. Thorley, Passenger Agent International Mercantile Marine Co.; H. F. Bradley, Agent Allan Line; J. D. McDonald, District Passenger Agent G.T.R.; C. E. Horning, City Passenger and Ticket Agent G.T.R., of Toronto.

Sir Thomas Tait, on whom a knighthood was conferred, Jan. 1, was born at Melbourne, Que., July 24, 1864, and entered railway service Sept. 1880, since when he has been, to July, 1881, clerk G.T.R. Audit Department; July to Oct., 1881, clerk in office of Assistant to President Chicago and Grand Trunk Ry.; Oct., 1881, to Apr., 1882, clerk in G.T.R. Solicitor's Office, Belleville, Ont.; Apr. to Oct., 1882, clerk General Manager's office, G.T.R.; Oct., 1882 to Sept. 1886, private secretary to Vice President and General Manager, C.P.R.; Sept., 1886, to May, 23, 1887, clerk General Traffic Manager's office, C.P.R.; May 23, 1887, to Feb. 1, 1889, Assistant Superintendent C.P.R., Moose Jaw, Sask.; Feb. 1, 1889, to Mar. 12, 1890, Superintendent Ontario Division C.P.R., Toronto; Mar. 12, 1890, to Mar. 1, 1893, General Superintendent Ontario and Quebec Division, C.P.R.; Mar. 1, 1893, to May 3, 1897, Assistant General Manager C.P.R.; May 3, 1897, to Apr., 1901, Manager C.P.R. Eastern Lines; Apr., 1901, to Mar., 1903, Manager of Transportation, C.P.R. He sailed from Vancouver for Australia, May 1, 1903, having received the appointment of Chairman of the Victorian Railway Commissioners, which position he resigned in Sept. 1910.

J. G. Sullivan, who has been appointed Assistant Chief Engineer Western Lines, C.P.R., was born at Bushnell's Basin, N.Y., Jan. 11, 1863, and graduated C.E. at Cornell University, June, 1888. He entered railway service July, 1888, since when he has been, to Mar. 1889, rodman Great Northern Ry., U.S.; Apr., 1889 to Aug., 1890, rodman, instrument man and assistant engineer Spokane Falls and Northern Ry., Aug., 1890, to May, 1893, assistant engineer Great Northern Ry., U.S. coast lines; July 1893, to Feb. 1894, assistant engineer Alberta Ry. and Coal Co.; July to Oct., 1894, section foreman Northern Pacific Ry.; Oct., 1894 to Apr., 1895, locating engineer, Butte, Anaconda and Pacific Ry.; Apr. to Dec., 1895, Division Engineer, Kaslo and Slokan Ry.; Dec., 1895, to Feb., 1901, locating and reconnaissance engineer and engineer in charge of construction Columbia and Western Ry.; Feb., 1901, to Sept. 1905, Division Engineer Construction Department Western Lines, C.P.R.; Sept.

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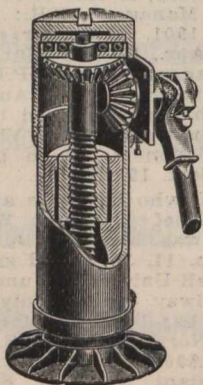
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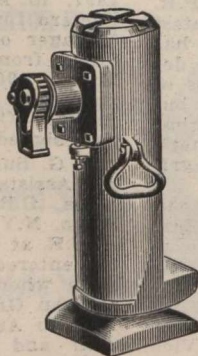
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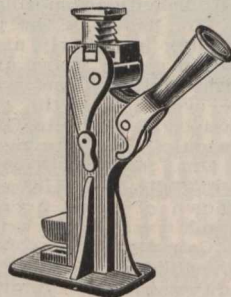
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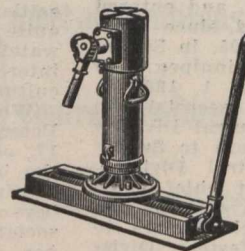
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1905, to Feb. 1907, Assistant Chief Engineer Panama Canal; Feb. 1907, to Sept. 15, 1903, Manager of Construction Eastern Lines, C.P.R., Toronto; Sept. 15, 1903 to Jan. 1, 1911, Assistant Chief Engineer Eastern Lines C.P.R., Montreal. He was elected a member of the American Society of Civil Engineers in 1899, and is also a member of the Canadian Society of Civil Engineers.

Capt. Alex. Gray, late master of the Hudson Bay Co.'s auxiliary steamship Pelican, died at his residence, Fairleigh, Sutton, Eng., recently, aged 70. He was a native of Peterhead, and gained an unrivalled experience of Arctic navigation while engaged in the whaling industry with his brother, Capt. John Gray, who was known as the "Prince of Whalers." On Feb. 1, 1871, Capt. Alex. Gray entered the H.B. Co.'s service as commander of the s.s. Labrador, and besides delivering cargoes to, and collecting returns from, the company's posts along the coast of Labrador and Ungava, he prosecuted the Greenland seal fishery until that portion of the company's trade was relinquished in 1881. He served one more voyage in the Labrador, and resigned in 1883 to resume the pursuit of the leviathans of the Arctic deeps in the s.s. Erik, in which he held a large interest. In 1888 the H.B. Co. purchased the s.s. Erik, and the year 1891 saw Capt. Gray reinstated in the service as her commander. With the exception of the year 1905, when he commanded the s.s. Discovery (Capt. Scott's Antarctic ship) on a voyage to James Bay, Capt. Gray served as master of the s.s. Pelican from 1901 to the date of his retirement on May 31, 1909, having made 30 of the most arduous voyages to the inhospitable and uncharted shores of Labrador and Hudson's Bay.—Canadian Gazette.

Sir William Mackenzie, whose name was included in the recent list of New Years honors, was born at Kirkfield, Ont., Oct. 30, 1849, and was educated at the public and Lindsay Grammar schools. His first connection with railway work, was as contractor for the construction of the Victoria Ry., now the G.T.R. Middle Division, and upon completion of this, he took contracts for building various portions of the C.P.R., carrying out considerable construction work in the Rocky Mountains. A partnership with D. D. Mann, commencing in 1886, was responsible for other railway construction, including the Calgary and Edmonton Ry., Qu'Appelle, Long Lake and Saskatchewan Ry., the C.P.R. short line through Maine, and in 1896 was commenced the 100 miles of the Lake Manitoba Ry. and Canal Co.'s line, from which has grown the Canadian Northern Ry. system of today. Among the positions held by him are: President Canadian Northern Ry., Toronto Ry., Toronto and York Radial Ry., Toronto and Niagara Power Co., Winnipeg Electric Ry., Sao Paulo Tramway, Light and Power Co., Monterey Ry., Light and Power Co., and Chairman and President Rio de Janeiro Tramway, Light and Power Co., Vice President Electrical Development Co. of Ontario, Director Canadian General Electric Co., Central Canada Loan and Savings Co., Dominion Securities Corporation, Imperial Life Assurance Co. of Canada, Manufacturers Life Assurance Co., National Trust Co., North Star Mining Co., and Shawinigan Water and Power Co. He is a member of the York, Toronto, Albany, National and Hunt Clubs, Toronto, and the Rideau Club, Ottawa.

J. W. Leonard, who has been appointed Assistant to the Vice President, C.P.R., Montreal, was born at Epsom, Ont., 1858. He entered railway service, 1872, since which his record has been: 1872 to Aug., 1877, telegraph operator and agent, Midland Ry. of Canada; Aug., 1877, to Dec.,

1878, agent Victoria Ry.; Dec., 1878, to Mar., 1880, assistant manager, same road; Mar. to June, 1880, assistant to General Superintendent Credit Valley Ry.; June, 1880, to Nov., 1883, General Passenger Agent same road; Nov., 1883, to May, 1884, Master of Transportation, Ontario and Quebec Ry.; May, 1884, to Mar., 1887, Superintendent C.P.R., at Toronto; Mar., 1887, to Mar., 1890, Superintendent Kamloops; Mar., 1890, to Mar., 1893, Superintendent lines east of Montreal, same road; Mar., 1893, to April, 1901, General Superintendent Ontario and Quebec Division, same road, Toronto; April, 1901, to Mar., 1903, General Superintendent Western Division same road, Winnipeg; Mar. to April, 1903, General Superintendent Central Division, same road, Winnipeg; April, 1903, to Jan. 1904, Assistant Manager, C.P.R. lines west of Lake Superior, Winnipeg. After some months spent in travelling, Mr. Leonard was elected President Guelph and Goderich Ry., and in Feb., 1905, was appointed Manager, of Construction, C.P.R. lines in Ontario, and in Oct., 1905, Assistant General Manager, C.P.R. Eastern Lines, in charge of maintenance of way and operation, and also of the construction of new lines in Ontario, which combined positions he held until the appointment of J. G. Sullivan as Manager of Construction Eastern Lines, leaving him solely to the duties of Assistant General Manager Eastern Lines in charge of maintenance of way and operation to Feb. 1908, when he was appointed General Manager Eastern Lines in charge of maintenance of way and operation, with office at Montreal.

Canadian Sleeping Car Rates.

On Dec. 29 the C.P.R. issued a local standard passenger tariff of sleeping car tolls, which was filed with the Board of Railway Commissioners, the Board ordering that the same be spoken to in Montreal on Jan. 23. The tariff, to become effective Feb. 1, provides the following rates for lower berths in standard sleeping cars; east of Calgary, Macleod and Edmonton, 6 mills a mile; west of Calgary, Macleod and Edmonton, 8 mills a mile. Any fraction of 25c. less than 12½ cents to be thrown off, and anything above 12½c to be charged at 25c. Minimum charge for lower berth, \$1.50. A scale is given for upper berths, drawing rooms and compartments, from which the following are selected as examples. The regular drawing room contains a double section, and a single section, or a single berth, with toilet. A compartment contains two double berths:

Lower Berth.	Upper Berth.	Drawing Room.	Compartment.
\$ 1.50	\$ 1.25	\$ 6.00	\$ 5.00
2.00	1.60	7.00	6.00
3.00	2.40	11.00	8.50
4.00	3.20	14.00	11.50
5.00	4.00	18.00	14.00
6.00	4.80	21.00	17.00
7.00	5.60	25.00	25.00
8.00	6.40	28.00	22.50
9.00	7.20	32.00	25.50
10.00	8.00	35.00	28.00
11.00	8.80	39.00	31.00
12.00	9.60	42.00	34.00
13.00	10.40	46.00	36.50
14.00	11.20	49.00	39.50
15.00	12.00	53.00	42.00
16.00	12.80	56.00	45.00
17.00	13.60	60.00	48.00
18.00	14.40	63.00	50.50

For parlor car seats the rates are, east of Calgary, Macleod and Edmonton, ½c. a mile, and west of those points ⅓c. a mile, adding sufficient when necessary to make the fare end in 0 or 5. The minimum charge for seats is 25c. For drawing room the charge is six times the seat fare, not exceeding the charge for drawing room in night service between the same points.

In tourist sleeping cars the berth

charge is 50% of standard berth fare, adding sufficient, when necessary, to make tourist berth fare end in 0 or 5. The minimum charge for lower or upper berth is \$1.

The Canadian Northern and Grand Trunk Pacific Rys. filed similar tariffs for points east of Macleod, Calgary and Edmonton, their lines not being in operation further west for sleeping or parlor car traffic. The Pullman Co. did not file a tariff, but tariffs were filed by the lines over which Pullman cars operate in Canada, the Grand Trunk, Michigan Central, New York Central lines and other roads.

The new tariffs were approved by the Board of Railway Commissioners in Montreal Jan. 24. Chairman Mabee said they were the first effort to put sleeping and parlor car rates on a scientific basis, that they would do away with the complaints in regard to the charges for lower and upper berths being the same, and that they would make a general reduction in rates, although in some cases there might be increases. The railway companies justified the higher rates west of Macleod, Calgary and Edmonton by the extra cost of hauling cars through the mountains. Chairman Mabee said the Commission hesitated in approving the higher western rates, but did so, as the companies wanted to put the new tariffs in force on Feb. 15, it being understood that the question might be reopened, when the general question of lower railway rates in the west came up for consideration.

C. N. Ry.—G. T. Pacific Ry. Terminal.

The President, Vice President and other officers of the G.T. Pacific Ry. were in Toronto Jan. 4, conferring with Canadian Northern Ry. officers as to terminal facilities. The conference lasted two days, and it is stated that an arrangement is being made for the operation of joint terminals for the lines at various points in the west along the same lines as that under which the G.T. Pacific Ry. is to use the terminal station now nearly completed at Winnipeg. It is said that all the joint terminal facilities will be operated by a joint board representing both lines. Referring to the conference on his return to Winnipeg Jan. 11, E. J. Chamberlin, Vice President and General Manager G.T.P.R., said the matter would be handled by a terminal board at Winnipeg, Regina and Edmonton. This statement was confirmed as to Winnipeg and Edmonton by M. H. McLeod, General Manager C.N.R., Jan. 14.

St. Leonards—Van Buren Bridge.—

The commissioners having charge of the building of a bridge across the St. John river to connect St. Leonards, N. B., and Van Buren, Me., have been considering the offer of certain residents of the latter place to provide sufficient funds to strengthen the bridge so as to carry railway traffic. The Attorney-General for Maine has expressed an opinion that the State voted a subsidy for the building of a highway bridge, and that the funds cannot be used for anything else.

The Winnipeg Bridge and Construction Co., Ltd., has been incorporated under the Manitoba Companies Act, with a capital of \$60,000 and office at Winnipeg, to carry on a general contracting business, including works connected with railways, tramways, telegraph and telephone lines, bridges, wharves, docks, piers, etc., and in connection therewith to own and operate steam and other vessels, and to carry on a general transportation business. The incorporators are John, James and F. Frankman, Minneapolis, Minn.; J. LaCour and K. Scheel, Winnipeg.

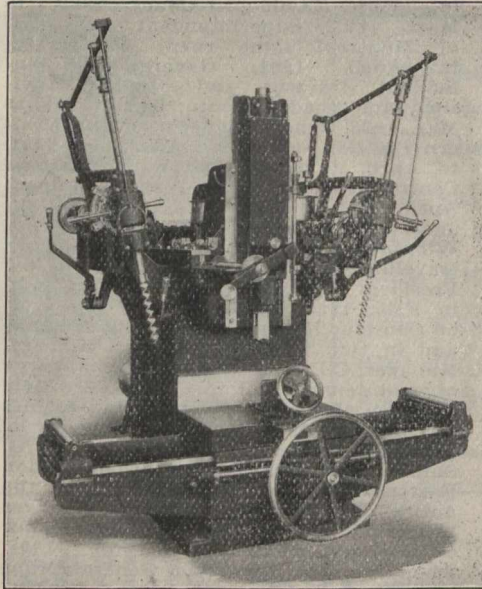
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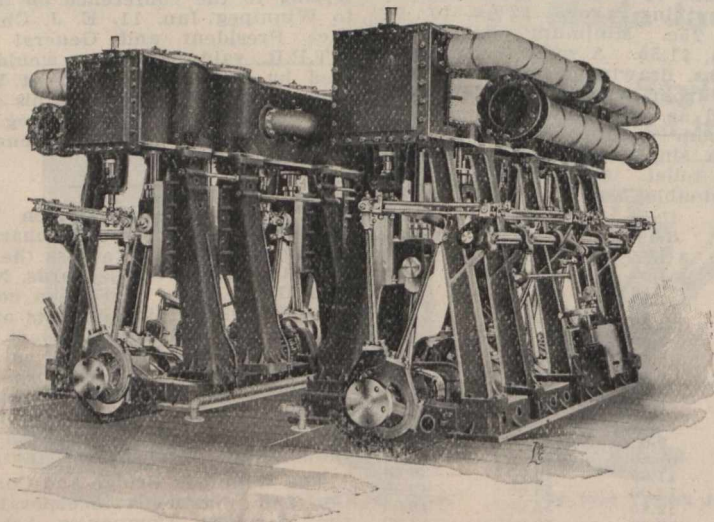


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C.P.R. Betterments, Construction, Etc.

Blomidon to Canning Wharf.—A survey has been made for a spur from the Dominion Government wharf at Canning, N.S., on the Dominion Atlantic Ry. Cornwallis branch, to Blomidon.

St. John Improvements.—A question has been raised in connection with the deed of transfer to the C.P.R. of certain shore rights at Carleton, St. John, N.B. The company does not agree to a clause providing that the land is to be used for railway purposes only.

New Brunswick Southern Ry.—This railway was merged in the Atlantic Division, C.P.R., Jan. 15, and is being operated as part of District 1. The Board of Railway Commissioners has authorized the building of a spur across Prince William St., Nepean tp.

St. Maurice Valley Ry.—Commencing Jan. 15, the St. Maurice Valley Ry., from Three Rivers to Shawinigan Falls, Que., has been operated as part of District 3 Eastern Division C.P.R.

During 1910 the C.P.R. built an extension from Shawinigan Falls to Grand Mere, 5.2 miles.

Orford Mountain Ry.—An extension of this railway from Mansonville, Que., to the International boundary, between Quebec and Vermont, 3.6 miles, was completed during 1910.

Montreal.—In connection with the application of the city to the Quebec Legislature for an amendment of its charter, etc., notice is given by E. Belanger that he will apply for the insertion of a clause protecting certain rights in the case of the works authorized by the contracts between the city and the C.P.R., June 30, 1905, and Jan. 7, 1910.

Mile End Station.—The new station at Mile End, Montreal, was expected to be ready for occupation Jan. 20. The building is of brick on concrete foundations, and is similar in design and layout to that recently completed at North Parkdale, Toronto.

St. Lawrence Boulevard.—The subway under the C.P.R. at the head of the St. Lawrence Boulevard, Montreal, is reported to be practically completed. The subway is about 900 ft. long and 60 ft. wide. At the lowest point it is 15 ft. below the street level. The roadway provides space for a double track electric railway, two roadways for general traffic, and two sidewalks. The steel superstructure carries four tracks.

Place Viger Improvements.—The Board of Railway Commissioners has authorized the building of a temporary bridge to carry Notre Dame St., Montreal, over the tracks leading to Place Viger terminals, pending the erection of a permanent bridge.

Georgian Bay and Seaboard Ry.—The line under construction from Coldwater Jct. eastward to the Toronto-Montreal line at Bethany Siding, will be 75.88 miles long. The line from Victoria Harbor, on Georgian Bay, to Coldwater Jct., on the Toronto-Sudbury line, is completed, and is being used for traffic. During 1910 the company laid 1.46 miles of terminal tracks at Victoria Harbor. The Board of Railway Commissioners has approved the proposed change in location of the line in Orillia, of revision in grade from mileage 65.63 to 69 in Ops and Fenelon tps., revision in location from mileage 69 to 70.5, and location from mileage 70.5 to 72.88 in Lindsay, Ont.

The total length of the line from Coldwater Jct. to Bethany Siding is 80 miles, and the contract of the Toronto Construction Co., which company was building the section out of Coldwater eastward, is reported to have been extended to cover the whole line. G. S. Deeks, representing the company, stated Jan. 4, that 17 miles of grading had

been completed, and the whole line was expected to be ready by Dec. 31.

The revised location of the line from mileage 44.22 southeasterly to mileage 47.42 in Victoria county, has been approved by the Board of Railway Commissioners.

Lambton-Islington Second Track, etc.—The Board of Railway Commissioners has authorized the use for traffic purposes of the second track from Lambton to the east end of the bridge over Mimico River, mileage 6.6 to 8.6. The abutments have been built for a bridge across this river, and the second track has been laid west to the junction with the Mimico spur line, 2.64 miles, built during 1910, and for some distance beyond, altogether 3.2 miles from Lambton, in connection with the plans ton. It is understood that the second track will be laid as far as Cooksville, mileage 14.4, during the year.

Toronto to Windsor.—Press reports state that in connection with the plans for the improvement of C.P.R. connections in and around Toronto, it is proposed to build a new line, either in whole or in part, from Cooksville to London, to avoid the gradients and curvature on the existing line. Whether there is anything in the report or not, a survey party has been at work, starting from near the crossing of Dundas St., east of Cooksville station, and proceeding westerly since Jan. 2. During the last four years several survey parties have been at work for the C.P.R. in that section.

South Ontario Pacific Ry.—The House of Commons Railway Committee approved the application for an extension of time for the building of a line from Guelph Jct. to Hamilton, Ont., about 16 miles. An effort was made to obtain a promise from the company's representative that the line would be built at once.

Guelph Station, etc.—The Board of Railway Commissioners has authorized a change in the location of the line crossing Eramosa road, Norwich St., and City lane, and approving the location of the proposed station at Guelph, Ont.

Spur Line at Guelph.—The Board of Railway Commissioners has extended to Sept. 30 the time within which the spur line to the Provincial Reformatory at Guelph, Ont., may be built.

Stratford, Ont., Entrance.—The railway committee of the Stratford city council had under consideration the question of the entrance of a C.P.R. line into the city, Jan. 17, in order that it may be in a position to meet the company's engineers, who are expected shortly.

Tillsonburg, Lake Erie and Pacific Ry.—St. Marys and Western Ontario Ry.—The Board of Railway Commissioners has authorized the opening for traffic of that portion of the Ingersoll branch from Ingersoll Jct., mileage 0 to 4.8. This piece of line was built during 1910, and the official report gives the location and mileage as Code Jct. to Ingersoll, 4.68 miles, Ingersoll was the terminal of the old T. L.E. and P. Ry., and Code Jct. is the point where the St. Marys and Western Ontario Ry. joins the C.P.R. main line. By the building of this line a direct connection is given between Port Burwell and St. Marys, instead of the previous connection via Woodstock.

Nipigon to Savanne, Ont.—Press reports state that there is under consideration a plan for building a cut off starting from Nipigon and joining the main line again near Savanne, Ont., which will effect a saving of nearly 50 miles. The building of this cutoff would do away with the necessity of through traffic, being carried via Fort William during the winter. F. R. Reed, of the

C.P.R. engineering staff, Winnipeg, is reported to be in charge of a party locating a route. Since the foregoing was put in type we have been officially advised that the reports quoted are unfounded.

Port Arthur, Ont.—Following the removal of the street railway tracks from John St. to Bay St., by the Commission, the C.P.R. will lay an extensive system of side tracks for the new warehouse district on John St.

Western Lines, Improvements and Extensions.—The work to be done on the Western lines during the current season includes not only very extensive betterments of existing lines, enlargement of yards and facilities, but the laying of about 100 miles of second track, and the construction of about 400 miles of new lines.

The line between Port Arthur and Fort William, Ont., about four miles, will have a second track, and the poling yard at Fort William, which was laid out about seven or eight years ago, is to be rearranged as a gravity yard, with a view of taking advantage of the gradient in the movement of cars.

Owing to the large increase in the size and power of locomotives and their consequent greater hauling capacity, the present passing tracks are being found to be too short. In order to accommodate these longer trains additions to passing tracks aggregating 40 miles will be built during the year. The general improvement of the lines will be continued, and during the year 150 miles of the Manitoba and North Western Ry. will be relaid with the standard 85 lb. steel; the yards at Regina, Moose Jaw and Medicine Hat will be enlarged, and new steel bridges will be built across the South Saskatchewan River at Medicine Hat, across the Bow River at the first crossing east from Calgary, twin bridges will be built at the second and third crossings west of Calgary, and across the Elbow River at Calgary. The superstructures of the present structures will be utilized elsewhere.

The second track work which has been completed from Winnipeg to Portage la Prairie, will be completed to Brandon this year, some 80% of the grading having already been done. From Moose Jaw, a second track is to be built easterly to Pasqua, seven miles, and westerly to Caron, about 16 miles. Two rock crushing plants will be built on the Pacific Division to supply rock ballast for the lines there.

The new lines which will be built during the year are as follows:—The completion of the branch from Estevan, Sask., northwesterly to a junction with the line westerly from Weyburn, at Forward, Sask., 35 miles.

The extension of the line from Weyburn from its present terminal for 20 miles westerly.

From Moose Jaw southwesterly for 35 miles towards a junction with the line from Weyburn westerly.

From Swift Current southeasterly for 45 miles towards a junction with the last mentioned line.

From Swift Current northwesterly for 35 miles.

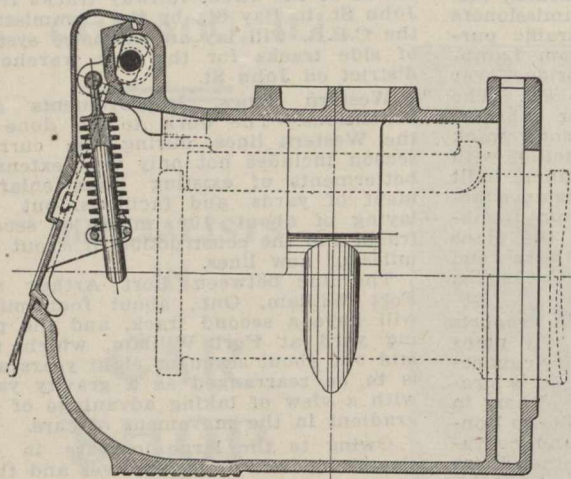
From the present terminus of the branch northwesterly from Moose Jaw for 35 miles, with a view of meeting an extension of 60 miles, which is to be built easterly from Castor, the present terminus of the Calgary and Edmonton Ry. Lacombe branch.

From Wilkie, on the Pheasant Hills branch, a line is to be built for about 32 miles northwesterly into the Cut Knife district, and southerly a branch is to be built to Tramping Lake, and down each side of the lake, a distance of 25 miles.

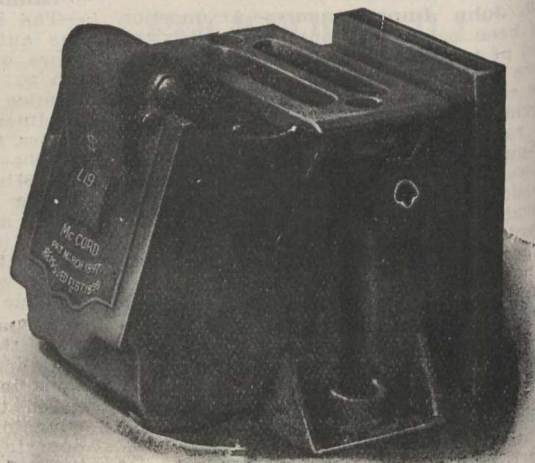
The Carmangay branch is to be completed to Okotoks, 26.5 miles.

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An additional 40 miles will be built on the Kootenay Central Ry.

The year's construction also includes an addition to the Royal Alexandra Hotel at Winnipeg, but we are advised that it has not been decided whether this will be done by the addition of two or three stories or by a new wing.

Teulon Extension.—Track was laid during 1910 on the extension of this branch, from Komarno to Arborg, Man., 25.6 miles.

Winnipeg-Brandon Second Track.—A second track has been laid from Rugby Jct., at Winnipeg, to Portage la Prairie, Man., 53.6 miles, and grading has been completed for a second track from Portage la Prairie to Brandon, Man., 77.5 miles. Track will be laid on this mileage during the present year.

Tilston, Westerly.—The company has under construction a line from Tilston, Man., the present terminus of the Broomhill branch, for 3.21 miles to the Manitoba boundary, and for a further 22.5 miles in Saskatchewan.

Forward Branch.—This branch line starts at Weyburn, Sask., and had its terminus in Forward, 26 miles. During 1910 track was laid on a further 26 miles, passing through Amulet, mileage 44, and having its present terminus at Ogema, mileage 52. It is understood that the intention is to carry this line to Lethbridge, Alta.

Estevan Northwesterly.—A line is under construction from Estevan, Sask., northwesterly 20 miles. This will affect a junction with the line being built westerly from Weyburn in the direction of Lethbridge, Alta.

Tantallon, Northwest.—The Dominion Parliament is being asked to authorize the building of a line from near Tantallon, on the Pheasant Hills Branch, to Craven, on the branch line northerly from Regina, Sask., 145 miles. This will run midway between the main line and the Pheasant Hills branch.

Regina, Bulyea, Colonsay, Sask.—A branch is under construction from Regina to Craven, where it divides, one line effecting a junction with the Pheasant Hills branch at Bulyea, mileage 194, and the other effecting a junction with the Pheasant Hills branch at Colonsay, mileage 293. Track was laid during 1910 as follows: Regina northerly, 20.6 miles; Bulyea, south, 12.4 miles; Colonsay, south, 50 miles, and grading was reported to have been completed on the following additional distances: Bulyea, southerly, 6.9 miles; Colonsay, southerly, 58 miles.

Outlook, Castor, Macklin.—The Outlook branch starts from Moose Jaw, Sask., and runs northwesterly for 119 miles to Outlook, whence it is under construction to a junction with the Calgary and Edmonton Ry. Lacombe branch, now terminating at Castor, Alta., and with the extension of the old Manitoba and North Western Ry., which connects with the Calgary and Edmonton Ry. branch from Wetaskiwin, at Macklin, mileage 492. Track has been laid from Macklin, southeasterly for 148.6 miles. At Outlook a viaduct is being built across the Saskatchewan River valley, over which connection will be made between the two sections of the line. It has not yet been determined when the section from near Eagle Lake to Castor, Alta., will be proceeded with.

The Langdon Branch starts from Calgary Jct., and was extended from Inverlake to Acme, Alta., 34.1 miles, during 1910, and it is intended to extend it to a junction with the Calgary and Edmonton Ry., south of Red Deer. A branch running easterly from Irricana is under construction for a further 36.9 miles.

Carmangay to Aldersyde.—The Carmangay branch, at present extending

from Kipp to Carmangay, Alta., 28 miles, is being extended to Aldersyde, 56 miles.

West Canadian Collieries.—The Board of Railway Commissioners has authorized the C.P.R. to build three spurs for the W.C.C. at Bellevue, Alta.

Kootenay Central Ry.—A duplicate of the lease of the K.C. Ry., now under construction, to the C.P.R., has been deposited with the Secretary of State at Ottawa. The line is projected from Wardner, on the Crow's Nest Pass Branch, to Golden, on the transcontinental line, and the section under construction is from Wardner to Fort Steele, 24.9 miles.

Hotel at Balfour, B.C.—A contract is reported let to C. W. Sharpe, Winnipeg, for the erection of a hotel at Balfour, near Nelson, B.C. The building will be of three stories, on a concrete and stone foundation, with a frontage of 205 ft., and a depth of 105 ft. It is expected to be completed this year.

Westminster Jct., B.C.—We have been advised that while the executive officers have given some consideration to the provision of additional yard accommodation at the Pacific coast, it has not bought 1,800 acres of land at Westminster Jct. for this purpose, as recently reported. It is too early to state just what will be done in providing the increased accommodation necessary.

Port Moody Spur Line.—During 1910 the company completed the building of a 3.5 mile spur line at Port Moody, B.C.

Esquimalt and Nanaimo Ry.—The total length of the extension of this line from Wellington to Alberni, B.C., is 57.8 miles. The first section, from Wellington to Cameron Lake, 30 miles, has recently been opened for traffic. The remaining distance, from Cameron Lake to Alberni, is under construction, and is expected to be opened for traffic during the year. On the old portion from Victoria to Nanaimo, a branch of 3.3 miles, to the Wellington Camp, was built. An extension to the water front at Nanaimo is under consideration. Surveys for this work have been made by H. J. Cambie, Vancouver.

Work on the clearing of the branch line to Cowichan Lake is reported to be under way, the contractors, Moore and Pethick, having completed the clearing of five miles of the right of way.

Minneapolis, St. Paul and Sault Ste. Marie Ry.—During the year 1910, 240.33 miles of new track were laid on five different lines, as follows: from Lawlor to Plummer, Minn., 168 miles; cutoffs Wisconsin, Spencer, Minneapolis, 62 miles; from Ironhub to Deerwood, 4.61 miles; from Cuyuna to Crosby, 3.92 miles; from Crosby to Ironton, 1.80 miles.

Press reports state that surveys have been made for an extension from Fredrick, Wisc., to Duluth, Minn., about 60 miles, and that the company is planning extensive additions to its yard accommodation at Superior, Wisc., for handling ore from the Cuyuna range. (Jan., pg. 33.)

Railway Companies and Commutation Tickets.—A bill has been read a first time in the House of Commons, on motion of A. C. Macdonell, M.P., having for its object the amendment of the Railway Act, with reference to the issue by railway companies of commutation or suburban mileage tickets. The object is to put the issue of these tickets under the same supervision as other tickets with regard to the obligation not to discriminate against persons or localities.

A bill respecting the load line on ships, in the same terms as the Plimsoil Act, was introduced into the House of Commons, Jan. 20.

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.

Robt. W. Hunt and Co., Montreal, have issued a booklet on the proper use of concrete and reinforced concrete.

S. S. Underwood, for many years chief draughtsman G.T.R. Car Department, Montreal, has been appointed Sales Manager for Taylor and Arnold, Ltd., Montreal.

The Baldwin Locomotive Works, Philadelphia, Pa., has issued a calendar for 1911 illustrating various types of locomotives for passenger and freight service.

The Baldwin Locomotive Works, Philadelphia, Pa., has issued record 68, dealing with Mallet articulated locomotives and giving data and illustrations of 13 of them built at the works.

The Halifax city council has granted the Nova Scotia Car Works, successors to the Silliker Car Co., a loan of \$125,000 at 4%; a 5,000,000 gall. water supply for 20 years and exemption from taxation for the same period.

The Consolidated Car Heating Co. has issued catalogue 10, describing and illustrating its buzzer system designed for signalling conductors and motormen on trolley cars. It operates directly from the trolley voltage and does away with all dry batteries.

The Goldschmidt Thermit Co. is applying to the Dominion Parliament to authorize the Commissioner of Patents to receive payments of the further partial fees for the second and third terms of six years each, and to extend patent 86085, for a process of joining metal pieces, for such further terms.

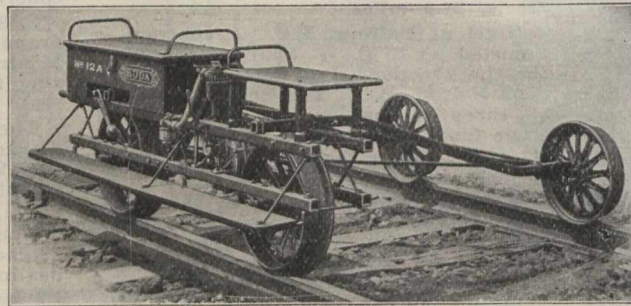
Williams and Wilson, Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$250,000 and office at Montreal, to take over the business at present carried on by Williams and Wilson there, and to carry on the general business of manufacturing, importing and dealing in machinery and supplies. The incorporators are A. R. Williams, Toronto; F. C. and W. A. Wilson, M. B. Bronstetter, E. Kingsland, Montreal.

The Dearborn Drug & Chemical Works which has distributed its feed water Treatment and lubricants through an agency in the Philippines for the past two years, have decided to open their own branch office and warehouse in Manila, and has placed F. O. Smo't. in charge, under the supervision of E. C. Brown, Manager of company's foreign department. Mr. Brown has spent most of the past two years in Japan, China and the Philippines, investigating steam plant and railway conditions and has made selling connections at Tokyo, Tientsin, Hongkong, and Shanghai.

According to the Insurance Age, the work of railway trainmen in the U.S. is not the most dangerous occupation. It seems that the highest percentage of fatality is found among the fishermen of Gloucester, Mass., where it is nearly 12% of the total number employed. For the decade ending in 1907, the mortality percentage among railway men was about 8%. The number of deaths due to accidents of occupation among all wage earners annually in the U.S. is between 30,000 and 35,000; the non-fatal accidents exceed 2,000,000.

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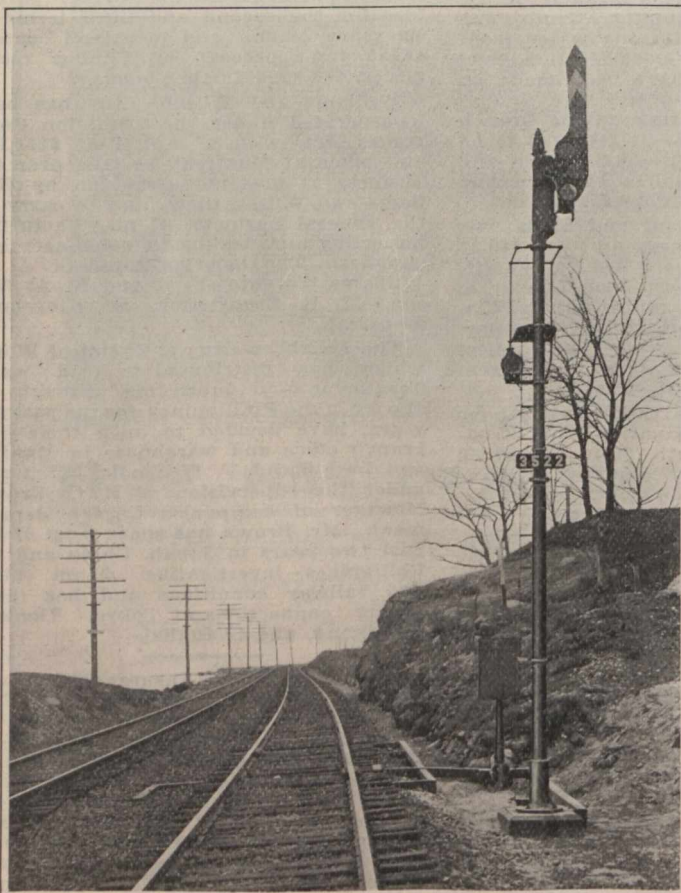
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Canadian Northern Quebec Ry.—The Board of Railway Commissioners has ordered the company to provide a platform and shelter for freight and passenger traffic at Pointe Aux Trembles, Que.; to fence its property and tracks at Hochelaga terminals, and instal various protective devices along its line in Montreal. The company's application to build an elevated line to connect its tracks with the lines of the Montreal Harbor Commission has been referred to the Board of Railway Commissioners.

James Bay and Eastern Ry.—The Board of Railway Commissioners has approved the revised location from station 405-48 to 536-44, mileage 7.46 to 9.93, from Roberval, Que.; and authorized the crossing and diversion of the public road at stations 726-50 and 605-63 on the Indian Reserve, Lake St. John county.

Canadian Northern Ontario Ry.—The Board of Railway Commissioners has authorized the building of the line from near Hawkesbury, towards Montreal, between lots 78 and 80, St. Eustache parish, station 1848-80; and the building of a bridge over Riviere des Milles Isles, between Two Mountains and Laval counties, mileage 37.9 from Hawkesbury.

Track has been laid altogether upon 71.7 miles of the Toronto-Ottawa line as follows: mileage 0 to 44.6, 44.6 miles; mileage 69.4 to 71.7, 2.3 miles; and mileage 71.8 to 96.6, 24.8 miles.

The Board of Railway Commissioners has authorized the building of the line across Hurdman's Road, Nepean tp., subject to certain conditions. The route plans for the section of the Toronto-Ottawa line between Deseronto and Portland, came up for consideration before the Minister of Railways, Jan. 10, when representatives from Newboro, Westport and other points attended and pressed their views as to the location. The Minister promised to give consideration to what had been said before approving the plans. The Board of Railway Commissioners has authorized a junction with the G.T.R. Harwood branch in Cobourg; and the building of a branch line in Trenton to connect with the Central Ontario Ry., and certain transfer tracks also in Trenton; to carry the line across Foster Ave., Belleville; to use five piers for the bridge across the Moira River at Belleville; and has approved the location of the line between Sydenham and Harrowsmith, mileage 159.70 to 162.27.

The Minister of Railways, Jan. 12, decided to refer to the Board of Railway Commissioners the application for approval of the location of the Toronto end of the line, from Macpherson Ave., to Rosedale Heights. Speaking in reference to this and other railway matters, Sir Donald D. Mann, Vice President C.N.R., said Jan. 12: "The C.P.R. is already handling business out of North Toronto, and before very long we will also be operating trains through there. Now, suppose the C.P.R. built a big passenger station there, and did not want the Canadian Northern, or any other company in the same terminal, and suppose we built a station, as we probably will do in the course of a few years, and in return for an arrangement in the present Union Station we allowed the G.T.R. to use the C.N.R. terminal in North Toronto, it could be done. The C.N.O. line to Ottawa, now under construction, of course, will be connected up with North Toronto, but just where has not been decided as yet, but north of East Toronto, the line passes within half a mile of the G.T.R. main line between Toronto and Montreal. All that would be necessary, you see, would be to construct a line across that half mile or so, and G.T.R. trains could swing to the

north there and so continue on over the C.N.O. lines into North Toronto. But remember, I do not propose to utterly abandon the Union Station. It should also be kept in operation. Just how I would not say at present, but it seems to me that in the summer it would be the proper station from which all passenger business connecting with the steamboats should be handled. If all the roads concerned agree on that point I do not see what would be placed in the way by any other interest. It may be, however, that they could not do that, for I am not sure on that point. But, under the scheme I have suggested here as one way of handling the problem, the bulk of the through trains, at least, would be sent across the north end of the city."

The contract for the bridge on the Toronto-Trenton section at Trenton, has been let to S. Henderson, and work was started on the substructure Jan. 1. There will be two abutments and nine piers in from 12 to 19 ft. of water. Five cofferdams have been put in place, and 4 ft. of concrete work done in each. It is expected to have the substructure completed in March.

A Hamilton press report states that another plan for the entrance of the company's lines into Hamilton is under consideration. This involves a line at the back of Dundurn Park, with a viaduct across the city to James and Strachan sts, where a station would be built.

The branch line from Udney, on the Toronto-Sudbury line to Atherly Jct., Ont., has been extended from mileage 5.71 to Atherly Jct., 1.69 miles, during 1910.

Irondale, Bancroft and Ottawa Ry.—During 1910, an extension of three miles was built to connect the old terminus at Mud Creek, Ont., with the Central Ontario Ry., to enable the two lines to be worked under the same management. The point of junction with the C.N.O. Ry. is at York River.

Central Ontario Ry.—Track has been laid on the extension to Whitney, from station 1355 to 1620, five miles, and the remaining 12 miles is under construction. The work is being done by the company.

Canadian Northern Ry.—Application was made recently to the Minister of Railways for approval of the route map for the projected line from Nipigon to Port Arthur. In 1908, a route map showing an entrance into Port Arthur was approved, but the present map shows a new location in that city along the waterfront. The city authorities object to this route on account of the shipbuilding and other industries along the water front. The route map was approved, subject to certain questions reserved for the decision of the Railway Commissioners.

Application is being made to the Board of Railway Commissioners for authority to build a spur line from Rue de Meuron, westerly to Tache Ave., St. Boniface.

During 1910, in addition to completing a cut-off, of 9.75 miles, near Kakabeka, Ont., the company laid 521.96 miles of new line, on 10 branch lines. The Oak Point branch line was completed for a further distance of 96.84 miles to Gypsumville, Man., the Greenway branch was carried 12.90 miles west of Adelpha, Man.; the Hallboro branch was completed to Beulah, 6.15 miles; on the Rossburn branch, 16.46 miles of track were laid west of Stornaway, Sask.; on the Maryfield branch, 88.81 miles of track were laid westerly from Lampman, Sask.; on the Goose Lake branch, 49.90 miles were laid westerly from Kindersley, Sask.; track was laid from Prince Albert to Shellbrook, Sask., 16.13 miles; on the Jack Fish Lake branch, track was laid from 22.9 between North Battleford to Meots,

Sask.; between Shellbrook and Big River, Sask., on the Crooked Lake branch, 56.95 miles; and on the Vegreville-Calgary line, from Ryley to Red Deer River, Alta., 155.23 miles. These lines represent 115.89 miles of additional branch lines in Manitoba, 250.84 miles in Saskatchewan, and 155.84 miles in Alberta.

Plans for the extension of the line into the Brazeau River coal fields, from Stettler, on the Vegreville-Calgary line, westerly, have been approved by the Alberta Government. The question of the building of this branch line came before the Dominion authorities, and the plans were not approved, but the company subsequently obtained an act for the construction of the line from the Alberta Legislature.

Canadian Northern Pacific Ry.—The first section of this line to be put under construction was one of 57 miles, from New Westminster Bridge to Popkum, B.C., the contract having been given to the Northern Construction Co., Vancouver. This contract was extended to cover an additional 20 miles from Popkum to Hope. The rest of the line from Hope to Yellow Head Pass, 425 miles, is under survey, the whole work being in charge of T. H. White, Chief Engineer. The grading is expected to be completed to Popkum by July 1, and that it will be so far ahead by March 1, that track laying will be started. The clearing of the 1,000 acre tract at Port Mann, is reported to be about one-fifth completed. The contractors for this work are Moore and Pethick.

In a recent interview, Sir Donald Mann said the company was preparing to make an early start on the numerous tunnels to be driven along the banks of the Fraser River between Yale and Kamloops. These will run from 700 to 2,700 ft. in length, aggregating 2.25 miles. It is expected that work will be prosecuted from both ends of each tunnel, and that the gangs will work in three shifts, so that the driving may be continuous.

Vancouver Island.—A contract for the building of the first section of the projected C.N.R. lines on Vancouver Island has been let to Grant, Smith & Co. The contract calls for the clearing, grubbing, fencing, grading, bridging, trestle work and masonry work from mileage 4.7 westerly from Victoria to mileage 25. The plans filed with the B.C. Government show that location surveys have been completed to Cooper Cove on Sooke Inlet, 25 miles from Victoria. The gradient is kept below 1.5%, and the curvature is not excessive. There are no exceptional engineering difficulties on the section, but there is a good deal of heavy rockwork for about 12 miles about mileage 17. A preliminary location survey has been made to mileage 90, from Victoria, at the west end of Cowichan Lake. (Jan., pg. 13.)

The Duluth, Winnipeg and Pacific Ry.'s extension, southerly through Minnesota to Duluth, is well under way. The work of putting up the steel bridges is going on, and it is expected to have the line completed this year. During 1910, there were laid about 25 miles of track on the extension out of Virginia Lake towards Duluth.

Minnesota and North Wisconsin Ry., Etc.—Press reports recently credited C.N.R. interests with having acquired a line running from International Falls, to Little Fork River, Minn., and the M. and N. W. Ry. running from Scanlan to Norwanna, on the first mentioned line, but we are officially advised that there is no truth whatever in the report.

J. Vanderburg, who died at St. Catharines, Ont., Jan. 6, aged 71, was the first Superintendent of the old Niagara Central Rd.

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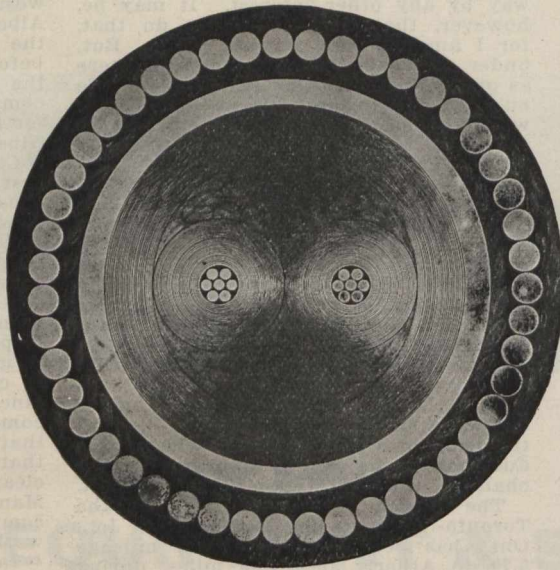
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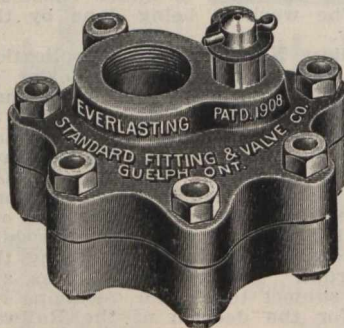
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Railway Finance, Meetings, Etc.

Alberta Ry. and Irrigation Co.—Approximate net profits from all sources, exclusive of land sales, for Nov. 1910, \$40,194, against \$52,211 for Nov. 1909. Cumulative net profits for five months ended Nov. 30, 1910, \$148,687. Railway traffic receipts for Dec. 1910, \$26,577, against \$28,432 for Dec. 1909. Cumulative traffic receipts for six months ended Dec. 31, 1910, \$186,164.

Algoma Central and Hudson Bay Ry.—There is being offered on the Paris, France, market, \$3,000,000 new first mortgage 5% bonds of this company at 463.50 francs per 515 franc bond.

Canadian Pacific Ry.—At the recent meeting of the Board, in Montreal, it was decided that in view of the position of the land account, and of the other extraneous assets of the company, the distribution from these sources, commencing with the payment of the next quarterly dividend, will be at the rate of 3% per annum, instead of 1%, as heretofore.

Canada Southern Ry.—The city of St. Thomas, Ont., is applying to the Legislature for authority to enter into agreements, from time to time, with the Canada Southern Ry. Co. and the Michigan Central Rd. Co., for the payment of a certain annual sum in commutation of its taxes on right of way, yards, lands, buildings and structures lying north of Wellington St.

Cumberland Ry. and Coal Co.—A meeting of shareholders will be held in Montreal Feb. 15, to authorize the directors to issue bonds for \$3,000,000, secured by a trust mortgage on all the assets, present and future. The shareholders will also elect directors, pass bylaws, and transact such other business as may be done at a special general meeting.

Dominion Atlantic Ry.—Gross earnings for Nov., 1910, \$99,000, against \$112,021 for Nov., 1909; aggregate gross earnings for five months ended Nov. 30, 1910, \$687,806, against \$723,844 for same period 1909.

London and Port Stanley Ry.—The receipts for the first nine months of 1910 were \$13,800.52, made up as follows: rental, \$7,500; interest as rental, \$1,353.07; percentage of earnings, \$4,947.45; The disbursements were \$333.96, against which was set \$125 received for sale of an old shed at Port Stanley, leaving net disbursements of \$208.96. This makes the net receipts \$13,591.56. There was \$2,500 due as rental, which, together with the percentage of earnings, will bring the total income for the year to \$18,000, the same as in 1909. The rental was adopted, and the board will in the ordinary course turn over the cash to the London city treasurer.

Maritime Coal, Ry. and Power Co.—At the last meeting of directors it was stated that the railway as well as the electric part of the company's undertakings showed greatly increased earnings.

New Brunswick Southern Ry.—A duplicate of the lease of the line to the C.P.R., dated Oct. 6, 1910, has been deposited with the Secretary of State at Ottawa.

Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.—The order in the action of writ and statement made in the action of Russell against Green-shields to recover \$1,250,000 damages, has been set aside. The action has to do with some dealings with the Q., L.L. and S. Rd. and S. Co.'s land grant, in which the plaintiff and defendant were interested, and Russell alleges that Green-shields received a secret profit out of the settlement, which Russell says in his statement "was based on a breach of his duty by the defendant as such partner" in assenting to the arrangement.

Quebec and Lake St. John Ry.—Traffic receipts for Dec., 1910, \$48,525.52, against \$42,578.67 for Dec., 1909. Aggregate receipts for twelve months ended Dec. 31, 1910, \$608,979.38, against \$593,562.78 for same period 1909. The mileage operated during both years was 285, the earnings per mile being \$2,145.12 in 1910, and \$2,089.21 in 1909.

Quebec Central Ry.—Press reports recently stated that the New York, New Haven and Hartford Rd. were negotiating for a controlling interest in the Q.C.R. In connection with this report J. H. Walsh, General Manager, stated in an interview that the British shareholders were well satisfied with the prospects of the company, and would not dispose of their interests.

Quebec Central Ry.—Gross earnings for Nov., 1910, \$84,197.44; expenses, \$59,557; net earnings, \$24,640.44, against \$84,875.51 gross earnings; \$59,838.06 expenses; \$25,037.45 net earnings for Nov., 1909. Aggregate gross earnings for five months ended Nov. 30, 1910, \$545,881.49; expenses, \$352,052.69; net earnings, \$193,828.80, against \$498,036.93 aggregate gross earnings; \$325,508.78 expenses; \$172,528.15 net earnings for same period 1909.

Quebec Southern Ry.—F. D. White, Rutland, Vt., and the estate of the late H. A. Hodge, Greenwich, Conn., have entered suit in the Connecticut courts to recover \$2,500,000 damages against R. Sutro, W. Seward Webb and others who were associated with them in a transaction involving the purchase of the Q.S.R. White and Hodge were interested prior to the Sutro-Webb interests acquiring the line, and it is alleged that the failure of the company to meet its obligations in Mar., 1904, was the result "of the acts of the defendants and others who conspired with them." and that the subsequent sale under an order of the Exchequer Court, caused the plaintiffs damage to the amount claimed.

Red Mountain Ry.—The discharge of a mortgage given by the company July 1, 1896, to the Manhattan Trust Co., to secure an issue of debenture stocks, has been deposited in the office of the Secretary of State at Ottawa.

St. Maurice Valley Ry.—A duplicate of the lease of the line to the C.P.R., dated Oct. 6, 1910, has been filed with the Secretary of State, Ottawa.

Temiscouata Ry.—Profit for Oct., 1910, \$4,897, against \$4,835 for Oct., 1909; cumulative profit for ten months ended Oct. 31, 1910, \$39,668, against \$44,934 for same period 1909.

Regulations re Passenger Car Lighting.

The Board of Railway Commissioners passed the following order, 12542, Dec. 9:

1. The gas generally known as Blaugas may be used for the purpose of lighting railway passenger cars, upon and subject to the terms and conditions following, namely: The gas to be used in tanks below cars similar to those now in use for storage of Pintsch gas and Commercial acetylene gas; the tanks to be tested and tight at 300 lbs. pressure to the square inch, and stand such tests without distortion. Provided that in the case of railway companies having in use at the date of the issue of this order tanks tested to a pressure not exceeding 294 lbs. to the square inch, it shall be sufficient that the said tanks be tested and tight at 290 lbs. pressure to the square inch and stand such test without distortion. The maximum working pressure to be 150 lbs. to the square inch. Every gas tank attached to a railway car to have six three-eighths holes drilled in it, to be countersunk seven-eighths inch in diameter and one-eighth inch

deep, in which brass disc shall be tinned and soldered; the disc to stand a pressure of 200 lbs. to the square inch and tanks to be placed on the cars with disc side up. Holes to be located as described in sketch attached.

That in addition to the foregoing, every gas tank attached to a railway car must be equipped with an extra heavy stud valve, securely fastened to every such tank.

That the equipment necessary for the installation of the said system be provided with: a pressure gauge with a dial reading either from 1 lb. to 300 lbs., or reading by atmosphere from zero to 15 atmospheres, to show the exact pressure of gas carried. A recharging valve attached to the charging station hose. A regulating valve, to reduce the pressure of gas contained in the tank before it enters the main line piping or the lamps on the car.

That all piping between the regulating valves and stud-valves be of extra heavy, seamless steel or iron tubing; and that all elbows or tees be of extra heavy material, provided that heavy flange brass fittings may be used in lieu of such equipment.

That the high-pressure piping and fittings be carefully threaded before being screwed together; the pipe thread to be carefully tinned after being screwed up, and the piping to be sweated to the fittings.

That standard tubing be used to connect the low-pressure side of the regulating valve with the lamps of the cars, and that a main-line cock, to turn on and off the gas, be placed on the inside of each car, in a convenient and conspicuous location.

That, in order to locate leakages, soap suds be used, and that lighted matches or torches be not used for this purpose.

That printed regulations, defining and explaining the use of the system, be posted inside of each car, in close proximity to the main-line cock; and that a tank stud-valve key, a main-line cock key, and such other keys as may be necessary for the use and operation of this equipment, be supplied to and always carried by, every conductor and brakeman while on duty in charge of any train or cars provided with this equipment, and that the regulations required by this section be posted up, state that such keys are in the possession of the conductor and each brakeman on the said trains or cars. That every car lighted by this system be placed under the charge of a competent and reliable employe of the railway company using such system—every such employe to be specially instructed in regard to the proper working and operating of the said system.

Taxation of Railways.—For the year ended June 30, 1910, Canadian railways paid \$1,792,648.83 in taxes, an increase of \$211,312.24 over the previous year. Of this, 121,933.17 represented outside operations. The amounts collected in the different provinces were:—Ontario, \$747,004.78; Quebec, \$337,490.05; British Columbia, \$220,687.32; Saskatchewan, \$161,575.45; Manitoba, \$92,476.48; Alberta, \$87,423.93; Nova Scotia, \$16,762.66; Yukon, \$5,896.64; New Brunswick, \$1,298.35; Prince Edward Island, \$100.

The Kingston and Cape Vincent Stage Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$3,000, and office at Kingston, Ont., to carry on the business of forwarding mails, express goods, passengers and freight, between Kingston, Ont., and Cape Vincent, N.Y., and intermediate places. The provisional directors are H. E. Richardson, W. Aubin, T. Mills, Kingston; W. Horne, Wolf Island tp., Ont.

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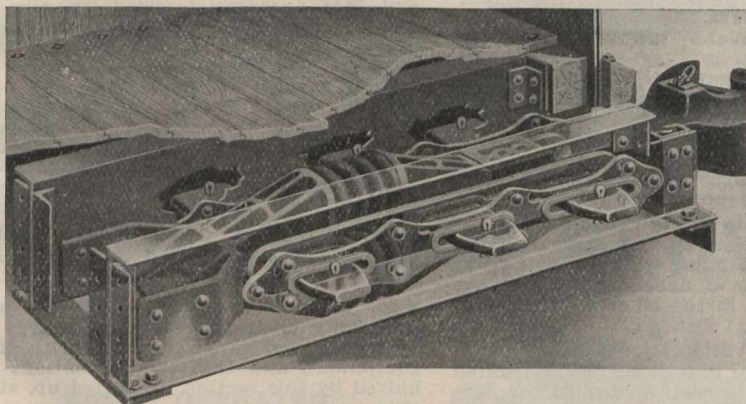
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NOTICE TO ADVERTISERS.

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

TORONTO, CANADA, FEBRUARY, 1911.

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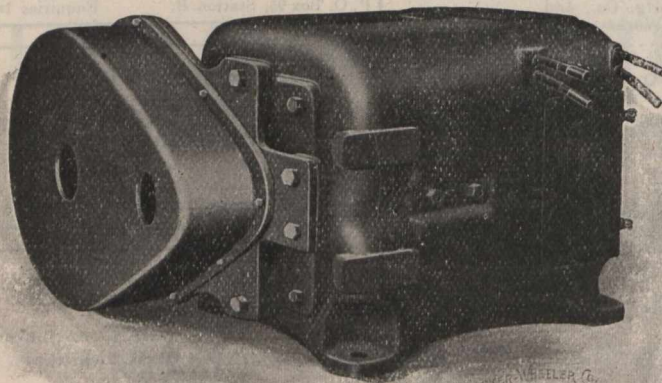
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Railway Commissioners' Traffic Orders.

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

RATES ON SUGAR BEETS.

12435. Oct. 14.—Re Michigan Sugar Co. of Crosswell, Mich., under secs. 315, 317 and other provisions of the Railway Act, for an order directing the Chatham, Wallaceburg & Lake Erie Ry. to adopt a tariff that will provide for the carriage of sugar beets over its line at a rate that is not excessive, and that does not discriminate against the applicant in favor of any other person or company: It is ordered that the application be dismissed. And it is further ordered that any joint tariff to cover this traffic to be moved during 1911 from points on the C.W. & L.E.R. to Crosswell, higher than the joint tariff at present in force, shall be filed and published, so as to be effective not later than May 1, 1911.

RATES ON WHITE PASS AND YUKON ROUTES

12512. Dec. 15.—Re complaint of J. H. Conrad, alleging excessive freight rates charged by White Pass & Yukon Route on ores from Caribou to Skagway, and on mining machinery and camp supplies from Skagway to Caribou: It appearing that the White Pass & Yukon Route and the British Yukon Ry. have refused to permit applicant to load ore, as has been hitherto permitted, and upon counsel for applicant undertaking to forthwith make an application for the construction of an industrial siding at or near the point in question, it is ordered that the W.P. & Y. Route and the B.Y.R., their officers and agents, do permit the applicant, his servants and agents, to load ore for shipment upon the line of the said railway companies at or near the point at which the applicants, his servants and agents, had been permitted by the railway companies in the past to load the said ore, upon the lines of the said railway companies at or near Caribou Crossing, until the application for the said industrial siding is disposed of or the same is constructed.

2. That the said railway companies, their officers or agents, shall be liable to forfeit and pay a penalty of one hundred dollars (\$100.00) per day for each and every day that the applicant, his servants or agents, are not permitted to load ore at the point in question where the like privilege has been granted to the said applicant, his servants or agents, in the past.

RATES FROM THE EAST TO SASKATCHEWAN.

12520. Dec. 10.—Re application of city of Regina, Sask., under sec. 314 and 319 of the Railway Act, for order directing reduction in rates on classes 1 to 10 on goods shipped from Eastern Canada to Regina. Upon hearing the application at Regina and Winnipeg on Nov. 8 and 15, 1909, in the presence of counsellors, Canadian Northern, and Grand Trunk Pacific Railway Companies, the Moose Jaw and Winnipeg Boards of Trade being represented, and upon the report of the Chief Traffic Officer of the C.N.R., it is ordered that the C.P.R. and G.T.R. publish and file new freight tariffs, to take effect not later than April 1, 1911, removing the discrimination at present existing in the tariffs to points from Fort William, Port Arthur and other points west thereof, by reducing the rates from Fort William, Port Arthur and points east thereof, to Regina and Moose Jaw and other points west of the said favored points.

In the case of the Edmonton Board of Trade vs. the Canadian Pacific and Canadian Northern Railways, the Chief

Commissioner gave the following decision under date of Dec. 21, 1910:—"This case is governed by the order made in the Regina Board of Trade case. That order required the companies to remove existing discrimination by reducing rates from Fort William and Port Arthur to Regina and other points west of the favored points. The latter were the points that enjoyed rates upon the Winnipeg basis. To comply with that order rates to Edmonton must be reduced as asked in this complaint. This follows without the necessity of issuing a formal order, unless requested by applicants."

GRAIN RATES FROM BUCHANAN, SASK.

12653. Dec. 28, 1910.—Re order 12413, May 12, 1910, made upon the application of G. Taylor, of Winnipeg, and declaring that under the Canadian Northern Ry.'s tariff applying to a shipment of grain by complainant from Buchanan, Sask., to Headingley, Man., the rate properly chargeable was 17c. per 100 lbs. Upon the report of the Board's Chief Traffic Officer that his recommendation that complainant was entitled to a refund of 1c. per 100 lbs. on the said shipment was based on a new tariff issued by the C.N.R. subsequent to the shipment, and that the rate charged was in accordance with the tariff in effect at the time of shipment. It is ordered that order 12413, May 12, 1910, be rescinded.

RATE ON BRICK, LAPRAIRIE TO MILE END.

12655. Sept. 20, 1910.—Re application of W. S. Tilston, Manager Montreal Board of Trade Transportation Bureau, on behalf of the Laprairie Brick Co., Ltd., for an order prescribing a joint through rate of 3c. per 100 lbs. on brick from Laprairie to Mile End, Que. Upon hearing the application in the presence of counsel for the C.P.R. and G.T.R., it is declared that the application falls within the terms of the general inter-switching order 4938, July 8, 1908.

RATES ON FINNAN HADDIES.

12674. Dec. 20, 1910.—Re application of Maritime Fish Corporation of Digby, N.S., complaining of increased rates charged by Dominion Atlantic Ry. on shipments of finnan haddies between Digby, N.S., and St. John, N.B. It is ordered that in the present Canadian Classification no. 15, finnan haddies are included in the description "Salted, dried or smoked fish," which, when shipped in bundles or boxes, is rated 3rd class in less than carloads, and 5th class in carloads, and that any rates charged for the carriage of finnan haddies, in bundles or boxes, higher than 3rd class in less than carloads, and 5th class in carloads, as shown in the tariffs published and filed, are unlawful.

WHITE PASS AND YUKON RY. RATES.

12783. Jan. 18.—Re order 7246, June 16, 1909, made upon application of Board of Trade of Dawson, Yukon, directing the British Yukon Ry., the British Columbia Yukon Ry. Co., the Pacific and Arctic Ry. and Navigation Co., and the White Pass and Yukon Ry. to file with the Board (1) tariffs of the companies tolls covering all through traffic received at Skagway and destined to White Horse, or to any intermediate point or points between the International boundary line between Alaska and British Columbia, upon the line of railway, and White Horse; (2) covering all through traffic received at any point or points upon the railway line between White Horse and the said International boundary, and destined to Skagway. And re the tariffs filed in pursuance thereof:

It is ordered that the Joint Freight Tariff C.R.C. 9, giving the rates charged by the respondent companies on the various descriptions of freight traffic specified therein between Skagway, Alaska

and White Horse, Yukon, and intermediate stations in B.C. and Yukon Territory, be disallowed. That the one-way passenger fares published in the respondent companies Joint Passenger Tariff C.R.C. 3, to apply between Skagway, Alaska, and stations in B.C. and Yukon Territory to and including White Horse, be disallowed; and the respondent companies be directed to substitute therefor joint tariffs of freight and passenger tolls based on a reduction of at least one-third in each case from the freight and passenger tolls shown in the tariffs, which are hereby disallowed, the substituted tariffs to become effective not later than April 1, 1911, the reduced freight and passenger tolls to be the maxima to be charged by the respondent companies between Skagway and the said stations. And it is also ordered that freight and passenger tolls (if any) now existing, lower than the tolls hereby ordered, shall not be increased by reason of this order.

Nova Scotia Steel and Coal Co., Ltd.

Following is a return of the company's output for 1910 and 1909, the figures showing a considerable increase in the past year:

	1910.	1909.
Iron ore mined	537,000	460,387
Coal mined	845,000	813,453
Limestone and doleomite...	75,000	74,407
Coke made	90,000	87,816
Pig iron made	66,000	57,676
Steel ingots cast	75,000	64,210
Steel billets cogged	59,000	52,931
Bars and plate rolled	49,000	45,090
Axles forged	38,000	27,703
Shipments finished steel and forgings	60,200	58,515
Average number employees	5,276	4,450
Steamers employed	18 to 20	15 to 20
Tons freighted	1,000,000	925,000

Loading on Industrial Sidings.—In reference to the joint circular issued by railways in the Maritime Provinces, Quebec and Ontario, on Oct. 15, 1910, stating that on and after Jan. 1, 1911, the practice of loading less than carload freight on industrial sidings would be discontinued, another circular has been issued stating that in view of the number of requests which have been received from shippers and others, to postpone the effective date of this regulation, and in order that all concerned may complete arrangements for compliance therewith, the effective date thereof is postponed until July 1.

The Engineers Club of Montreal has decided to enlarge its club house on Beaver Hall Square, at a cost of \$92,500, the increase of the membership to 425 having rendered the present premises too small. The plans, which have been accepted, provide for an almost complete remodelling of the present buildings, the construction of a new dining room and billiard room, new card rooms, additional bed rooms, and a ladies dining room and reception room, a library and reading room. When completed it will be one of the finest club buildings in Canada. Nearly \$20,000 is also to be expended for new furniture, fittings, etc.

The Shepard Morse Lumber Co., Ottawa, has received one four wheel locomotive from the Montreal Locomotive Works.

The Canadian Quarries and Construction Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$2,000,000, and office at Ottawa, to carry on a general construction and quarrying business, and in connection therewith to build, own and operate wharves, docks, canals, tramways, sidings, steam and other vessels, and other transportation facilities. The incorporators are J. Black, R. T. Mullin, Montreal; S. Bilsky, G. C. Hurdman and J. O. Carss, Ottawa.

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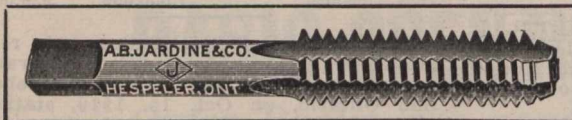
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TRANSPORTATION APPOINTMENTS.

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.

Canadian Northern Ry.—G. H. Shaw, heretofore Traffic Manager, Winnipeg, has been appointed General Traffic Manager, with jurisdiction also over the allied lines: Canadian Northern Ontario Ry., Canadian Northern Quebec Ry., Quebec and Lake St. John Ry., Inverness and Richmond Ry., Halifax and South Western Ry., Duluth, Rainy Lake and Winnipeg Ry., and the Canadian Northern Steamships, Ltd. Office, Toronto.

G. D. Lindsay has been appointed Travelling Freight Agent, Toronto, vice C. H. Green, transferred to Hamilton, Ont., as advised in our last issue.

J. H. McKinnon, heretofore Travelling Passenger Agent, Toronto, has been appointed Commercial Agent, vice W. E. Dunn, resigned. Office, St. Paul, Minn.

W. A. Kirkpatrick, heretofore in the General Superintendent's office, Winnipeg, in charge of matters concerning transportation, has been appointed Operating Inspector, reporting to the General Superintendent, Winnipeg.

D. Robinson has been appointed Sleeping and Dining Car Agent, vice J. S. McKay, resigned. Office, Prince Albert, Sask.

E. P. Davis, K.C., heretofore Counsel for C.P.R. at Vancouver, has been appointed Counsel and Solicitor C.N.R. for the B.C. mainland. Office, Vancouver.

Canadian Pacific Ry.—A. E. Griggs has been appointed Bridge and Building Master District 1, Atlantic Division, vice C. L. Clarke, superannuated. Office, Fredericton Jct., N.B.

The New Brunswick Southern Ry., having been taken over by the C.P.R., it will be operated as the Shore Line subdivision of District 1, Atlantic Division. W. B. Brown, Chief Dispatcher and Trainmaster District 1, has supervision of same, with office at St. John, N.B.

N. E. Lister, heretofore Roadmaster N.B.S. Ry., has been appointed Assistant Roadmaster District 1, C.P.R., acting under J. A. Miller, Roadmaster at McAdam Jct.

J. N. Currie, heretofore Bridge and Building Master N.B.S. Ry., has been appointed Assistant Bridge and Building Master, acting under A. E. Griggs, Bridge and Building Master, Fredericton Jct., N.B.

A. W. Horsey, heretofore District Master Mechanic, Districts 2 and 4 Eastern Division, Smiths Falls, Ont., has been appointed District Master Mechanic District 1, vice D. L. Jones, transferred to the Atlantic Division. Headquarters, Farnham, Que.

On Jan. 1 a circular, signed by Sir Thos. G. Shaughnessy, was issued, appointing J. E. Schwitzer, theretofore Assistant Chief Engineer Western Lines, Winnipeg, to be Chief Engineer of the company, with office at Montreal. Mr. Schwitzer left Winnipeg Jan. 8 to assume the duties of his new position, but was taken ill whilst en route, and died of pneumonia, at Montreal, Jan. 23. The appointment of a successor is not likely to receive consideration for some time to come.

J. W. Leonard, heretofore General Manager Eastern Lines, in charge of maintenance and operation, has been appointed Assistant to the Vice President, Office, Montreal. Mr. Leonard will, it is said, principally attend to matters arising between the company and its maintenance and operating employes on its eastern lines, especially as regards wages and other terms of employment.

F. P. Gutelius, heretofore General Superintendent Lake Superior Division, North Bay, Ont., has been appointed

General Superintendent Eastern Division, vice C. Murphy, appointed General Superintendent of Transportation. Office, Montreal.

F. W. Ellingwood is reported to have been appointed superintendent in charge of construction of the Windsor St. station, and also the Place Viger terminal, Montreal.

T. Collins, Assistant Superintendent District 2, Eastern Division, is reported to have been appointed also Assistant Superintendent District 4, Eastern Division, vice R. W. McCormick, transferred to Farnham, Que. Office, Smiths Falls, Ont.

J. M. Burke, heretofore District Master Mechanic District 1, Atlantic Division, Brownville Jct., Me., has been appointed District Master Mechanic Districts 2 and 4, Eastern Division, vice A. W. Horsey, transferred. Headquarters, Smiths Falls, Ont.

J. G. Taylor, heretofore Superintendent District 1, Alberta Division, Medicine Hat, has been appointed General Superintendent Lake Superior Division, vice F. P. Gutelius, transferred to Montreal. Office, North Bay, Ont.

A. R. Holland, conductor, has been appointed acting Trainmaster at District 1, Manitoba Division, during the absence of H. J. Coffin, acting as Relieving Superintendent District 2, Saskatchewan Division, at Saskatoon, Sask. Office, Kenora, Ont.

When the appointment of J. E. Schwitzer, as Chief Engineer, was made on Jan. 1, it was also announced that he would be succeeded as Assistant Chief Engineer Western Lines, by J. G. Sullivan, theretofore Assistant Chief Engineer Eastern Lines. Consequent on Mr. Schwitzer's fatal illness, Mr. Sullivan did not leave for Winnipeg, as intended, but we were advised Jan. 27 that he would go there early in February.

A. Doull has been appointed Roadmaster Ignace subdivision District 1, Manitoba Division, vice J. Esselmont, transferred to the Pacific Division. Office Kenora, Ont.

In announcing the appointment of T. Fawcett, as General Fuel Agent Western Lines, Winnipeg, in our last issue, we gave his previous position as Trainmaster at Calgary, Alta. This should have read, Paymaster.

R. Lockhart has been appointed Assistant Superintendent Sleeping, Dining and Parlor Cars and News Service, Manitoba Division, vice S. A. Simpson, promoted. Office, Winnipeg.

H. E. Haanel has been appointed Trainmaster District 3, Manitoba Division, vice P. F. Weisbrod, transferred. Office, Brandon, Man.

H. J. Coffin, Trainmaster District 1, Manitoba Division at Kenora, Ont., has been appointed acting Superintendent District 2, Saskatchewan Division, during the absence of E. L. Chudleigh, Superintendent, on leave. Office Saskatoon, Sask.

S. A. Simpson, heretofore Assistant Superintendent Sleeping, Dining and Parlor Cars and News Service, Manitoba Division, Winnipeg, has been appointed Superintendent same service, Saskatchewan Division, vice R. H. Pierce. Office, Moose Jaw, Sask.

W. G. McPherson, has been appointed Night Locomotive Foreman at Moose Jaw, Sask., vice H. Bealle, who has been given a position as hostler there.

J. McQuarrie, heretofore shop foreman, Medicine Hat, Alta., has been appointed Locomotive Foreman, Sutherland, Sask., vice M. W. Boucher, transferred to Hardisty, Sask.

A. S. Dawson has been appointed Chief Engineer in charge of surveys, designs and construction of the irrigation project and establishment of all standards for renewals and betterments distributing system. Office, Calgary,

in maintenance of completed canals and Alta.

A. J. Macdonnell has been appointed Assistant Superintendent Sleeping, Dining and Parlor Cars and News Service, Alberta Division. Office, Calgary, Alta.

H. McDonald, heretofore fitter in Lethbridge shops, Alta., has been appointed shop foreman there, vice M. A. Cardell, transferred.

M. A. Cardell, heretofore shop foreman at Lethbridge, Alta., has been appointed shop foreman at Medicine Hat, Alta., vice J. McQuarrie, appointed Locomotive Foreman at Sutherland, Sask.

M. W. Boucher, heretofore Locomotive Foreman, Sutherland, Sask., has been appointed Locomotive Foreman, Hardisty, Alta., vice W. G. McPherson, assigned to other duties.

J. Daem has been appointed Assistant Roadmaster, Rogers Pass, B.C. This is a new position. He will particularly attend to the snow service at Rogers Pass and vicinity reporting to Roadmaster Nicholls at Revelstoke.

M. K. McQuarrie has been appointed Resident Engineer District 1, British Columbia Division, vice J. P. Forde, resigned. Office, Revelstoke.

P. F. Weisbrod heretofore Trainmaster District 3, Manitoba Division, Brandon, has been appointed Trainmaster, District 3 Alberta Division, vice J. A. Kennedy, assigned to other duties. Office, Cranbrook, B.C.

J. Esselmont, heretofore Roadmaster Ignace subdivision, District 1, Manitoba Division, Kenora, Ont., has been appointed Roadmaster Cascade subdivision, Pacific Division, vice H. Vollans, assigned to other duties. Office, Vancouver, B.C.

C. L. Williams has been appointed General Agent, Passenger Department, Pittsburgh, Pa.

T. G. Orr, Travelling Passenger Agent, Pittsburgh, Pa., has resigned.

The company has opened its own office in Paris, France, at 1 Rue Scribe, in charge of Augustus Catoni, as agent, who will report to the General Freight Agent and the General Passenger Agent, London, Eng., with regard to freight and passenger matters respectively.

Grand Trunk Pacific Ry.—H. H. Hansard has been appointed Assistant Solicitor. Office, Winnipeg.

R. J. Foreman, heretofore chief clerk Freight Department, Winnipeg, has been appointed Assistant General Freight Agent. Office, Winnipeg.

Jas. Gorman, heretofore Inspector of Dining and Sleeping Car Service, Winnipeg, has been appointed Superintendent of Dining and Sleeping Cars, reporting to the General Passenger Agent. Office, Winnipeg.

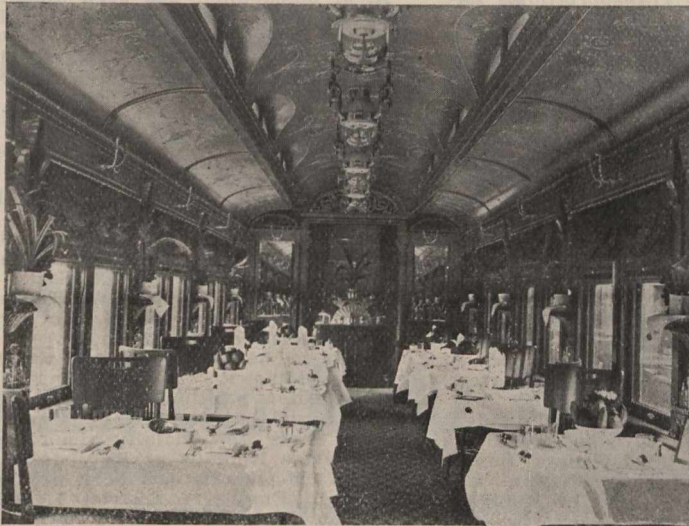
Grand Trunk Ry.—H. M. Gain has been appointed Passenger Trainmaster, Eastern Division, to supervise the movement of passenger trains. He will report to, and receive his instructions from, the Superintendent. No change will be made in the present practice of making reports to Assistant Superintendents and Trainmasters. Office, Montreal.

S. L. Trusler, heretofore Assistant Trainmaster at Hamilton, Ont., has been appointed Passenger Trainmaster Middle Division, to supervise the movement of passenger trains. Office, Toronto.

W. J. Little, heretofore conductor, has been appointed Passenger Trainmaster Northern Division, to supervise the movement of passenger trains. Office, Allandale, Ont.

H. W. Matthews, has been appointed Passenger Trainmaster, Western Division, to supervise the movement of passenger trains. Office, Detroit, Mich.

Intercolonial Ry.—W. E. Barnes, heretofore Roundhouse and Locomotive Inspector, Moncton, N.B., has been appointed acting Master Mechanic, Eastern Division, vice J. Stewart, assigned to other duties. Office, Moncton, N.B.



The Price, Quality and the Service

of meals on an INTERCOLONIAL RAILWAY DINING CAR

are frequently commented upon
AND ALWAYS FAVOURABLY

Through dining cars between Montreal and Halifax and
on the Sydney run between Halifax and Antigonish

Table d' Hote

Breakfast, 75 cents

Luncheon, 75 cents

Dinner, \$1.00

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.

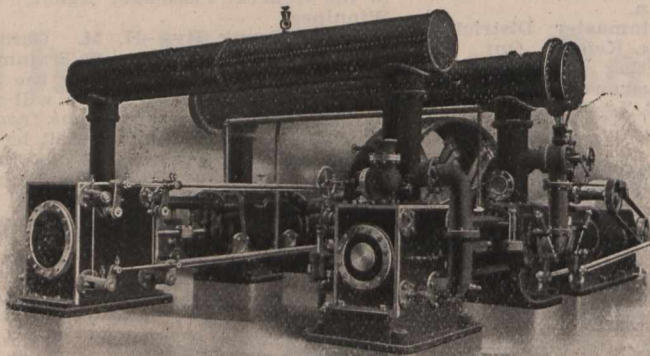
THE LESSON

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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Cross Compound Corliss Steam and
Two Stage Air Cylinders

The Class "RR 3" is one of the Rand new types and embodies every new and up-to-date improvement.

Some of its notably good features are the enclosed dust-proof frames, flood lubrication, improved steam and air cylinders and massive construction throughout.

Canadian RAND Co., Limited

COMMERCIAL UNION BUILDING, MONTREAL, QUE.

Offices at: TORONTO

COBALT

WINNIPEG

ROSSLAND

VANCOUVER

HALIFAX

Michigan Central Rd.—The following organization of the Freight Traffic Department became effective Jan. 1:—J. Webster and W. A. Terry, Assistant Freight Traffic Managers, Chicago, Ill.; W. C. Rowley, General Freight Agent, G. M. Weaver, Assistant General Freight Agent; C. C. Griggs, Chief of Freight Bureau; W. S. Crowl, Industrial Agent, Detroit Mich.; H. Bromley, General Coal and Ore Agent, Cleveland, Ohio, H. M. Griggs, Assistant General Coal and Ore Agent, Chicago, Ill., W. C. Lewis, Division Freight Agent, Chicago, Ill., to Niles, Mich., and Joliet Division, Chicago Ill.; J. H. Brown, Division Freight Agent, Leslie to Bay City, Mich., Mackinaw Division and branches, and Midland Division, Bay City, Mich.; G. C. Ransom, Division Freight Agent, stations east of Detroit and St. Clair Rivers, and St. Clair to Lenox, Mich., inclusive, Buffalo, N.Y.; E. A. Treadway, Division Freight Agent, South Bend, Ind., to St. Joseph, Mich., Kalamazoo to South Haven, Mich., Allegan to Yorkville, Mich., Jackson to Grand Rapids, Mich., and Jackson to Rives Jct., Mich., Grand Rapids, Mich.

L. W. Landman, heretofore General Passenger Agent Lake Erie and Western Rd., Indianapolis, Ind., has been appointed General Passenger Agent M.C.R. vice O. W. Ruggles, assigned to other duties on account of ill health. Office, La Salle St. Station, Chicago, Ill.

New Brunswick Southern Ry.—See Canadian Pacific Ry.

New York Central Lines.—E. F. Major has been appointed City Ticket Agent, Montreal, vice A. F. Gogo, transferred.

Pere Marquette Rd.—W. K. Tasker, Superintendent of Telegraphs, is reported to have been appointed Superintendent Canadian Division, vice J. S. Pyeatt, transferred to the Grand Rapids Division, Mich. Office, Detroit, Mich.

R. S. Black, heretofore chief dispatcher, Detroit, Mich., is reported to have been appointed Trainmaster Canadian Division, vice J. R. Gilhula, resigned. Office, St. Thomas, Ont.

Reid Newfoundland Co.—A. Spence, heretofore Chief Dispatcher, has been appointed Travelling Auditor. Headquarters St. John's, Nfld.

G. Cobb has been appointed Chief Dispatcher, vice A. Spence, promoted. Office, St. John's, Nfld.

Rutland Rd.—A. F. Gogo, heretofore city ticket agent New York Central Lines, Montreal, has been appointed Travelling Passenger Agent, R. Rd., vice J. M. Ferris, resigned. Headquarters, 220 St. James St., Montreal.

Temiscouata Ry.—J. H. Walsh, heretofore Vice President Temiscouata Ry., and General Manager Quebec Central Ry., has been elected President Temiscouata Ry., vice F. Grundy, deceased. The position of Vice President has been left vacant.

Temiskaming and Northern Ontario Ry.—T. Ross, heretofore acting Master Mechanic, has been appointed Master Mechanic. Office, North Bay, Ont.

Wabash Rd.—Jno. Maloney, heretofore station passenger agent, has been appointed General Agent Passenger Department, Buffalo, N. Y., vice G. D. Maxfield, promoted.

G. D. Maxfield, heretofore General Agent Passenger Department, Buffalo, N.Y., has been appointed District Passenger Agent, Indianapolis, Ind., vice R. G. Thompson, promoted.

The Montreal St. Ry. has asked the city council to appoint special constables to see that the city bylaws respecting slow moving traffic are enforced. The company complains that on account of the slow moving traffic keeping to the tracks, considerable delay is occasioned in the operation of cars, with consequent annoyance to passengers.

Death of J. E. Schwitzer.

Inexpressibly sad was the death of J. E. Schwitzer, B.A.Sc., M. Can. Soc. C.E., in Montreal, Jan. 23, of pneumonia. On Jan. 1 Sir Thomas Shaughnessy issued a circular announcing his promotion from Assistant Chief Engineer of Western Lines to the Chief Engineership of the whole system, with office at Montreal. Mr. Schwitzer left Winnipeg Jan. 8 for Montreal, with Vice President Whyte, who went for his annual appropriation conference with the President, the estimates for which had been prepared by Mr. Schwitzer. Very soon after their arrival in Montreal Mr. Schwitzer was taken ill and was taken to the Royal Victoria Hospital Jan. 16. At first it was thought he was suffering from typhoid, but later it was diagnosed as pneumonia. Mrs. Schwitzer was sent for and reached Montreal only a few days before he died.

He was born at Ottawa, Ont., Apr. 19, 1870. During his undergraduate days and at intervals of private practice and general survey and engineering work, he was engaged in the following railway works: 1888, rodman on location of Vaudreuil



and Ottawa Ry. and Lake Temiskaming Colonization Ry.; 1889, assistant engineer of construction Lake Temiskaming Colonization Ry.; 1891 to Feb. 1892, assistant Engineer on location and construction Ottawa and Gatineau Ry.; July 1893 to Jan. 1894, assistant engineer in charge of location and construction, Ottawa, Arnprior and Parry Sound Ry.; Feb. 1894 to Dec. 1906, in addition to continuing the same position, he was engineer in charge of Central Counties Ry. from South Indian, for Canada Atlantic Ry., and on surveys Hull Electric Ry.; July 1899 to Nov. 1900, engineer in charge of construction C.P.R. yards at Rat Portage, Ont.; Nov. 1900 to Nov. 1901, assistant engineer in charge of maintenance of Way, C.P.R., Winnipeg; Nov. 1901 to Mar. 1903, Resident Engineer C.P.R., Winnipeg; 1903 to Feb., 1907, Principal Assistant Engineer, C.P.R., Winnipeg; Feb., 1907 to Jan. 1, 1911, Assistant Chief Engineer, Western Lines, C.P.R., Winnipeg. He was entertained to dinner at Winnipeg Jan. 6, by a number of the officials, on his leaving for the east.

Mr. Schwitzer's death has caused the greatest regret, not only in C.P.R. circles,

but through the engineering profession generally and especially in the west, where he has been so well known for a number of years. Sir Thomas Shaughnessy said:—"It is impossible to put into words the great loss the company has sustained in the death of Mr. Schwitzer, but it is even harder to speak of the loss to his personal friends, who have watched his progress. Personally and officially I can say that he cannot be replaced."

The funeral took place at Ottawa, Jan. 27, when a special train from Montreal was provided. A number of officials of the system attended, including several from Vancouver, Winnipeg and other western points. At the various C.P.R. offices throughout the Dominion flags were flown at half mast, and the room in which the Canadian Society of Civil Engineers was holding its annual meetings, in Winnipeg, was suitably draped.

Passenger Meetings at Rochester.

For the first time in the history of the Niagara Frontier Summer Rate Committee, the Great Lakes and St. Lawrence River Rate Committee, and the International Water Lines Passenger Association, they held their annual meetings in Rochester, N.Y., in January. Usually the meetings have been held in Buffalo, N.Y., Niagara Falls, Ont., Toronto or Montreal. The rate clerks of all the lines east of a line drawn through Buffalo and Pittsburg convened under the direction of Jas. Morrison, Secretary of the Niagara Frontier Rates Committee, on Jan. 17 and 18, and agreed on rates to all interested points. These rates will be tendered to all lines west of Buffalo, for basing purposes. On the afternoon of Jan. 17 the Great Lakes and St. Lawrence River Rate Committee met and revised the rates in which the water lines and rail lines were jointly concerned.

The International Water Lines Passenger Association, comprising 46 water transportation companies—practically all the representative lines of Canada and the U. S., met Jan. 19. W. M. Lowrie, retiring President, was presented with a gavel, the head of which, bound with a silver band, is a piece of live oak from the Merrimac, which was sunk by the Monitor in Hampton Roads. The handle was made from one of the stanchions of the duplicate of the original of Robert Fulton's Clermont, which was in collision with the duplicate of Henry Hudson's Half Moon at the Hudson-Fulton Exhibition.

The three associations elected officers as follows:—

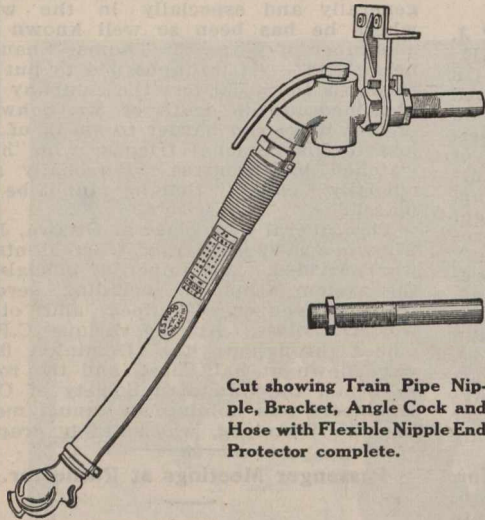
NIAGARA FRONTIER RATE COMMITTEE.—Chairman, D. N. Bell, A.G.P.A., Pennsylvania Rd.; Secretary, J. Morrison, Chief Rate Clerk, C.P.R.

GREAT LAKES AND ST. LAWRENCE RIVER RATE COMMITTEE elected the following:—J. de C. Hepburn, Assistant Manager, Ontario & Quebec Navigation Co.; Secretary, J. Morrison, Chief Rate Clerk C.P.R.

INTERNATIONAL WATER LINES PASSENGER ASSOCIATION.—President, T. Henry, Traffic Manager Richelieu & Ontario Nav. Co.; Vice President, A. A. Heard, General Passenger Agent Champlain Transportation Co.; Secretary, M. R. Nelson, Northern Steamship Co.; Executive Committee, J. A. Allaire, G.P.A., Hudson Navigation Co.; L. G. Lewis, G.P.A., Detroit & Cleveland Navigation Co.; J. J. Cheeseman, Traffic Manager U.S. & D.T. Co.

The meetings in Jan., 1912, will be held in Detroit, Mich.

The International Ry. of New Brunswick has received one 10 wheeled locomotive from the Montreal Locomotive Works, of which we have already given details.



Cut showing Train Pipe Nipple, Bracket, Angle Cock and Hose with Flexible Nipple End Protector complete.

Correspondence Solicited

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FOR AIR-BRAKE AND SIGNAL HOSE

Prevents chafing and abrasion effecting a saving of from 40 to 50% in maintenance of air-brake hose.

THE MONOGRAM BRACKET

will absolutely stop shifting and leaking of air-brake train pipes. All M.C.B. requirements are obtained and maintained.

P. & W. HOSE PRESERVATIVE

FOR AIR-BRAKE AND PNEUMATIC TOOL HOSE

will prevent cracking of rubber cover and deterioration due to climatic changes. Easily applied.

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THE NEW HOTEL BREVOORT CHICAGO



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Absolutely Fireproof

Centrally located. Near-by cars for all Stations. All rooms are outside rooms. Baths Connecting. Restaurant. Grill Room. Buffet. Unsurpassed in Appointments and Decorations. Table Unexcelled. Prices Moderate.

A. D. HANNAH & D. HOGG,
PROPRIETORS

ARTHUR M. GRANT,
MANAGER

Steam Railway Track Laid in 1910.

In accordance with our usual practice circulars asking for a return showing all track laid on new lines, or extensions or branches of existing ones during the year ended Dec. 31, 1910, were sent to all Canadian railways, and to U. S. railways having lines in Canada. The returns show that there were laid by 22 railways, 1,869.24 miles of track, against 1,588.47 miles in 1909, and 1,505.95 miles in 1908. The following table gives the details of mileage of track laid on different lines by the various companies. No return has been received from the Halifax and South Western Ry., and while the figure given is estimated, it is practically the actual mileage laid. The mileage laid by the different lines is as follows:—

ALGOMA CENTRAL AND HUDSON BAY RY.		Miles.	Miles.
Main line, mileage 69 to 81.6	.....	12.6	
Main line, mileage 170.5 to 151.5	.....	19.0	
Maggie Branch, Michipicoten Division	.....	5.4	37.00
ATLANTIC, QUEBEC AND WESTERN RY.			
Grand River to Ainsie a Beaufile	.....	14.5	
Near Ainsie a Beaufile to Barachois	.....	8.5	23.00
CANADA AND GULF TERMINAL RY.			
St. Flavie to Matane, Que.	.....		36.00
CANADIAN PACIFIC RY.			
Mansonville, Que., to International boundary	.....	3.60	
Shawinigan Falls, Que., to Grand Mere	.....	5.20	
Islington, Ont., to Mimico	.....	2.64	
Code Jct., Ont., to Ingersoll	.....	4.68	
Victoria Harbor, Ont., terminal tracks	.....	1.46	
Tulon, Man., extension	.....	25.60	
Regina, Sask., northerly	.....	20.60	
Bulyea, Sask., south	.....	12.40	
Forward, Sask., westerly	.....	21.80	
Colonsay, Sask., south	.....	50.00	
Macklin, Sask., southeast	.....	86.20	
Langdon, Alta., northerly	.....	34.10	
Irricana, Alta., easterly	.....	18.30	286.58
CANADIAN NORTHERN ONTARIO RY.			
Toronto-Ottawa Line—			
Mileage 0 to 44.6	.....	44.60	
Mileage 69.4 to 71.7	.....	2.30	
Mileage 71.8 to 96.6	.....	24.80	71.70
CANADIAN NORTHERN RY.			
Oakpoint branch, Man.	.....	96.84	
Greenway branch, Man.	.....	12.90	
Hallboro branch, Man.	.....	6.15	
Rosburn branch, Sask.	.....	16.46	
Maryfield branch, Sask.	.....	88.81	
Gooselake branch, Sask.	.....	49.90	
Prince Albert-Battleford line, Sask.	.....	16.13	
Jackfish Lake branch, Sask.	.....	22.59	
Crooked Lake branch, Sask.	.....	56.95	
Vegreville-Calgary branch, Alta.	.....	155.23	521.96
CENTRAL ONTARIO RY.			
Station 1355 to 1620	.....		5.00
ESQUIMALT AND NAINAIMO RY.			
..... to Cameron Lake, B.C.	.....		12.00
ESSEX TERMINAL RY.			
Walkerville to Windsor, Ont.	.....		1.00
GRAND TRUNK PACIFIC RY.			
Mileage 17 to Canora, Sask.	.....	
Young to mileage 25	.....		77.00
Balcarres to mileage 48	.....	
Camrose to Red Deer River	.....		158.00
Mileage 879 to Prairie Creek, Alta.	.....		100.00
Prince Rupert to Copper River, B.C.	.....		335.00
HA HA BAY RY.			
Chicoutimi to Bagotsville, Que.	.....		20.00
Chicoutimi Jct. to Mathias, Que.	.....		5.00
HALIFAX AND SOUTH WESTERN RY.			
Middleton Jct. to Nictaux, N.S.	.....		4.00
INTERNATIONAL RY. OF N.B.			
Mileage 80 to St. Leonards, N.B.	.....		33.50
THONDALE, BANCROFT AND OTTAWA RY.			
Mud Creek to York River Jct., Ont.	.....		3.00
MANITOULIN AND NORTH SHORE RY.			
Gertrude to Crean Hill, Ont.	.....		10.00
NATIONAL TRANSCONTINENTAL RY.			
Between Moncton, N.B., and N.B. boundary	.....		130.00
Between Quebec boundary and five miles west of Weymontachene, Que.	.....		135.00
East and west of Cochrane, Ont.	.....		172.00
NORTHERN NEW BRUNSWICK AND SEABOARD RY.			
Nepisquit Jct. to Bathurst Iron Mines	.....		16.90
PACIFIC COAST COAL MINES.			
Piddocks, B.C., to Coal mines	.....		1.80

PORTLAND CANAL SHORT LINE.

Stewart to Bear River 4.00

QUEBEC CENTRAL RY.
St. Justine to St. Sabine, Que. 4.30

TEMISKAMING AND NORTHERN ONTARIO RY.
Mileage post 60 to 60.5 0.50

Of this mileage 1,651.34 miles were laid in connection with three systems, as follows, the second column showing the mileage laid by the same lines in 1909:—

	1910.	1909.
National Transcontinental Ry.	437.00	312.00
G.T. Pacific Ry.	335.00	309.00
Canadian Northern Ontario Ry.	772.00	621.00
Canadian Northern Quebec Ry.	71.70	90.49
Canadian Northern Ry.	521.96	28.10
Canadian Pacific Ry.	593.66	421.64
	286.58	323.84

Total of the three systems. 1,651.24 1,376.48
Divided by provinces the track laid during the year compares with that laid in 1909 as follows:—

	1910.	1909.
Saskatchewan	518.84	487.80
Alberta	365.63	373.17
Ontario	308.98	288.63
Quebec	232.10	171.24
New Brunswick	180.40	87.00
Manitoba	141.49	136.23
British Columbia	117.80	74.40
Nova Scotia	4.00	.....
	1,869.24	1,588.47

The Canadian Northern Ry. completed a revision of location on the main line near Kakabeka, Ont., the new line having a length of 9.75 miles.

The C.P.R. also laid 3.2 miles of second track between Lambton and Islington, Ont., and 53.6 miles of second track between Rugby Jct., and Portage la Prairie, Man., a total of 56.8 miles. The C.P.R. subsidiary company in the United States, the Minneapolis, St. Paul and Sault Ste. Marie Ry. laid 240.33 miles of new track, as follows: Lawlor to Plummer, Minn., 168.00; Ironhub to Deerwood, Minn., 4.61 miles; Cuyuna to Crosby, Minn., 3.92 miles; Crosby to Ironton, 11.80 miles; cutoffs, Wisconsin-Spencer, Minneapolis, 62.00 miles.

The Diamond Coal and Ry. Co. laid 1.5 miles of switches at the collieries, and connecting with its seven mile line to Kipp, Alta., laid in 1910.

The Sydney and Louisburg Ry. built a mile of new location in place of an existing mile of its main line, which has been abandoned.

The Temiskaming and Northern Ontario Ry. laid five miles of second track between Cobalt and North Cobalt.

Paul J. Myler, Vice President Canadian Westinghouse Co., Hamilton, has been elected President of the Ontario Motor League.

Lt.-Col. H. H. McLean, M.P., Vice President St. John, N.B., Railway, who is to command the Canadian Coronation contingent, is granted the honorary rank of colonel, and transferred to the reserve of officers, his term of command having expired.

The Railway Construction Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$10,000, and office at Montreal, to carry on the business of contractor for the erection, construction, repair, etc., of public works, etc., and to conduct any business germane to the same. The incorporators are G. V. Cousins, O. B. MacCallum, S. T. Mains, P. F. Brown, and W. R. Ford, Montreal.

The North Shore Construction Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$10,000, and office at Montreal, to carry on a general engineering and contracting business, and to build, purchase or otherwise acquire and operate steam and other vessels. The incorporators are C. G. Greenshields, E. R. Parkins, W. Taylor, R. Brodeur and J. M. Montle, Montreal.

The Farewells to Thomas Tait.

Australian papers recently received show that the week preceding the departure of Thomas Tait (he was not then Sir Thomas) from Australia was filled with functions, etc., arranged in his honor, the whole forming a demonstration rarely accorded to any railway official. The Victoria State Government gave a large luncheon for him at the Parliament House, the Premier presiding, and he was entertained at largely attended dinners at the Australian and the Melbourne Clubs. A large gathering of representatives of the manufacturing, shipping, mining, and general commercial interests, headed by the President of the Melbourne Chamber of Commerce, bade him farewell at Mensie's hotel, the principal officers and heads of departments of the State railway service presented him with an address and an album containing their portraits, and representatives of all branches of the service gave him an oil portrait of himself, which he handed over to the Victorian Railway Institute, and with a rose bowl for Mrs. Tait. On the last days he attended at his office over 600 of the staff awaited his arrival in the corridor of the general offices and cheered him. Mr., Mrs. and Miss Tait sailed from Melbourne Nov. 30, on the s.s. Otranto for India, en route to Canada. They were seen off by a large number of officials, business men and personal friends, their cabins being banked up with flowers.

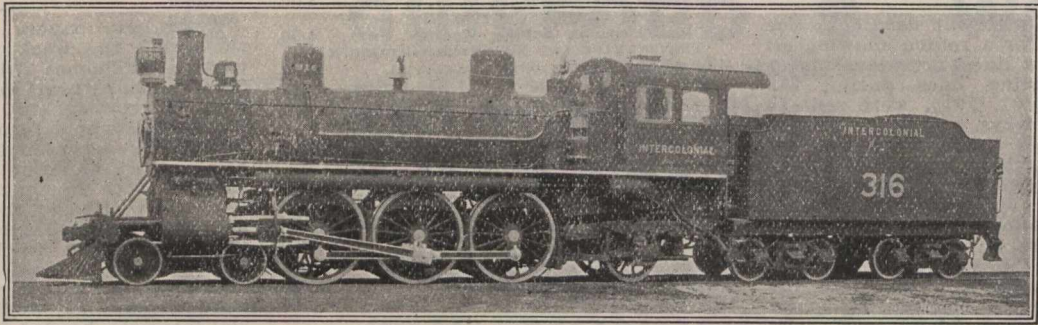
The Melbourne Argus of Dec. 1 said: "After having filled the onerous and responsible position of Chairman of Railway Commissioners for seven and a half years, Mr. Tait left Victoria yesterday amid practically unanimous expressions of appreciation and good will. That he should have felt impelled to leave Victoria while still in the prime of his strength and capacity, after having thoroughly familiarized himself with our conditions and requirements, and qualified himself to render even greater services, is to be regretted."

Business Opportunities in Western Canada.

The C.P.R. Industrial Department has just issued a new edition for 1911 of its list of manufacturing and business opportunities in Western Canada. The present edition contains 136 pages of information regarding towns on the C.P.R. lines west of Port Arthur, with an index to towns, and another to industrial requirements. Special reference is made in the introduction to the towns which will be reached by new branches to be opened this spring. The names of over 50 towns are given on these seven new lines in Saskatchewan and Alberta. A list of water powers is given in the last four pages, but it is stated that the same is incomplete, as no complete survey has yet been made of the water powers in the central west. There are 70 water powers on the list, which are estimated to develop 4,174,500 horse power, and of these only a dozen have been developed to any extent, the total horse power utilized being about 105,000; while half a dozen more are being developed. The officer in charge of the compilation of this book, and the distribution of information regarding opportunities is J. F. Sweeting, Industrial Agent, Winnipeg.

The Canadian Society of Civil Engineers held its 25th annual meetings at Winnipeg, Jan. 24-27, during which time visits were paid to the city's power plant at Point du Bois, National Transcontinental Ry. shops, and other points of interest.

Toronto taxpayers voted Jan. 2 on a bylaw to raise \$1,527,293 by debentures to build and equip a street railway on certain streets in newly annexed portions of the city.



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LITERATURE ON REQUEST

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Fuel Consumption on Railways.

During the year ended June 30, 1910, 6,252,054 tons of fuel were used on Canadian railways. Despite the fact that the mileage run was considerably greater, this volume of fuel was actually 547,094 tons less than for the preceding year. The returns do not disclose any particular reason for this surprising result. Following is a concise statement of the fuel consumed by the various classes of locomotives, together with the mileage:—

CLASS OF LOCOMOTIVE.	COAL.		WOOD.		TOTAL TONS.	Miles run.
	Anthracite.	Bituminous.	Hard.	Soft.		
	Tons.	Tons.	Cords.	Cords.		
Freight	73	3,585,221	1,136	22,255	3,597,541	47,239,088
Passenger	376	1,628,383	742	14,405	1,636,454	34,758,088
Mixed	4,128	383,009	521	2,418	388,693	8,211,350
Switching	323	617,025	72	5,817	620,308	15,811,077
Special		9,051		23	9,063	229,872
Total	4,900	6,222,689	2,471	44,918	6,252,054	106,019,475

NOTE—One and one-half cords of hard wood and two cords of soft wood, calculated as one ton of coal.

The total cost of the fuel was \$18,570,393, of which \$16,832,817 was charged to road locomotives and \$1,737,576 to yard locomotives. The cost of fuel in the year ended June 30, 1909, was \$17,544,449. The consumption and cost of fuel per 100 miles run was:—

	Tons.	Cost.
Freight	7.62	\$22.48
Passenger	4.71	13.89
Mixed	4.73	13.95
Switching	3.98	11.74
Construction	3.94	11.62

Montreal Telegraph Co.

The following report was presented at the 64th annual meeting, at Montreal, Jan. 13. The company's property, valued at \$2,151,823.85, is operated and maintained by the Great North Western Telegraph Co., and guaranteed by the Western Union Telegraph Co., under an agreement for 97 years from July 1, 1881, under which payment of dividend is also guaranteed.

ASSETS.	
Telegraph lines in Canada and U.S.	\$1,625,890.00
Telegraph cables in Canada and U.S.	33,487.39
Telegraph offices in Canada and U.S.	212,500.00
Real estate in Montreal, Ottawa, Quebec, Toronto	279,946.46
Cash, accounts receivable, bonds and other securities and real estate (not included in agreement with G.N.W.)	141,564.12
	\$2,293,387.97
LIABILITIES.	
Shareholders' capital	\$2,000,000.00
Excess in value of property operated by the G.N.W. Tel. Co. over shareholders' capital	151,823.85
Dividend 186, payable Jan. 15, 1911	\$ 40,000.00
Unclaimed dividends, etc.	1,246.74
Contingent fund	100,317.38
	141,564.12
	\$2,293,387.97

The Michigan Railroad Commission has issued a general order to all railway companies doing business in the State, that they must equip their lines with a modern block signal system without delay. It is reported that the companies intend to oppose the order.

During Nov. 1910, 23 employes were killed and 26 injured in the course of their work on Canadian railways. Of the fatalities, 12 were due to being run over, four to being caught between cars, two to being burnt, and one each to a collision, to drowning, to a fall, to electricity and to falling material, while of the other accidents, seven each were due to being caught between cars and to falls, four each to falling material and to being run over, two to collisions and one each to being scalded and to exposure.

Too Late for Classification.

Alese and Yukon Ry.—The Dominion Parliament is being asked to extend the time for the building of the authorized line. Lewis and Smellie, Ottawa, are solicitors for applicants. (July, 1909, pg. 473.)

Alberta Ry. and Irrigation Co.—A special meeting of shareholders will be held in London, Eng., Feb. 22, to authorize the directors to enter into an agreement with the C.P.R. for the purpose of selling or leasing the company's railways,

lands, works, undertakings, franchises, rights, etc.

Alberta Central Ry.—The Board of Railway Commissioners has approved location plans of route from mileage 40 to 80, west of Red Deer, Alta. (Dec. 1910, pg. 1013.)

Atlantic, Quebec and Western Ry.—During 1910 track was laid on 23 miles, distributed as follows: from Grand River to Anse a Beaufils River, 14.5 miles; from third crossing of Anse a Beaufils to Barachois, 8.5 miles. The sections under construction, which it is expected will be completed during the current year are: from Anse a Beaufils River to third crossing of Anse a Beaufils, 4.5 miles, and from Barachois to Douglstown, 19 miles. The work is being done by the New Canadian Co., New Carlise, Que. (Jan., pg. 21.)

Dominion Development Ry.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway from the mouth of the Naas River on the Portland Canal, easterly along the Naas and Omineca rivers to Peace River, along that river to Peace River Landing, and through Alberta, Saskatchewan and the N.W.T. to Fort Churchill or Port Nelson, or both, but not running south of the 55th parallel in Alberta and Saskatchewan. A. T. Thompson, Ottawa, is solicitor for applicants.

Hudson Bay and Pacific Ry.—In an interview in Ottawa, Jan. 10, the mayor of Prince Albert, Sask., said:—"Preliminary surveys have been completed for the road 120 miles from Prince Albert, and actual work will be started inside of a month. The route will be from Prince Albert almost straight to Churchill, and connections will be made from Prince Albert with Edmonton and Calgary. It will not be in any way antagonistic to the government road, as two railways are not too many for the country's almost untapped resources. It is a British company, backed by British capital, and the people of Prince Albert are hoping for great things from it." (Nov., 1910, pg. 911.)

Hudson's Bay, Peace River and Pacific Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a railway from Port Nelson, northerly to Fort Churchill, on the western shore of Hudson Bay, thence westerly between the 58th and 60th parallels to Fort Vermillion on Peace River, southwesterly to Fort St. John, westerly and northwesterly to Laurier pass, thence westerly and southerly, but keeping north of the 56th parallel, to the Naas River, and along that river to the Pacific ocean at Port Simpson, B.C. It is desired to have authority to build branch lines from Fort

St. John to Edmonton, Alta.; from the Cochrane River southerly and southwesterly to Prince Albert, Sask. H. W. Adcock, Winnipeg, is solicitor for applicants.

Little Nation Ry.—Action has been entered in the Ontario courts by C. Niabon, Sanborn, N.Y., to recover \$17,500, which he alleges is his share of commissions paid to J. C. Kelly for the sale of the franchise of the L.N. Ry. and some timber limits. (Sept., 1910, pg. 727.)

Liverpool and Milton Ry.—A contract under the act relating to aid granted to certain railways has been entered into between the company and the Dominion Government, for the building of seven miles of line from Liverpool to Milton, N.S. A line between these places has been in existence for some years, and the granting of this aid will enable the line to be brought up to the standard of the Halifax and Southwestern Ry., with which it connects. (Oct., 1910, pg. 827.)

Portland Canal Short Line Ry.—Speaking at Vancouver recently, the Premier of British Columbia said the P.C.S.L.R., as originally chartered and projected, was practically completed and in operation. It was originally an individual enterprise of Sir Donald D. Mann, but it was about to assume much greater proportions, and the revised plans of Mackenzie, Mann and Co. looked to the "ultimate conversion of this line into a fourth transcontinental system for Canada." The line would be renamed, at the approaching session of the Legislature, in accordance with the enlarged plans, and it had been officially intimated that no government aid would be asked. (Jan., pg. 23.)

The Quebec Oriental Ry. is the title under which the lines known as the Baie des Chaleurs Ry., Atlantic and Lake Superior Ry., and the Atlantic, Quebec and Western Ry. are being operated. The lines in operation start at Matapeia, on the Intercolonial Ry., and extend to Grand River, Que., 152.10 miles. This shows the completion of an additional 17.05 miles in 1910. The line is under construction to Gaspé.

Reid Newfoundland Co.—Surveys for the branch line to Trepassey, are being made. A locating party has reached Ferryland, and a second party has started from Trepassey. It is expected that the surveys will be finished by March 31, and that construction will be started in the summer. (Jan., pg. 23.)

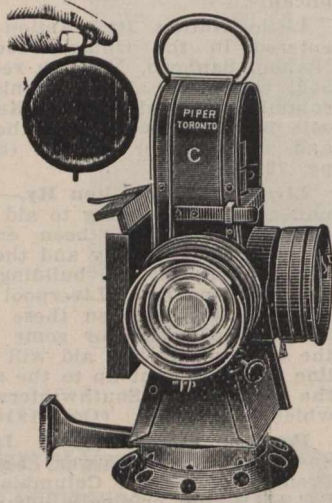
Dominion Railway Subsidy Contract.—Under the act granting aid to certain railways, the Dominion Government has entered into a contract with the Liverpool and Milton Ry. for the building of a seven mile line from Liverpool to Milton, N.S.

Canadian Steel Foundries Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$5,000,000, and office at Montreal, to carry on the businesses of iron masters, steel makers and converters, colliery proprietors, iron founders, etc., and in connection therewith to build, own and operate roads, tramways, railway sidings, water courses, wharves, steam and other vessels, etc.

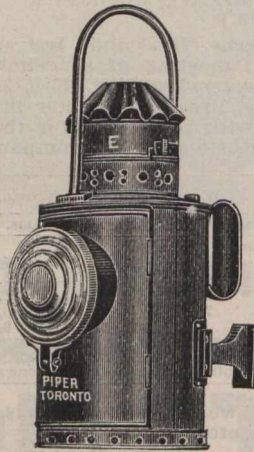
Notice has been given in the House of Commons of the following resolution: That whereas it is stated that on Canadian railways last year, one trainman in every 199 was killed, and one in every 33 was injured, in the opinion of this House it is the duty of the Government to cause a most thorough investigation to be made, as to the facts and conditions, as a result of which some means may be devised for the better protection of railway employes, and of preventing so great a loss of life and so great and frequent accidental injury.

THE N. L. PIPER RAILWAY SUPPLY CO., LIMITED
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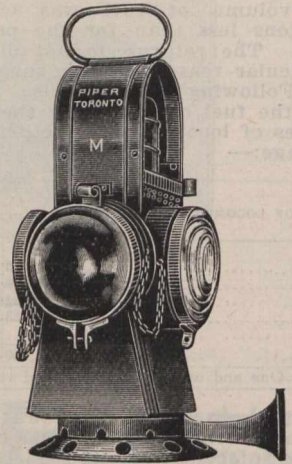
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Dominion Express Co's. Montreal Building.

In Montreal, large commercial and high office buildings are replacing the older structures on St. James St., and on the very sites where once stood small houses and shop buildings, handsome and gigantic steel framed structures are fast becoming evident. On the corner of St. James and St. Francois Xavier Sts., the most important part of these busy thoroughfares, and on the site of that old landmark, the St. Lawrence Hall, adjoining the comparatively new banking premises of the Royal Bank of Canada, very extensive preparations are being made for the erection of what promises to be a fine and imposing structure for the Dominion Express Co., an illustration of which is given on this page. The erection of such a huge edifice in granite and terra cotta cannot fail to impress one as being a distinct and noteworthy step in the progress of commercial activity in Montreal, and apart from its size, the excellence of its appointments throughout will ensure its success as a business project.

The lower portion of the building, which includes the two main stories on St. James St. and the basement on the third side, will be in light coloured granite, treated with enriched pilasters and entablature, allowing the maximum amount of light for the ground floor offices, which are to be occupied wholly by the Dominion Express Co. and the C.P.R. as steamship and general ticket offices. At the ends of both the important fronts, special rusticated features will terminate the pilaster treatment, these features running the full height of the building, and in one of these will be placed the handsomely carved main entrance doorway to the building. Crowning this doorway will be a large granite cartouche embodying the company's arms, the figures being actually life size, and beside this main entrance will be two other entrances to the ticket offices from the street level.

The superstructure in white glazed terra cotta, will be very simply but effectively treated, the complete height of the eight stories above the granite work, with the ornament of conventional character set under each window, and above this, long balconies will break out, overhanging both St. James and St. Francois Xavier Sts., and large foliated and decorated openings will indicate a complete change in the treatment of that portion of the work below. This variation will mark the change from the typical office floors to the elaborately arranged apartments of the Montreal Club, whose future quarters are to be located in this building. The whole structure will give the impression of dignity and refinement, and the large windows on all sides will ensure very well lighted and bright business offices averaging 350 to 400 sq. ft. Each of these offices will be arranged for subdivision into private offices, and each will have an individual lavatory cabinet, apart from the general toilet rooms on each floor for men and women. The whole building will be heated on the vacuum system by steam and will have a very efficient system of mechanical ventilation. In each office will be an automatic temperature control device and a vacuum cleaning connection. The entrance hall and the upper halls will be treated in marble, and the stairs and elevator shafts will be enclosed in grilles and wired glass for fire protection. At the east end of the corridors an enclosed fire escape stair will lead down to St. Francois Xavier St., thus avoiding the dangers of the exterior iron fire escape now so much in use.

The suite of very large and comfortable rooms on the top floors devoted



to the Montreal Club will be composed of billiard, reading, reception, dining, private dining and cloak rooms, richly finished in quarter cut oak and decorative plaster work, and over a portion of this floor will be a mezzanine storey, where the ladies' dining room, the club kitchen and service quarters will be located, and above this again, on the roof, will be an enclosed and heated pergola, which in summer will be used as a roof garden.

The whole of the basement on the front will be given up to a very large and well equipped restaurant and its culinary appurtenances, having an entrance from St. Francois Xavier St. and at the rear will be located the express storage rooms, with freight entrances from Fortification Lane, and a third class ticket office for the C.P.R. opening off St. Francois Xavier St. The sub-basement will be given up to machinery of every description for the various needs of such a building, and besides the heating plant there is a ventilating apparatus, ice-making plant and a system of water filtration. Ice water will be on tap in every office in the building.

Very extensive operations are being carried on to secure a proper bed for the foundations of this immense structure and owing to the uncertain nature of the soil, concrete caissons are being sunk to a depth of 86 ft. below the St. James St. level and excavations made under air pressure. The completed building is to be handed over to the proprietors on April 1, 1912, so that the tenants will have a month in which to get comfortably settled in their offices. Edward and W. S. Maxwell, of Montreal, are the architects, and P. Lyall & Sons, Ltd., the contractors.

"Shop Kinks" is the title of an instructive book of 393 pages, compiled by R. Grimshaw, M.E., New York. It is a selection of notes on a great variety of mechanical subjects, collected by him from various sources. If information is desired as to how something in the mechanical way may be done a little differently and with the best results, a reference to the index of subjects will give the reference to a "kink" or "wrin-

kle" that has been found useful in some shop of established reputation. The publishers are the Norman W. Henley Publishing Co., 132 Nassau St., New York, and the price is \$2.50. It can be obtained through the Railway and Marine World's book department.

An Ottawa dispatch says the contract for a marine depot at Prince Rupert has been awarded to the Pacific Construction Co., Vancouver, B.C., for \$150,000.

The wireless telegraph station, which has been erected at Port Arthur, Ont., has been completed, and was recently opened for service, messages being received from stations on the Atlantic coast, 1,200 miles distant.

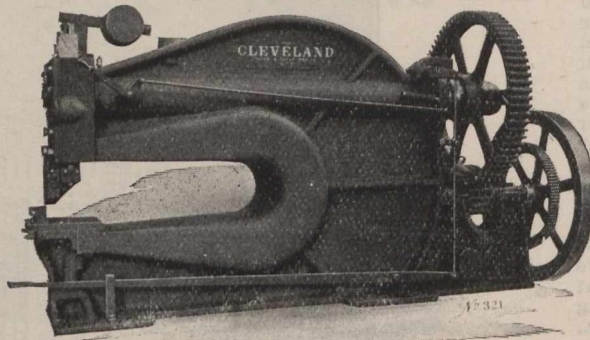
The Canadian Coal and Coke Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$15,000,000, and office at Montreal, to carry on a general mining business, and also that of iron foundries, metal smelters, etc., and in connection therewith to build, own and operate wharves, warehouses, piers, docks, railway switches or sidings, etc.

The arbitrators have assessed the damages at \$18,500, in the action brought against the C.P.R. by the estate of G. Vandyke, for damage to standing timber by fires caused by sparks from the company's engines. The action, which was heard by the District Court at Portland, Me., was for \$155,000 damages. Other actions, in which the damages aggregate \$500,000, are pending in the court, arising out of the same series of fires.

The amendments to the Civil Code, passed last session of the Quebec Legislature, given in our July, 1910, issue, which required transportation companies operating in the province to adopt the French language, in addition to the English, in printing tickets, time tables, etc., came into effect Jan. 1. It was anticipated that there would be considerable opposition on the part of the companies, especially those operating under Dominion charters, as the provincial jurisdiction is, at least, questionable, but the law is being complied with generally. One test case was entered in the early days of the year, but it is, apparently, not being pressed.

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MONTREAL

Among the Express Companies.

S. T. Percy, at one time agent Canadian Ex. Co. at Woodstock, Ont., died at Port Huron, Mich., Jan. 8.

The Dominion Ex. Co. has been licensed to carry on its business in British Columbia, with head office at Vancouver, and R. Hulme, Superintendent, as its attorney.

The Board of Railway Commissioners has ordered the Canadian Northern Quebec Ry. to provide facilities for the handling of express traffic at Point aux Trembles.

J. J. Murray, heretofore secretary to the President and General Manager Dominion Ex. Co., has been appointed Superintendent of the Southern Division Dominion Ex. Co., with office at Toronto, vice D. J. McFeggan, deceased.

The House of Commons railway committee is considering a bill to compel express companies to make an annual return of all unclaimed money held in whatever form, such amounts to be subsequently turned over to the Government as trustee. It was explained that in the case of the loss of express orders, such publicity might lead to the recovery of the money, and that the bill would place the express companies in the same relation to the Government as the banks.

Judgment was delivered at Regina, Sask., recently in the case of the city against the Dominion Ex. Co. for the payment of a municipal tax. The company claimed that as it paid a provincial tax, it was under the terms of the Corporation Tax Act, and therefore exempt from municipal taxes. The judge holds that the effect that all corporations doing business in the province and subject to the Provincial Corporation Act, except railways, are liable for a business tax, also.

Reports from New York, Jan. 20, state that as the result of a conference between officials of Canadian and U. S. express companies, it was decided that a reduction in through rates between all offices in the U. S. and a number of offices in Canada, would go into effect shortly. It is stated that some of the Canadian companies have held back on account of the extra work involved at the International boundary, on account of the Customs regulations, should any reduction come into force. One of those present at the conference is reported to have said that under the new plan charges between all offices, when shipment were handled by more than one company, would be the same as though handled by one company, thus effecting a radical reduction in charges on all shipments to or from what are known as exclusive offices. At present, when shipments are handled by two or more companies, where joint rates are not in effect, the charge is made equal to the sum of the local charges of each company handling the shipment.

The Board of Railway Commissioners, after an enquiry, extending over a con-

siderable period, has delivered a lengthy judgment on the question of the tariffs of express companies doing business in Canada, and, in effect, orders:—1. That there shall be four standard mileage basing scales, viz.: a—On all lines east of and including Windsor and Sudbury, excluding the T. and N.O.R. b—On all lines west of Sudbury to and including Sault Ste. Marie, Ont., Crows Nest, B.C., Canmore and Thornton, Alta.; also north of and including North Bay, Ont. c—On all lines west of and including Crows Nest, Canmore and Thornton, to the Pacific coast, and to Vancouver Island transfer ports. d—Vancouver island. 2. That the mileage groupings of a, b, c and d be assimilated to those of a, so there shall be no overlapping. 3. That the basis of a do not exceed \$3, of b \$5, c \$6, for the 900-1,000 mile group. In Vancouver Island the mileage groups should be harmonized without increasing the rates. 4. On inter-division traffic which is not subject to the Sudbury basing schedule, the higher or highest standard mileage scale as applied to the through mileage shall govern in either direction. 5. Between points east of Sudbury and points west thereof, through rates may continue to be made by adding to the local tariff east of Sudbury the special basing tariff west thereof at present in use provided that the through rates are less in all cases than the sum of the tariff rates to and from Sudbury, and are not greater than the higher standard tariff as applied to the through mileage from the point of origin to destination. On inter-division traffic between points north of North Bay, and points east, south and west thereof, the proportional rates north of North Bay shall be the same as west of Sudbury, subject to the same provisions. It also rules that joint rates must be put into effect between all points not modified by competition, which shall be constructed on the basis of at least 10% off the lowest combination of merchandise rates between the same points, regardless of point of interchange, to apply in both directions, the minimum charge to be similarly constructed, unless joint minimum charges are specifically provided in the classification. Other items dealt with include graduate charges for small packages, the limits of delivery service, forms of contract, etc.

In response to questions in the House of Commons, Jan. 18, the Minister of Agriculture, stated that the contract for the quarantine steamer Alva, which recently arrived at Halifax, was placed at Dartmouth, Eng., with the lowest tenderer, for \$22,630, the highest tender being for \$39,850.

The Marconi Wireless Telegraph Co. is proceeding against another company in London, Eng., for infringing its patents in relation to wireless telegraphy. So that the details of the mechanism and its workings can be brought clearly to the notice of the judges in the case, a complete installation has been erected in court by special permission of the Government.

Grain Elevator Notes.

The Maple Leaf Milling Co.'s elevator at Brandon, Man., was destroyed by fire, Jan. 19. Estimated damage, \$75,000.

A meeting of the shareholders in the Montreal Grain Elevating Co., Ltd., in liquidation, was held at Montreal, Jan. 19, when the accounts of the winding up were submitted for confirmation.

The Alberta Pacific Elevator Co., Calgary, Alta., is reported to have purchased an additional 1,000 ft., making 1,600 ft. in all of water frontage on the north bank of the Fraser River, between Pitt River and Hammond station, on the C.P.R. It is stated to be the intention to erect a large elevator and warehouses there.

The final draft of the Government bill for dealing with terminal elevators, provides that the Government shall have the right to take over and operate as public utilities all such elevators, but the exercise of the right shall be left to the discretion of the cabinet, and that a commission shall be created, consisting of three members, to supervise all elevators.

The case brought against the Thunder Bay Elevator Co. by the Dominion Warehouse Commissioner, for making incorrect returns of the grain in its elevator on a specified date in 1909, was dismissed by the Winnipeg magistrate recently on the ground that prosecution should have been commenced within six months of the alleged offence. New charges were subsequently laid against the company for similar alleged offences during the latter part of 1910.

The London, Ont., city engineer has ordered the London St. Ry. to install plainer night signs on its cars, the signs at present in use, being, it is claimed, indistinct.

An Ottawa dispatch says a special estimate of \$3,000,000 is to be submitted to Parliament to make a start on the Georgian Bay canal as a government work.

The honorary treasurers of the King Edward VII. Memorial Statue Fund, Montreal, have acknowledged the receipt of \$279.70, subscribed by members of the various C.P.R. office staffs located in Montreal.

The Railway Construction Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$10,000, and office at Montreal, to carry on a general contracting business. The incorporators are, G. V. Cousins, O. B. MacCallum, S. T. Mains, P. F. Brown, and W. R. Ford, Montreal.

The C.P.R. telegraph line between Regina and Saskatoon, Sask., is reported completed, so that messages, which, since the taking over of the Prince Albert line by the C.N.R., have been forwarded to the north, via Winnipeg, will now be dealt with over the new line, which has been erected in connection with the C.P.R. Regina-Bulyea branch.

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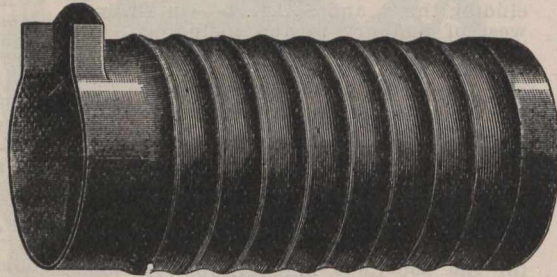
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Electric Railway Track Laid in 1910.

The circular which we issue annually, asking the various electric railway companies for information as to new track laid during the calendar year, is not so promptly responded to in some instances as is that issued to steam railways. In the following table, which is approximately correct, returns are given from 14 electric railways, showing that 101.47 miles of new track were laid during 1910, against 57.50 in 1909. The figures in the cases of the lines preceded by an asterisk are estimated, or have been obtained from sources independent of the company's replies to our circulars. Following are the individual figures:—

	Miles.	Miles.
Berlin and Waterloo St. Ry.	1.00	
Water St. to Albert St.	1.00	
*BRITISH COLUMBIA ELECTRIC RY.		
Extensions of lines in cities	13.28	
Cloverdale to Chilliwack	51.40	64.68
CAPE BRETON ELECTRIC CO.		
Thompson's Corners to 1st Mine	.60	
*GRAND VALLEY RY.		
Extensions in Brantford, etc.	3.50	
HULL ELECTRIC CO.		
C.P.R. station to Chelsea Road toll gates	0.84	
MONTREAL AND SOUTHERN COUNTIES RY.		
St. Lambert to Longueuil	3.50	
Longueuil to wharf	1.00	4.50
*MONTREAL STREET RY.		
Various extensions	1.90	
*MOOSE JAW ELECTRIC RY.		
Main St. tracks	2.50	
*NIAGARA, ST. CATHARINES AND TORONTO RY.		
Welland to Port Colborne	7.00	
*OTTAWA ELECTRIC RY.		
Various extensions	1.00	
QUEBEC RY. LIGHT AND POWER CO.		
Quebec County Ry.'s line, Maple Ave., Que., to Sillery	2.33	
SHERBROOKE ST. RY.		
Lennoxville to Sherbrooke	3.00	
TORONTO RY.		
Harbord St. line	1.40	
Wilton Ave. line	1.04	
Adelaide St. line	.74	3.18
WINNIPEG ELECTRIC RY.		
Extensions, spurs, intersections	5.44	

Electric Railway Statistics for 1909 - 10

The number of reporting electric railway companies increased from 43 to 52 during the year ended June 30, 1910. The Comptroller of Railways Statistics states that the classification and schedules which were made effective in 1908 are now thoroughly understood by the officials, and that as the work proceeds satisfactory and helpful statistics may be counted on. The city of Edmonton, which but its line in operation in 1909, did not report. Following is a comparison of the mileage for the past two years:—

	1910	1909
Let main tracks	Miles.	Miles.
and main track	1,049.07	988.97
Total main track	242.39	215.05
	1,291.46	1,204.02

Sidings, etc. 91.33 83.62
Total computed as single track 1,382.85 1,287.65

There were added 60.10 miles of first main track, and 95.20 miles of total track. The capital obligations of the various companies were \$102,044,979, of which \$58,653,826 was reported as stocks and \$43,391,153 as funded debt. In the previous year the total capital obligations was reported at \$91,604,989. The subsidies received from governments and municipalities amounted to \$493,346.

The gross earnings from operation were \$17,100,789.48, of which \$16,821,376.74 was reported as car earnings, and \$279,412.74 as miscellaneous earnings. The gross earnings showed an increase of \$2,275,852.93 over those of the previous year. The operating expenses were \$10,139,070.30, or 59.29% of gross earnings. The deductions from income included \$1,311,953.65 for taxes, \$1,449,152.48 for funded debt; \$156,546.16 interest on floating debt, and \$36,106.97 for miscellaneous deductions, a total of \$2,953,759.26, against \$2,198,306.48 for the previous year. Fourteen companies reported deficits amounting in the aggregate to \$1,544,892.65.

The companies carried 360,964,876 pay and 99,227,824 transfer passengers, and 852,294 tons of freight. The total car mileage was 65,249,166, against 60,152,846 in the previous year. The freight car mileage of 889,561 is included. There were added to the rolling stock 245 cars, and on June 30, 1910, the rolling stock consisted of 1,795 closed cars, 994 open cars, 337 combination cars, 282 freight cars, 25 mail, express and baggage cars, seven combination freight and passenger cars, and 349 miscellaneous cars, including work cars, snow plows, and sweepers.

The number of employes was reported to be 11,390, their aggregate salaries and wages being \$6,316,777.20. During the year 95 persons were killed and 2,538 injured, against 68 killed and 2,139 injured in the previous year. Of those killed 14 were passengers, 13 employes, and 68 others, while of those injured, 1,595 were passengers and 227 employes. An average of one passenger was killed for every 25,783,205 carried, and one injured for every 226,310 carried.

Pay-as-you-leave Cars.

The London, Ont., Street Ry. is operating pay-as-you-leave cars. For several years the company's cars, which are of the original design of side-aisle cars, have been closed at the front end during the winter by the stoves, so that passengers have to get both in and out at the rear end. When passengers get on the car and stop on the rear platform the conductor takes the fare-box and collects the fares as before, but if the passengers do not stop on the platform but go inside the car, the conductor stands just inside the door with his fare-box located in a bracket and collects the fares as the passengers leave the car. In the case of a crowded car, it saves the conductor from crowding up through the passengers to collect the fares, and then crowding to the back end again, and another advantage claimed is that the conductor is always at the back end of the car to properly handle passengers getting on and off. The conductors must, of course, take notice whether any of the passengers from whom he may have collected fares on the platform afterwards go into the car. This, however, the passengers very seldom do, but if

they do, it is claimed the conductor should have no trouble remembering that they have paid their fare. This conditions is certainly nothing like so bad for a conductor to overcome as the old method where the conductor would collect the fares on the back platform, go into the car collecting fares, picking up new passengers, who mixed in with the old ones in the car, and whose fares he would later have to go around and pick out.

It is admitted that this method is not quite so good as the straight pay-as-you-enter or pay-as-you-leave system, but taking all local conditions into consideration, it is contended that it is the most suitable for London.

The company has some cars equipped with folding gates at the back platform which are operated by the conductor from his position just inside the car. These gates, it is claimed, have the advantage of making it absolutely impossible for persons, especially women, to get off before the car stops, in which case it would clearly be the fault of the conductor, he not being able to offer the old excuse of being up in the car collecting fares at the time. The disadvantage of the gates, however, is that active passengers who like to jump on and off the cars cannot do so and become disgruntled, and if the conductor does open the gate for them while the car is moving, the company might be more liable for any accident that should happen.

Electric Ry., Finance, Meetings, Etc.

British Columbia Electric Ry.—Gross earnings for Nov. 1910, \$355,292; working expenses \$201,891; net operating earnings \$153,401; renewal funds \$25,417; net earnings \$127,984; approximate income from investments \$20,000; net income \$147,984, against \$244,520 gross earnings; \$157,880 working expenses; \$86,640 net operating earnings; \$16,394 renewal funds; \$70,246 net earnings; \$16,500 approximate income from investments; \$86,746 net income for Nov. 1909. Aggregate gross earnings for five months ended Nov. 30, 1910, \$1,602,414; net earnings \$670,628, against \$1,211,692 and \$541,042 for same period 1909.

Halifax Electric Tramway.—Railway receipts for Dec., 1910, \$17,563.76, and for two weeks ended Jan. 14, \$7,600.10, against \$16,110.26, and \$6,991.77 for same periods 1909 and 1910 respectively.

London St. Ry.—Gross earnings for Dec., 1910, \$23,887.90; expenses, \$16,974.12; net earnings, \$6,913.78; deductions, \$2,441.75; net income, \$4,472.03, against \$21,674.21 gross earnings; \$15,469.06 expenses; \$6,205.15 net earnings; \$2,441.75 deductions; \$3,763.40 net income for Dec., 1909. Aggregate gross earnings for 12 months ended Dec. 31, 1910, \$256,278.48; expenses, \$182,191.68; net earnings, \$74,086.80; deductions, \$28,750; net income, \$45,336.80, against \$243,359.39 gross earnings; \$169,830.44 expenses; \$73,528.95 net earnings; \$28,887.56 deductions; \$44,641.39 net income for same period 1909.

Montreal St. Ry.—Passenger earnings for Dec., 1910, \$371,691.09; miscellaneous earnings, \$5,583.08; total earnings, \$377,274.17; operating expense, \$235,209.36; net earnings, \$142,064.81; city percentage on earnings, \$17,005.37; interest on bonds and loans, \$15,384.22; rental leased lines, \$552.50; taxes, \$4,700; total charges, \$37,642.09; surplus, \$104,422.72; expenses per cent. of earn-

ings, 62.34, against \$333,155.21 passenger earnings; \$4,407.97 miscellaneous earnings; \$337,563.18 total earnings; \$212,006.44 operating expenses; \$125,556.74 net earnings; \$15,599.94 city percentage on earnings; \$14,382.01 interest on bonds and loans; \$498.62 rental leased lines; \$4,000 taxes; \$34,480.57 total charges; \$91,076.17 surplus; 62.80 expenses per cent. of earnings, for Dec., 1909. Aggregate total earnings for three months ended Dec. 31, 1910, \$1,130,060.17; operating expenses, \$668,401.32; net earnings, \$461,658.85; total charges, \$101,653.23; surplus, \$360,005.62, against \$1,026,441.40 aggregate total earnings; \$586,878.97 operating expenses; \$439,562.43 net earnings; \$96,344.84 total charges; \$343,217.59 surplus for same period 1909.

Montreal St. Ry.—A dividend of 2½% for the quarter ended Dec. 31, 1910, has been declared, payable to shareholders of record on Jan. 13, and holders of share warrants in redemption of coupon series 9a, on Feb. 1.

St. John's (Nfld.) St. Ry.—Gross earnings for 1910, \$35,085. The lines are owned and operated by the Reid Newfoundland Co.

St. Thomas Street Ry.—Application is being made to the Ontario Legislature, by the city council, for power to borrow various sums of money, and it is stated that the city's debt is \$734,648.28, exclusive of the \$50,000 bonds of the Street Ry. guaranteed by the city. The line was taken possession of by the city several years ago on default being made, and is being operated at a loss.

The city treasurer reported that \$2,300 was required to meet the expenses for the year ended Dec. 31, 1910, and that \$7,031.51 was due for power.

Toronto Ry.—During 1910, the city received from the company, \$83,040.58 for mileage and \$596,297.35 percentage on earnings, a total of \$679,337.93. Since 1892, the first year of the franchise, the amount paid to the city, has grown from \$120,373.38.

Toronto Ry.—A dividend of 1¾% for the quarter ended Dec. 31, 1910, has been declared.

Winnipeg Electric Ry.—Gross earnings for Nov. 1910, \$341,560; operating expenses \$171,539; net earnings \$170,021, against \$252,231 gross earnings; \$125,713 operating expenses; \$126,518 net earnings for Nov. 1909. Aggregate gross earnings for 11 months ended Nov. 30, 1910, \$2,944,059; net earnings, \$1,466,980, against \$2,340,202 and \$1,171,445 for same period 1909.

The Brockville Construction Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$100,000 and office at Brockville, Ont., to carry on a general contracting business, including the construction of railways, canals, dry docks, dams, elevators, wharves, bridges, and excavating and dredging works. The incorporators are W. S. Buell, J. H. Botsford, G. H. Mallory, I. M. Braniff, and A. O'Donahoe, Brockville, Ont.

Internations Contracting Co., Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$50,000,000, and office at Winnipeg, to treat timber or articles into the manufacture of which, timber enters, with oils, chemicals, etc., for the preservation thereof; to carry on a general contracting business, including the construction of wharves, docks, locks, piers, bridges, tramways, etc.; to carry on a general engineering business for the manufacture of steel, iron, railway rolling stock, ships and vessels of all descriptions, grain elevators, etc., and with power to operate steam and other vessels for the carriage of passengers and freight. The incorporators are R. L. Miller, E. W. Peters, S. H. Green, E. R. Chapman and M. T. Hunter, Winnipeg.

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B. C. Electric Railway Company.

Following are extracts from the annual report for the year ended June 30, 1910, presented at the annual meeting in London, Eng., Dec. 19:—

For the twelve months the gross receipts show an increase of \$730,492, or 31%, and the net earnings, including income from investments and subsidiaries, and after charging renewals, show an increase of \$176,341, or 19% over the preceding year. From June 30, the close of the financial year under review, up to Oct. 31, 1910, there has been a still further increase in gross earnings of \$279,950, or 29%, and in net earnings of \$77,281, or 17%. The following charges have been made against the revenue account of the year:—

	£	s.	d.
Provision for renewals maintenance (from which £15,242 4s 2d has been deducted for adjustments and expenditure on renewals during year)	46,425	18	10
Special provision against depreciation in value of certain obsolete steam plant	3,000	0	0
Bonus to employes	11,333	0	0
Amount added to capital amortization fund	2,098	16	3
The net profit for the year, after making the above deductions, amounts to	198,869	13	7
Add balance brought forward last year	7,061	2	11
	205,930	16	6

Deduct—	£	s.	d.
Interest on debentures and debenture stock to June 30, 1910	£59,478	14	5

Dividends already paid—	£	s.	d.
On 5% cumulative perpetual preference stock for year ended June 30, 1910	25,000	0	0
On preferred ordinary stock for year ended June 30, 1910	30,000	0	0
On deferred ordinary stock for 6 months to Dec. 31, 1909	24,000	0	0
	138,478	14	5

Leaving available for further distribution and reserves	£ 67,452	2	1
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From this the directors have decided—			
To recommend the payment of a dividend on the deferred ordinary stock at the rate of 8% per annum for the six months to June 30, 1910, making 8% for the year	£24,000	0	0
To transfer to reserve fund	37,845	6	0
	61,845	6	0

To carry forward to next account	£ 5,606	16	1
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There has been deducted from the reserve fund £18,531 9s. 7d., representing the difference between the net amount realized by, and the par value of £530,000 4¼% debenture stock, issued in Feb., 1910, and there has been added to the reserve fund £39,584 4s., representing the premium on £500,000 new capital, less expenses, issued in Sept., 1909. After the transfer now recommended by the directors as above, the reserve fund will amount to £235,000.

The number of lamps in use at June 30, 1910, was 439,315, an increase for the year of 92,289. The number of passengers carried during the year was 34,476,804, an increase for the year of 9,293,065. The commercial conditions at present existing in Vancouver and the prospects for the future have been carefully examined by the directors, who are pleased to report that the information at their disposal, obtained from reliable sources, indicates the existence of a sound basis for the undoubted prosperity which at present prevails throughout



British Columbia Electric Railway Co.—Proprietary station at Vancouver.

the whole province and gives promise of its continuance in the future.

The rapid development of the territory, and the great increase in the population of the cities served by the company, have made it necessary for your directors to give the most careful consideration to the question of the future supply of power, and in this connection J. Buntzen, one of the directors, undertook a special mission to British Columbia to investigate the entire situation and consider on the spot the recommendations previously received from the management. Early in 1910 it was decided to increase the capacity of the auxiliary steam plant in Vancouver, which provides for sudden temporary demands for extra power and a reserve in case of a breakdown on the transmission line or at the hydraulic plant. The work of increasing the capacity of the water power installation at Lake Coquitlam has also been continuously pushed forward, as has also the new water-power installation at Jordan River, near Victoria. A scheme has been sanctioned by your directors by which the power supply of the company can be gradually increased to meet any possible demands of the future. The addition to the Vancouver steam plant was satisfactorily completed in April last, and it is confidently expected that the enlargement of the Coquitlam water tunnel and the new Jordan River plant will be completed early in 1911. The other plans include the gradual development of the company's water powers at Chilliwack and Jones Lake, and the systematic proportionate increase of the auxiliary steam plant. Altogether, the plans provide a total ultimate supply of about 200,000 continuous horse-power.

The Fraser Valley line was formally opened from New Westminster to Chilliwack, 65 miles, by the Prime Minister of British Columbia, on Oct. 3, 1910. The road and electrical equipment have been constructed in a permanent and efficient manner, and the freight and passenger traffic already secured is very satisfactory. A considerable mileage of preliminary track has, during the year, been replaced by heavy permanent construction, and extensions, aggregating about

21 miles, have been constructed, or are in process of construction, in the territory between Vancouver city and New Westminster city and the Fraser River estuary. These branch lines are required to give necessary transportation facilities to the inhabitants of this district, which is developing with great rapidity, and, although they are not expected to prove immediately remunerative, your directors are satisfied they will, in the course of a few years, prove valuable sources of revenue. In addition to the foregoing, the company has incurred considerable expenditure as a result of the extension of the lighting branch, the provision of increased rolling stock, particularly for the Fraser Valley line, and further land, buildings and electrical equipment rendered necessary by the growth of the business. Your directors view with particular satisfaction the completion of the Fraser Valley branch and the approaching completion of other extensions, and of the Coquitlam water tunnel and the Jordan River water-power plant, as for the past two years during construction a very large sum has been unremuneratively locked up in these enterprises, which may be expected to contribute substantially to the company's revenue for the future.

The directors have again pleasure in expressing their appreciation of the very satisfactory services rendered by the management and staff in British Columbia.

The following expenditures on capital account were made during the year:—

Rolling stock	\$ 374,221.64
Railway extensions and track improvements	643,915.90
Lighting extensions	193,040.96
Power extensions	61,438.90
Steam plant	401,947.98
Lands and buildings	110,916.92
Electrical machinery	98,791.24
Extending light and power system under municipal charter	41,610.61
North Vancouver—rolling stock, metres, transformers and initial installations	27,611.08
New Westminster and Eburne—electrification of line	39,861.47
Fraser Valley branch—rolling stock ..	194,543.30
Sundries	75,548.46

\$2,263,448.46

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road has done with
Booth Water Softeners

Increased the life of fire-
boxes—stay bolts and
radial stays, 75%

Reduced boiler repairs 40%
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20%

Increased hauling capacity—
due to absence of leaky
flues and stay bolts

Locomotives make from 400
to 500 miles between wash-
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CAN YOU BEAT IT?

That's only half the story,
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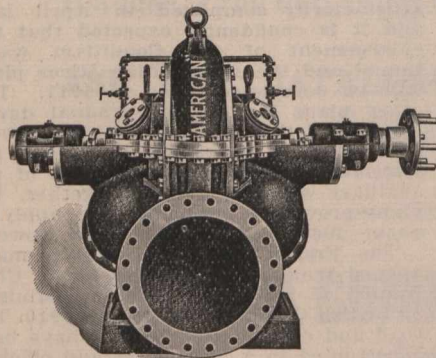
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efficiencies than others is they are so designed that there is a shorter passage and
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The impeller is accurately machined to fit the casing, leaving clearance for only a
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The same care that is employed in de-
signing the principal features of the pump
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tion; in balancing the impeller, overcom-
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The Street Car Situation in Toronto.

The Ontario Railway and Municipal Board gave judgment Jan. 19 in the case of the City of Toronto vs. The Toronto St. Ry. Co. respecting the bylaws in regard to the pay-as-you-enter system and the prohibition of smoking. "The opinion of the Board" was read by the Chairman, J. Leitch, K.C., the other members of the Board, Vice Chairman A. B. Ingram and H. N. Kittson, dissenting, and holding that two rear doors are necessary, one for entrance and one for exit; the Chairman holding that the company has the right to decide as to whether one door or two shall be provided at the rear. The Chairman, being of the opinion that the question is one of law, his judgment prevails over those of the other two commissioners. In the discussion with counsel which followed the reading of the judgment it developed that the case might be carried to the Court of Appeal, the Chairman expressing himself in favor of that course and adding that he could appear before the court and state his position. In view of the importance of the case the judgments are given in full.

The following is Chairman Leitch's judgment: This is an application to rescind by-law 36, of the Toronto Ry. Co. respecting closed motor and trailer cars, which was sanctioned by the Board, Dec. 2, 1910; or in the alternative, to suspend the operation of the by-law until such time as the company put proper pay-as-you-enter cars into service, and for an order directing the company to supply such cars of such character and dimensions, and within such time as the Board may order. The applicants also ask for an order directing the company to discontinue the use of trailers on their street railway system within six months and requiring the company to construct on its cars compartments for the use of smokers. This matter first came before the Board on Dec. 9, and was adjourned until Dec. 19. After hearing the evidence of several witnesses the Board further adjourned the hearing for one month from Dec. 19, in order that the Board's experts might have an opportunity of examining p.a.y.e. cars in cities in the U.S. and Canada, and observe their operation.

The Board delegated one of their engineers, J. F. H. Wyse, and D. M. Campbell, Manager and Car Constructor, Preston Car and Coach Co., to inspect the p.a.y.e. cars in operation in other cities of Canada and in several cities in the U.S., and to report their recommendations as to the changes and alterations that the company should make in their cars, and the equipment they would have to provide in order to instal an up-to-date p.a.y.e. system. The experts, accompanied by Vice Chairman Ingram, visited Cleveland, Buffalo, Rochester, Montreal and Ottawa, and after their return to Toronto, made a careful inspection and investigation of the p.a.y.e. and other cars now in operation here. The experts have advised the Board that there is no standard p.a.y.e. car suitable for all places and all conditions; that the style of car adopted in different cities depends upon local requirements and the opinion and inventive genius of the car constructor; and the system being comparatively new is in a transition state and is being modified and improved from time to time, as experience renders it necessary and advisable. There is one thing certain, however, and that is that the p.a.y.e. system is a vast improvement upon the old method of collecting fares by passing around the box.

The company's by-law 36, which the Board sanctioned, is necessary and proper for the operation of a modern p.a.y.e. system. Had it not been so designed, and had not the company a con-

siderable number of p.a.y.e. cars in commission, the Board would not have sanctioned it. Now that the company have determined to instal the new system and to adopt a modern method of collecting fares, the first question, which lies at the threshold of this application, is as to whether or not the Board have power to make an order directing the company to make their p.a.y.e. cars of such character and dimensions as the Board may seem proper. Sec. 17 of the Act incorporating the Toronto St. Ry. Co., 55 Vict., chap. 99, provides that the fare of every passenger shall be due and payable on entering the car, and any person refusing to pay the fare when demanded, and refusing to quit the car when requested, shall be liable to a fine of \$10 with costs. Sec. 116 of the Ontario Railway Act, 1906, provides that the fare or toll shall be due and payable by every passenger on entering the car or other conveyance, and every passenger who refuses to pay his fare may, by the conductor of the train and the train servants of the company, be expelled from and put off the car with his baggage, at any usual stopping place, or near any dwelling house, the conductor first stopping the train and using no unnecessary force. By subsec. 2 this section is made expressly to apply to street railways. By both of these Acts, the fare is due and payable by the passenger on entering the car, and he is liable under the first mentioned act, if he refuses to pay his fare or to quit the car when requested, to a fine of \$10, and under the second act is liable to be expelled from the car. Neither of these acts fixed the method by which the fare is to be demanded and collected. Heretofore the passenger has been presented with a fare box after entering the body of the car. The company want to change this system and substitute for it a stationary p.a.y.e. box, fixed in a rear end vestibule, in which the passenger will be required to deposit the fare before he enters the seated part of the car. Now that the company are departing from their former method of collecting fares, have passed their by-law 36, and are adopting a different practice and require different equipment and appliances in order to make the change of system workable, the Board are of the opinion that, under and by virtue of the Ontario Railway and Municipal Board Amendment Act, 1910, they have power and authority to determine the proper and adequate practice, equipment and appliances, necessary for the p.a.y.e. system.

The experts, complying with the Board's instructions to inspect the cars in use and to observe the operation of the p.a.y.e. systems in other cities, and after a careful and exhaustive examination of all types of Toronto cars, both those that have been changed and those that have not been changed, and after taking into consideration the traffic conditions that exist in Toronto, have made the following recommendations:

1. That rear vestibules on all cars intended or the collection of fares by the p.a.y.e. system should be enclosed, except over the steps.

2. That the length of the rear platforms should be governed by the style of car, and its seating capacity, i.e.:

A. Car bodies 18 to 22 ft. in length (both sizes inclusive) should have a minimum rear platform length of 56 ins. clear inside, measured longitudinally, with a minimum step length of 39 ins.

B. Cars having bodies of 22 and under 28 ft. in length should have a minimum rear platform of 62 ins. clear inside, measured longitudinally, with a minimum step length of 44 ins.

C. Cars having bodies 28 to 32 ft. in length (both sizes inclusive) should have a minimum length of rear platform of 68 ins. clear inside, measured

longitudinally, with a minimum step length of 48 ins.

D. Cars having bodies over 32 ft. in length should have a minimum rear platform of 74 ins. clear inside, measured longitudinally, with a minimum step length of 54 ins.

3. That the platform fare box now in use by the Toronto Ry. Co., or an approved one of similar design be used on all cars intended for the collection of fares by the p.a.y.e. system.

4. That an upright be placed near the centre of each step opening, extending from the floor to the ceiling, which can be used as a grab handle, the spacing from the car body to be left to the discretion of the company. That the grab railings now in use on the ends of the car be retained in their present location. That a similar grab railing be placed all around the interior of the rear vestibule. That at the discretion of the company a grab railing be put on the fare box.

5. That in all cars intended to be used for the collection of fares by the p.a.y.e. system, there shall be one door in the rear end bulk head on the devil strip side for entrance, and one door on the street side for exit, or in lieu of the two doors there shall be one reasonably large door on the devil strip side, the minimum width of which should not be less than 36 ins. In the event of two doors being used there shall be a dividing rail to separate the flow of in-going and out-going traffic.

The experts report that one large door on the devil strip side has advantages over the two-door system, but as the two-door system has given good satisfaction in other cities, they give it as their opinion that either system would be satisfactory. They also recommend that the system now in operation of entering cars by the rear door and leaving by the front should be continued.

The Board adopts the said recommendations of the said experts, and determines that the same are reasonable, safe, proper and adequate regulations, practices, equipment, and service for a p.a.y.e. system, and for the cars of, and for the transportation of passengers by the Toronto Ry.

The Board are of the opinion that the company have the right to select and adopt either a single door or two doors between the rear vestibule and the body of each motor car. Where the opinion of the experts is equally divided as to whether one door or two doors is the better plan, the company has the right to select whichever plan they choose.

The Board are of opinion that all the company's motor cars should be changed into p.a.y.e. cars with all reasonable dispatch; that each car should be put in commission as soon as finished; that the whole system should be completed in 18 months from this date; and that such changes and equipment should be subject to the direction and inspection of one of the Board's engineers. The sketch hereto annexed shows the arrangement of the rear end vestibule. The p.a.y.e. system will not apply to cars when they are changed into what are known as summer cars.

The Board further suspends the operation of by-law 36, but the same shall automatically take effect upon each motor car of the Toronto Ry. system, when and as soon as each car is equipped as aforesaid to the satisfaction of the Board's engineer.

In view of the congested conditions that exist in Toronto, the Board declines to order the company to discontinue the use of trailers or to construct its cars with compartments for the use of smokers. To do otherwise, at least until such time as the new lines and cars ordered by the Board in May, 1907, are completed, would only intensify and aggravate the congestion.

In the event of the decision being re-

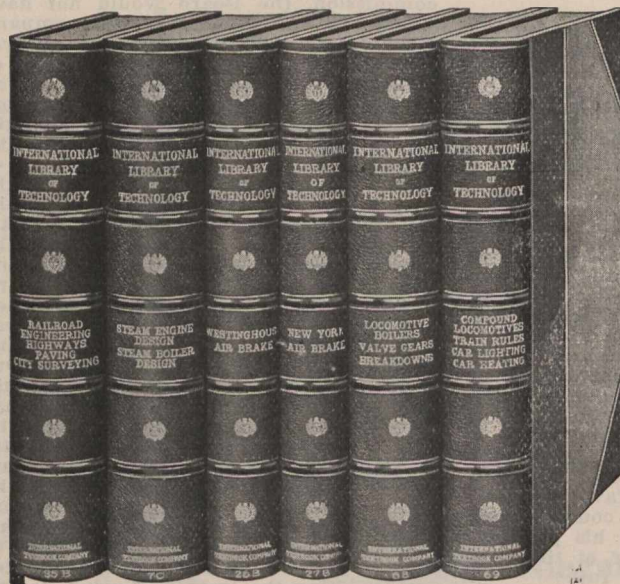
versed by the Court of Appeal on any of the questions of law involved in this opinion, the Board reserves further consideration and direction, and the question of costs, and the experts' fees and expenses.

A formal order can issue in terms of this opinion to be settled by the Secretary in case the parties differ.

Vice Chairman A. B. Ingram, gave the following dissenting judgment: Accompanied by five experts, I have investigated the p.a.y.e system in Cleveland, Buffalo, Rochester, Montreal and Ottawa, where traffic conditions are similar to those prevailing here. I find that in all these cities, except Ottawa, the companies have a separate entrance and exit at the rear end of each car on which the p.a.y.e system is used. Ottawa has tried one door at the rear end, but is now constructing all its new cars with separate entrance and exit at the rear end. In addition to the experts who accompanied me, I have consulted with traffic and car building experts, in all the above mentioned cities and find that, as a matter of practical car building, the Toronto Ry. cars can be altered by the extension of the platform and putting in or installing a separate entrance and exit at the rear end of each car, and properly stepped and vestibuled. My investigations have convinced me that, where the p.a.y.e system is in use, a separate entry and exit are necessary at the rear end of each car. If the Toronto Ry. desire to adopt the p.a.y.e system, they should be directed to instal a separate entrance and exit at the rear end of each car, and to supply a proper vestibule, suitably heated, for the adequate protection of the conductor. Having regard to by-law 36, of the Toronto Ry. Co., this by-law does not appear to me to be suitable for cars having two rear doors. I think, therefore, that the company should apply to the Board, on notice to the city, for approval for a new by-law to replace by-law 36.

I regret that my opinion does not agree with that of the Chairman in these particulars, but I cannot arrive at any other conclusion after my personal investigations of the working of the p.a.y.e system.

The other member of the Board, H. N. Kittson, also dissented as follows: I regret that in this matter my opinion differs in some respects from that of the Chairman as set forth in the judgment which he has read. I have had the privilege of consulting with the Vice Chairman who, accompanied by a number of experts, visited a number of cities in the U.S. with a view of investigating the working of the p.a.y.e system in these cities where the conditions were closely similar to those existing in Toronto. These investigations have shown that it is practical to so alter the cars here that the rear platforms can be extended and that a separate entrance and exit can be installed, that is to say, that two doors can be used at the rear end of the car. In Cleveland, Buffalo, Rochester and Montreal there have been installed, and there are now in use cars that have two doors at the rear end for the p.a.y.e system, and the Ottawa Electric Ry. Co., having previously operated their cars with one large door in the rear, are now profiting by their experience and are constructing all the new cars with two doors at the rear end. I am aware that altering the present cars in use by the Toronto Ry. Company so as to make them up to date p.a.y.e cars will involve considerable expense, but, as the company has, of its own initiative, applied for leave to use the p.a.y.e system, I am of the opinion that in Toronto the practice and system which have been tested and proved by actual experience and trial to be the best, should be adopted. I concur in the judgment of the Chairman in the main, excepting



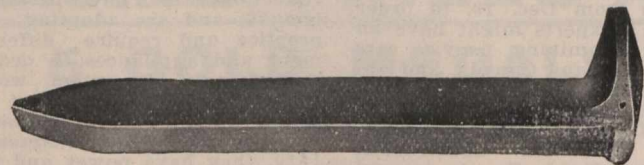
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that, in my opinion, two doors are absolutely necessary at the rear end of the cars if the p.a.y.e system is to be enforced. I further dissent from the view expressed by the Chairman that the company have the right to select and adopt either a single or a two-door system at the rear end of each car. The Chairman sets forth that, under the Act of 1910, the Board has power and authority to determine the proper and adequate practice, equipment and appliances necessary for the p.a.y.e system. In that view, the Board has the right to order the installation by the company of separate entrances and exits on all cars where the p.a.y.e system is enforced, and I am, therefore, of opinion that this Board should order the company, within a reasonable time, to alter their cars so that a separate entrance and exit at the rear end will be installed before the p.a.y.e system can be permitted on such cars.

The city is proceeding against the company on a charge of maintaining a common nuisance, the grand jury returning a true bill at the Assizes, Jan. 10, to the following effect:

"That the Toronto Ry. Co. unlawfully neglected and unlawfully omitted to take reasonable precaution to avoid danger to human life in the operation of its cars in Toronto, by having in its charge and under its control and by maintaining and operating cars that were not of the most approved design for service and comfort, and by neglecting to provide proper or approved fenders, guards, or appliances, lights and signals, to avoid danger to human life, to be attached to the cars, in consequence whereof the lives, safety, health, property, and comfort of the public, as well as foot passengers, as also other subjects of our Lord the King, were endangered."

Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—During 1910 the company added about 76 miles to its lines, the additions to the lines in Vancouver and suburbs representing 13 miles, and the new Fraser Valley line about 63 miles.

Work has been started on the new station in New Westminster, and preparations are being made for the building of additional stations on the Fraser Valley line. A new right of way has been acquired near Sapperton for a section of the Vancouver, Fraser Valley and Southern Ry., and permission has been granted for the laying of temporary spur tracks to some gravel pits opened up for ballast purposes. (Jan., pg. 71.)

Calgary Municipal St. Ry.—The city council has entered into contracts for materials, etc., for the building of an additional 22 miles of line on the streets of Calgary, Alta., exclusive of second track. The work is to be proceeded with in the spring, and it is expected to get through with it by Nov. 1. A new power house is being erected at a cost of \$125,000. The equipment will consist of a 1,200 h.p. Babcock and Wilcox boiler, 1,200 h.p. Robb-Armstrong engine, and a 900 k.w. generator. (Dec., 1910, pg. 963.)

Cape Breton Electric Co.—The question of an extension of the line from Sydney to New Waterford, N.S., was discussed at the meeting of the city council Jan. 16, and a committee was appointed to confer with the company. (Jan., pg. 71.)

Central Canada Ry. and Power Co.—Application is being made to the Manitoba Legislature for construction powers in addition to those conferred by chap. 56 of the statutes of 1905. The company is asking for power to build a railway from Winnipeg or St. Boniface northeasterly to the Winnipeg Riv-

er in tp. 17, 18 or 19, and thence to the northern boundary of the province, with branch lines to a point on Lake Winnipeg to be approved of by the Lieut.-Governor-in-Council. Fisher, Wilson, Battram and Hamilton, Winnipeg, are solicitors for applicants.

A Winnipeg dispatch, Jan. 17, says the company's solicitors state that the enterprise is not controlled by any of the other railway interests, that the company has no offices in Winnipeg, but a number of citizens are interested in it, and that if parliamentary sanction is given to the undertaking, the railway mentioned in the application will be the first piece of construction.

Dunnville, Wellandport and Beamsville Electric Ry.—The Ontario Legislature is being asked to authorize the company to extend its projected line from Fenwick to Welland, Ont., and for an extension of time for the building of the already authorized lines. (April, 1910, pg. 310.)

Edmonton Interurban Ry.—An act incorporating a company with this title to build a system of electric railways radiating from Edmonton, Alta., was passed last session of the Alberta Legislature. (Dec., 1910, pg. 1065.)

Frontier Electric Co.—Press reports Jan. 12 state that a company with this title proposes to build an electric railway from Buffalo to Niagara Falls, N.Y., for which plans have been filed with the clerk of Erie county. Other reports state that it is proposed to connect up this line with the Niagara, St. Catharines and Toronto Ry. by means of a bridge across the Niagara River. Capt. G. Shepard, Niagara Falls, N.Y., is President of the company.

Grand Valley Ry.—The Board of Railway Commissioners has approved, subject to certain terms, the extension of the line in Brantford, Ont., and directed that certain crossings of the G.T.R. and of the Toronto, Hamilton and Buffalo Ry. be protected. (Dec., 1910, pg. 1067.)

Great Falls Power Co.—Selkirk Electric Ry.—Suburban Park Ry.—By an act passed last session of the Manitoba Legislature the company, notwithstanding the fact that it had not complied with the provisions of the provincial Railway Act, was declared not to have forfeited its charter of incorporation, and was given an extension of time within which to build its line of railway. In the title the act is described as being to amend "chap. 61 of 1 and 2 Edward VII. and chap. 54 of 62 and 63 Vict." The first of these acts is that incorporating the Great Falls Power Co., passed in 1902, and having power to build an electric railway from Winnipeg to Selkirk, and to the Winnipeg River, with such other branch line or lines in other directions outside Winnipeg, as may be decided upon by the directors, to any other point or points in the province outside of Winnipeg, provided that no line from Winnipeg to Selkirk be built during the currency of the charters of the Selkirk Electric Ry., and the Winnipeg, Selkirk, and Lake Winnipeg Ry., but this restriction is not to apply to any renewal of either of these charters. The latter of the acts referred to is the one passed in 1899 incorporating the Suburban Park Ry. with power to build an electric or steam railway from St. Boniface to St. Norbert, with a branch to Ste. Anne; to cross any bridge from St. Boniface to the boundary of Winnipeg; a line from St. Norbert to the boundary of Winnipeg, or to acquire running rights over any existing lines between these points, and a line in St. Boniface, and from there along the east side of Red River to Elm Park.

Guelph Radial Ry.—Application is being made to the Ontario Legislature to

extend the time for the construction of the various lines authorized to be built, and to ratify an agreement with the People's Ry. with respect to the building of the lines of that company in Guelph.

A bylaw authorizing the extension of the line into St. Patrick's Ward was passed by the taxpayers Jan. 2. (April, 1910, pg. 311.)

Hamilton, Caledonia and Port Dover Ry.—The Ontario Legislature is being asked to incorporate a company with this title to build a system of electric railways from Hamilton to Port Dover, and through the townships of Ancaster, Barton, Glanford, Seneca, Oneida, Walpole, Townsend and Woodhouse, and serving the villages of Caledonia, Hagersville and Jarvis. G. Lynch-Staunton, Hamilton, is solicitor for applicants.

A press dispatch states that it is proposed to build a power house at Caledonia, where the projected line would cross the G.T.R.

The Hamilton and Caledonia Ry. Co. made surveys for a line from Hamilton to Caledonia in 1902, J. W. Tyrrel, of Hamilton, being in charge. In 1903 it obtained additional powers and changed its name to the Hamilton, Caledonia and Lake Erie Ry. Nothing further has been done, and the company is regarded as extinct.

Hamilton, Waterloo and Guelph Ry.—The Dominion Parliament is being asked to authorize the company to issue preference stock.

It was reported to the Hamilton city council Jan. 19, that the company had until Dec. 31, 1911, to build the projected line to Galt, and until Dec. 31, 1912, to extend it to Guelph. (Jan., pg. 71.)

Imperial Traction Co.—R. T. Harding, Stratford, Ont., representing the promoters of this company, was in London, Ont., Jan. 16, to explain the plans to the city council. The line is projected to start at Niagara Falls, and cover the whole of western Ontario, extending to Sarnia and Grand Bend, over 200 miles in all. Brantford, Sarnia and other corporations along the proposed route have been asked to endorse the project. The provisional directors include L. B. Howland, Toronto; R. Miller, Ingersoll, Ont.; G. M. Reid, London, Ont., and S. W. Nay, Listowel, Ont. (Jan., pg. 23.)

Lacombe and Blindman Valley Ry.—An extension of time was granted last session of the Alberta Legislature for the building of this projected electric railway from Lacombe along the valley of the Blindman River. (Dec., 1910, pg. 1069.)

Lacombe, Bullockville and Alix Electric Ry.—The Alberta Legislature last session extended the time within which this projected electric railway may be constructed. (Dec., 1910, pg. 1069.)

Lake Erie and Northern Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build a railway from Port Dover through Simcoe and Waterford to Brantford, northerly through in operation over it at an early date. (Jan., pg. 73.)

Montreal Street Ry.—The Quebec Legislature is being asked to amend the company's acts in various particulars, including increasing the number of directors. (Jan., pg. 73.)

Montreal Terminal Ry.—The Board of Railway Commissioners has extended the time within which the company may complete its spur across Victoria Ave., Montreal East. (May, 1909, pg. 367.)

Moose Jaw Electric Ry.—About 2.5 miles of track was laid upon this line during 1910. This mileage will be completed for operation during the summer, and additional track will be laid.

A writ has been issued against the

Paris to Galt, with a branch line from Paris or Glenmorris to Ayr, Ont. Brewster, Muirhead and Heyd, Brantford, Ont., are solicitors for the applicants.

W. P. Kellett, heretofore Chief Engineer Grand Valley Ry., Brantford, is acting as Chief Engineer, and in an interview Jan. 5, said the new line would be a standard steam line for electric use, with a maximum gradient of 1%, on which heavy electric locomotives would be used with regular trains of cars for freight traffic. The provisional directors named in the application are: W. S. Brewster, M.L.A.; J. Muir, W. D. Schultze, R. E. Ryerson, Brantford, and H. Douly, Simcoe, Ont.

Manitoba Radial Ry.—Application is being made to the Dominion Parliament to extend the time for the building of the line authorized by chap. 105 of the statutes of 1907, as amended by chap. 103 of the statutes of 1909. (July, 1909, pg. 523.)

Moncton Tramway, Electricity and Gas Co.—It is stated that the gas wells in Albert county have been so satisfactory to date that the company will be in a position to pipe a supply into Moncton, N.B., at an early date. Under the agreement with the city, the company has undertaken to build a system of street railways coincident with the introduction of natural gas for power and lighting purposes. The city council was notified Jan. 7 that it was expected to start construction Mar. 26. (Jan., pg. 73.)

Montreal and Southern Counties Ry.—The Board of Railway Commissioners has ordered the improvement of the condition of the right of way in Montreal South.

The electrifying of the Central Vermont Ry. branch to Chambly and Richelieu, recently taken over by the company, is approaching completion, and it is expected that a car service will be put



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Dated at Montreal, the 10th day of December, 1910.

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Andrew T. Thompson, Secretary,
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city and the company by a citizen, with a view of getting the bylaw granting the franchise set aside, on the ground that it is ultra vires, and to obtain an injunction to restrain the company from proceeding with construction. (Jan., pg. 73.)

Nanaimo, B.C.—The proposition submitted to the taxpayers, Dec. 31, for a franchise for an electric railway in the town, was defeated by 329 votes to 236. (Dec., 1910, pg. 1067.)

The Niagara, St. Catharines and Toronto Ry.'s extension from Welland to Port Colborne, Ont., was reported completed Jan. 15. (Nov., 1910, pg. 965.)

North Midland Ry.—A bylaw authorizing the city to guarantee \$200,000 of the company's bonds was passed by the taxpayers of London, Jan. 2. (Jan., pg. 73.)

Ottawa and Kingston Electric Ry.—Application is being made to the Dominion Parliament to incorporate a company with this title to build an electric railway from Toronto to Ottawa, via Brockville, Ont. Press reports state that construction will be started in May. (Jan., pg. 73.)

Ottawa and St. Lawrence Electric Ry.—We are informed that the representative of a very strong British construction company has recently gone over the line, and has been given an option on the charter, etc., which it is expected will be taken up, in a short time. The preliminary agreement provides for the starting of work during the present year. A. H. N. Bruce, Chief Engineer of this line, is also acting as Chief Engineer of a company which is applying to the Dominion Parliament for a charter to build from Ottawa to Kingston and other points. We are advised that the project is likely to be linked up with the O. and K.E. Ry. (Jan., 1910, pg. 59. See also Ottawa and Kingston Electric Ry.)

People's Ry.—Application is being made to the Dominion Parliament to declare the company's works and undertakings to be for the general advantage of Canada, for power to extend the lines already authorized to be built in various directions; to increase the capital stock to \$5,000,000; to extend the time for building the lines already authorized, and for other purposes. The additional lines for the construction of which authority is asked are: From Arthur to Flesherston, with branches to Meaford, Owen Sound and Collingwood; a line from Owen Sound, via Meaford and Collingwood, to Midland; from Woodstock, via London, Stratroy, Alvinston, and Petrolia to Sarnia; from Woodstock, via Norwich, Otterville, Waterford, and Simcoe, to Port Dover; from Waterford, via Hagersville and Caledonia to Hamilton; from Otterville to Tillsonburg, via Aylmer, and from St. Thomas to Port Stanley; from Stratford, via Mitchell, Seaforth and Clinton, to Goderich; from St. Thomas, via London, Lucan, Woodham, Kirkton, Mitchell, Monkton, Atwood, Listowel, Harriston and Mount Forest, connecting with another of the projected lines in Grey county; from Guelph to Hespeler and Puslinch Lake. The company also asks various powers as to elevators, water powers, etc. Pringle and Guthrie, Ottawa, are solicitors for applicants.

Bylaws granting franchises and authorizing the subscription to various amounts of the capital stock of the company were passed by the taxpayers of Fergus, Proton and Garafraxa, Jan. 2. A Guelph, Ont., press report states that negotiations are in progress with a large construction company to undertake the building of the line. (Jan., pg. 73.)

Port Arthur and Fort William Electric Ry.—A bylaw has been passed by the citizens of Port Arthur, Ont., author-

izing the removal of the street railway tracks from John St. to Bay St., at a cost of \$10,000.

The Fort William city council is applying to the Ontario Legislature for various powers, including authority to issue debentures, without obtaining the previous consent of the ratepayers, for the purpose of raising the street railway's proportion of the cost of paving and macadamizing streets in the city. (Jan., pg. 73.)

Quebec and Island of Orleans Ry.—Application is being made to the Quebec Legislature to confirm the privileges already accorded and grant an extension of time for construction. It is also desired to have power to build the line on the mono-rail principal. P. Corriveau, Quebec, is secretary. (April, 1909, pg. 311.)

Quebec and Saguenay Ry.—Application is being made to the Quebec Legislature to extend the time for constructing the lines authorized by chap. 55 of the statutes of 1906, and the extensions subsequently authorized.

A London, Eng., dispatch, Jan. 5, stated that R. Forget had arranged with British capitalists to provide funds for starting construction on this projected line. (Jan., 1910, pg. 59.)

Quebec County Ry.—Application is being made to the Dominion Parliament to sanction a deed transferring to the Q.C. Ry. a certain portion of the lines of the Quebec Ry., Light and Power Co., which transfer has been approved by the shareholders of each company. (See Quebec Ry., Light and Power Co.)

Quebec Ry., Light and Power Co.—The Board of Railway Commissioners has authorized the building of a branch from Beauport station northwesterly to Montmorency village, Que.

An agreement has been reached with the Quebec city council, by which the line will be extended to Lesage Ave. by May 15, and the work done on Plamondon St. by June 1.

The company's hotel, Kent House, Montmorency, was recently reopened after being enlarged and redecorated. (Dec., 1910, pg. 1067.)

Simcoe Ry. and Power Co.—Application is being made for the approval of the Governor-in-council of the plan and site of the company's high tension transmission line across Matchedash Bay, at Waubaushe, Ont., the plans of which have been deposited in the registry office at Barrie, Ont., and in the offices of the Georgian Bay Lumber Co., Waubaushe, Ont. (Sept., 1910, pg. 783.)

Timiskaming, Ont.—The Dominion Government is asking Parliament to vote \$50,000 towards the erection of a bridge to connect the provinces of Ontario and Quebec, near Timiskaming, Ont. A proposal to have the bridge sufficiently strengthened so as to enable an electric railway to be operated over it has been made. Such a line would connect up Cobalt, Haileybury and other Ontario towns with Ville Marie, Que.

St. John Ry.—We are advised that the St. John, N.B., city council is being asked to grant the company permission to extend its car lines from the foot of Brussels St., to Loch Lomond Road, about 0.6 of a mile, and the township municipality is being asked to grant permission for the extension of this line along the Loch Lomond road to the cemetery by the back road, 0.4 mile, and from the Loch Lomond road along the Crouchville road to the Old Loch Lomond road, 1.6 miles. It is only proposed to build the first two lines and 0.6 of a mile of the last mentioned line during the current year. (June, 1910, pg. 497.)

Toronto.—The Toronto city council is applying to the Ontario Legislature for confirmation of certain bylaws and also

for the following powers: Confirming and validating the notice given to the Toronto and York Radial Ry. of the intention of the corporation to acquire that portion of its line running from Sunnyside to Long Branch Park; declaring that the corporation may acquire the line under the provisions contained in the agreement, dated Dec. 23, 1890, made with the old Toronto and Mimico Ry., and under the provisions of the Railway Act of 1887, notwithstanding the repeal of that act; authorizing the acquiring of the line as from Dec. 23, 1911, under certain conditions, and authorizing the raising of money by debentures to purchase the line. It is also desired to have authority to extend the line easterly along the Lake Shore Road and Queen St., so as to connect with the Toronto Ry., and to be enabled to make agreements with the Toronto Ry. for the interchange of cars and traffic, and for running rights over the Toronto Ry. to St. Lawrence Market or other points in the city.

The taxpayers, Jan. 2, by 14,592 votes to 4,758, authorized the council to raise \$1,157,293 by debentures for street railway construction in the city. Several notices of motion have been made at meetings of the council subsequently held, but nothing further has been done.

Toronto and York Radial Ry.—Application is being made to the Ontario Legislature to authorize the company to build lines and branches between its present termini in different parts of the city of Toronto, to which it is at present authorized to build, and for power to build additional lines as follows: From the Toronto and Scarboro Division to Markham; from Sutton, on the Metropolitan Division, to Pefferlaw.

The new bridge over Mimico creek on the Lake Shore road has been completed. The building of the bridge, which is on a private right of way, has enabled the company to cut out some curves on this section of the line.

A private right of way is being acquired for a section of the Metropolitan Division, at Woodlawn Ave., Toronto. (Dec., 1910, pg. 1069.)

Toronto Interurban Ry.—Application is being made to the Ontario Legislature to incorporate a company with this title to build a line from Toronto to Barrie, Ont. Ritchie, Ludwig and Ballantine, Toronto, are solicitors for applicants.

Toronto Ry.—The city engineer has recommended the city council to call upon the company to lay a double track line on Danforth Ave., from Broadview to Greenwood Ave., and on Greenwood Ave., from Gerrard St. to Danforth Ave. (Oct., 1910, pg. 877.)

Toronto Suburban Ry.—The Ontario Legislature is being asked to authorize the company to extend its line from some point on its authorized line to Guelph, to Milton, and to extend its Guelph line to Berlin, Preston, Hespeler, Galt and Hamilton; to increase its capital stock, to issue bonds for terminals, and to extend the time for the construction of the previously authorized lines. (Aug., 1909, pg. 609.)

Winnipeg Electric Ry.—The track mileage of the lines in Winnipeg was increased during 1910 by 5.44 miles.

A new power house is to be erected at a cost of about \$500,000 at the foot of Mill St., for the purpose of generating power by steam, for distribution in the city. This announcement has been made as a result of the recent decision of the courts as to the rights of the company to distribute power from Lac du Bonnet in the city. Leave has been granted to carry the case to the Imperial Privy Council, as neither the company nor the city is satisfied with the decision of the Court of Appeal. (Nov., 1910, pg. 965.)

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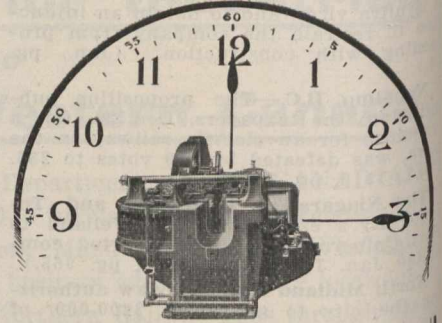
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Electric Railway Notes.

H. C. Johnson has been elected President of the Toronto Ry. Employes Union for the current year.

The Winnipeg Electric Ry. has issued orders forbidding conductors and motormen to wear "union" buttons while on duty.

W. P. Kellett has resigned his position as General Manager Grand Valley Ry. to become Chief Engineer of a proposed electric line, to be called the Lake Erie and Northern Ry.

W. Rae, Inspector of Tramways for British Columbia, has ordered the Nelson St. Ry. to equip its cars with air brakes, and to purchase an additional car.

The Toronto and York Radial Ry. is applying to the Ontario Legislature to authorize it, among other things, to run its cars on Sundays to and from any city of more than 50,000 inhabitants.

E. Daganais, R. Fournier and R. Blake, clerks in the Montreal St. Ry. offices, were charged, Jan. 11, with conspiracy to defraud the company by tampering with conductors' fare boxes. The two first pleaded guilty and the third, not guilty.

The British Columbia Electric Ry. commenced a mail service, by arrangement with the postal authorities, between New Westminster and Chilliwack, Jan. 11. No arrangement has as yet been made as regards mail matter for intermediate points.

The Quebec Ry., Light and Power Co. is reported to be in the market for eight pay-as-you-enter double truck steel motor cars, eight double truck trailer cars, 16 single ended open car bodies, and 25 box cars, including trucks.

The Winnipeg city council is to consider a bylaw requiring the Winnipeg Electric Ry. to operate an all night service and a full service on Sundays. It is also considering a proposal to build a tunnel route across the city in order to relieve the congestion of traffic on the city lines.

The Montreal board of control has adopted a recommendation of the legislation committee, that in all streets on which a street car line exists, the company or individual exploiting these tramways, shall pay one-third of the cost of the pavement of the street, and shall maintain the pavement during its franchise.

A statement purporting to emanate from the city hall, Montreal, claims that the Montreal St. Ry. is indebted to the city to the extent of \$70,000, its share of the cost of snow removal, which it refuses to pay, as the city did not handle the work in a businesslike manner, and that in consequence much money was wasted.

A deputation of labor men from various parts of the province waited upon the Premier of Quebec, at Quebec, Jan. 20, and referred, among other things, to the use of running boards and air brakes on street cars. In reply, the Premier said that the question of the abolition of running boards from street cars was one that might be referred to the Public Utilities Commission, as the one relating to the use of air brakes had already been.

The last distribution of profits to the employes of the British Columbia Electric Ry., under the plan adopted in 1902, by which one-third of the net proceeds, after paying 4% dividend on the common stock, was set aside for division among the employes, has been made. When cheques for \$57.31 were handed out to those of the employes entitled to them. The plan was abandoned at the men's initiation, as they preferred an

increase of pay to a share in the profits.

A point of law was raised in Montreal, Jan. 11, in a claim for the death of a child through being knocked down by a Montreal St. Ry. car. After proving the death of the child, the case was rested on the claim that the onus lay with the company to prove that it was not liable, a precedent being cited in the case of Doucet against the Shawinigan Falls Co., when the judge stated that there was a presumption against the owners of a thing which caused an accident, that it was their fault. Judgment was reserved on the point raised.

The new rules, drawn up by the British Columbia Government, for the regulation of interurban tramways, went into effect Jan. 1. They deal with train rules, time tables, signals, the movement of trains by time table or train order, dispatching system and train order forms, train rules for both double and single track, standardization of time, limitation of running time and all varying conditions of track, grade, etc.; automatic block system, station protecting signals, flag stop signals, interlocking signals, etc. A penalty of \$100 fine or three months imprisonment attaches to each violation of a rule. The rules for the operation of electric lines in cities are under consideration, and it is expected they will be put in force shortly.

Telegraph and Cable Matters

The Maritime Telegraph and Telephone Co. paid its second quarterly dividend of 1½%, Jan. 3.

The Canadian Northern Telegraph Co. is extending its office accommodation at Brandon, Man., owing to its largely increased business.

S. S. Dickenson, General Superintendent Commercial Cable Co., New York, who died there recently, was for some years Superintendent at Hazel Hill, N.S.

A. Harris has been appointed Telephone Inspector C.P.R. Telegraphs Manitoba Division, Winnipeg, vice W. R. Jones, transferred to the British Columbia Division.

The Dominion Government wireless telegraph station at Ikeda Head, Queen Charlotte Islands, B.C., has been completed, and one at Lone Tree Point is under construction.

The Western Union Telegraph Co. has completed the erection of a copper wire between Halifax and North Sydney, N.S., and an additional no. 8 iron wire between North Sydney and Glace Bay.

F. E. Camp, heretofore Telephone Inspector C.P.R. Telegraphs, Revelstoke, B.C., has been appointed Inspector of Telegraphs there, covering the main line, Field to Kamloops, and Kootenay lines.

W. R. Jones, heretofore Telephone Inspector C.P.R. Telegraphs Manitoba Division, Winnipeg, has been appointed Telephone Inspector British Columbia Division, with headquarters at Revelstoke, vice F. E. Camp.

The Commercial Cable Co. has extended its ocean mail services, which have been adopted in New York, to St. John and Halifax. By this means the public can, up to the last moment, connect with the outgoing mail.

The Board of Railway Commissioners has approved the forms used in transmitting messages by the C.P.R., White Pass and Yukon Route, Great North Western, Canadian Northern, North American, Western Union, Marconi Wireless and G.T.P. Telegraph Cos. for four months from Jan. 9, or until further order.

A board of conciliation, consisting of Judge Barron, Stratford, Ont., chairman; J. H. Gillman, Brockville, Ont., representing the Government Railways

Managing Board, and J. G. O'Donoghue, Toronto, on behalf of the men, has been appointed to enquire into alleged grievances of I.C.R. train dispatchers and telegraph operators.

The Commercial Cable Co. has declined the proposal of the city of St. John's, Nfld., regarding a location within the city limits, on account of the refusal to exempt the company from a special tax. The company is prohibited from doing business in the island by its contract with the Government, and proposed to establish a city office connected with its cables for the Government convenience.

The Western Union Telegraph Co., by the acquisition of control of the Anglo-American Cable Co., will take over the Prince Edward Island telegraph service, and also part of the Newfoundland service, which will be added to the district having its headquarters at St. John, N.B. Press reports state that a number of new lines will be erected in New Brunswick.

It is reported that the British Postmaster General has accepted the cable companies' proposal in connection with a half-rate arrangement for deferred messages. It is stated that the arrangement will not come into force for some time, as the British Government will have to obtain the consent of other cable companies and some of the European Governments.

The number of wireless telegraph stations along the coasts of Canada is 24. Of these, 15 are on the Atlantic coast and along the Gulf of St. Lawrence, the former being operated, under arrangement, by the Marconi Wireless Telegraph Co. Those on the Pacific coast, which have been in full operation since last June, dealt with 18,469 messages in four months from that date.

Alien Captains on Inland Steamboats.

The recent decision of the U. S. Government to enforce the regulation requiring that all masters of U. S. steamboats must reside in the United States, has been followed by the refusal of licenses to a number of captains living in Canada in the winter, on the ground that they are not U. S. citizens. Press reports state that the general question will probably be taken up by the Minister of Marine, and that it will form the basis of some negotiations respecting the status of mariners in Canada and the U. S. in this regard.

The Canada Shipping Act, 1910, cap. 113, sec. 75, reads: "Examinations may be instituted in Canada for British subjects or for persons domiciled in Canada for at least three years, who intend to become masters or mates of ships trading on the inland waters of Canada, or on the minor waters of Canada, or on coasting voyages, or who wish to procure certificates of competency or service. Foreign subjects serving in ships registered in Canada and trading on the inland waters of Canada, or on the minor waters of Canada, or on coasting voyages, shall be deemed to be domiciled in Canada while so serving."

In 1908 an amendment was made to the foregoing section, by the addition of the following clause: "The Minister may refuse to admit to the examinations mentioned in the two preceding sections any person domiciled in Canada who is a subject or citizen of a country in which British subjects do not enjoy similar privileges in respect to such examinations."

The foregoing extracts from the Revised Statutes of Canada indicate that the Minister of Marine has power to reciprocate in similar cases where masters of Canadian vessels, not being Canadian citizens, are concerned.

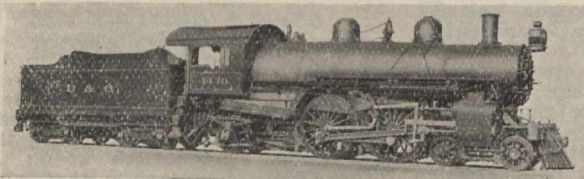
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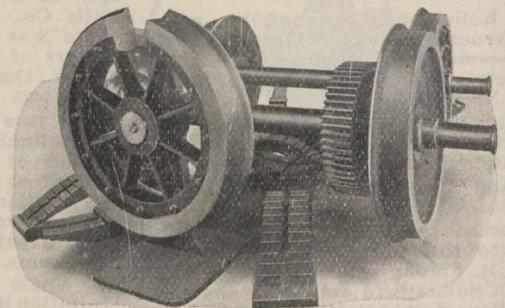
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 AND SECRETARY, T. Robb, 526 Board of Trade,
 Montreal.

Ship Masters' Association of Canada.
 GRAND MASTER, Capt. J. H. McMaugh, Toronto,
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 O. Jackson, 376 Huron St., Toronto.

**St. Lawrence & Chicago Steam
 Navigation Co.**

The following report was presented at the annual meeting in Toronto, Jan. 20: The season of 1910 has been one of the worst in the history of lake commerce. The high rates on iron ore and the marvellous growth in lake traffic for the past few years has stimulated the building of lake vessels, until their number and carrying capacity is considerably in excess of the present needs of commerce. Rates have, therefore, ruled very low for the entire season, grain having been carried in Oct. from the head of the lakes to Buffalo at $\frac{1}{2}$ and $\frac{3}{4}$ of a cent per bushel, equivalent to a rate of about 10c per ton on coal. In addition to the low rates the low depth of water at Sault Ste. Marie reduced the carrying capacity of our three largest steamers nearly 10%, while the cost of fuel and provisions has increased materially. Our boats have had no serious accidents during the season.

The question of the cost of marine insurance on lake vessels has become a very serious one, the rates having been advanced by the underwriters in 1909 about 20% over 1908, and again advanced about 20% in 1910 over the high rates of 1909, until this item amounted in 1910 to a charge against our boats of 7% on the capital stock. Your directors realize the importance of this matter in view of the excessive competition among lake vessels, decided in 1909 to try the experiment of carrying 25% of the risk against stranding and collision, while insuring full against total loss, with the result that we have \$13,802.30 still at credit of contingent fund out of a total of \$20,483.46 charged to the boats in two years, after charging the fund with its proper share of all accidents for that time. A resolution will be submitted to you by which you will be asked to authorize your directors to operate the steamers without insurance until the underwriters offer a reasonable rate and policies of insurance which will protect us, as the present form of policy is faulty and virtually enables the underwriters to repudiate many just claims if they see fit, besides charging against the vessel \$500 on every accident, which shuts out small damage claims.

The lengthening of the steamer G. R.

Crowe was successfully accomplished last winter, and she has given very satisfactory service.

The directors from the earnings of the season have paid a dividend of 3% on the capital stock, and, after providing for same, have carried forward \$3,035.61 to the credit of profit and loss, making a balance at the credit of that account of \$136,042.89.

PROFIT AND LOSS.

Balance forward, Jan. 2, 1910	\$133,007.28
Steamships' earnings	\$42,760.86
Interest	69.20
	42,830.06
	\$175,837.34
Salaries, taxes, office rent, directors and auditors' fees, etc.	\$ 13,994.45
Dividend 3%, payable Jan. 3, 1911	25,800.00
Balance carried forward	136,042.89
	\$175,837.34

Assets.

Five steamers: Algonquin, Iroquois, W. D. Matthews, G. R. Crowe, E. B. Osler	\$1,000,000.00
Insurance unexpired	13,000.00
	\$1,013,000.00

Liabilities.

Capital	\$ 860,000.00
Accounts payable	92.00
Contingent fund	13,802.30
Dominion Bank	3,062.81
Balance of profit and loss carried forward	136,042.89
	\$1,013,000.00

The report was unanimously adopted, as well as the following resolution:—"In view of the present excessive rates charged by the underwriters and the unsatisfactory form of policy of insurance given, and with the experience of the past two seasons, when the total of all accidents to the company's steamers is less than \$32,000, against premiums paid of over \$110,000, the shareholders believe the company should, and hereby authorize the directors to operate the steamers without insurance until, in their opinion, the underwriters grant reasonable rates and a satisfactory form of policy to cover the steamers, either in whole or part."

The directors who were re-elected for the current year are:—President, W. D. Matthews; Vice President and Secretary, J. H. G. Hagarty; Managing Director, A. A. Wright; other directors, Jas. Caruthers, Capt. S. Crangle, G. R. Crowe, C. S. Gzowski, E. B. Osler, M.P.

Vessels Removed from the Register.

The following vessels were removed from the register, during Nov. 1910, for the reasons assigned, Steam, Argosy, Lunenburg, N.S., 84 tons, stranded; Aurora, St. Andrews, N.B., 183 tons, broken up; Cecebe, Toronto, 8 tons, broken up; Chicoutimi, Toronto, 70 tons, out of existence; City of Stratford, Toronto, 3 tons, out of existence; Clara, Toronto, 8 tons, broken up; Curlew, Toronto, 3 tons, dismantled; Devenish, Toronto, 2 tons, no information obtainable; Douglas, Toronto, 4 tons, no information obtainable; Edith, Toronto, 1 ton, no information obtainable; Erastus Wiman, Toronto, 36 tons, burnt; Florence, Toronto, 2 tons, broken up; General Wolseley, Toronto, 70 tons, broken up; H. L. Lovering, Toronto, 38 tons, out of existence; Huron, Toronto, 56 tons, broken up; Hygeia, Toronto, 1 ton, no information obtainable; Inter Ocean, Toronto, 98 tons, broken up; Jubilee, Toronto 2 tons, out of existence; Lake

Joseph, Toronto, 19 tons, broken up; Mabel, Toronto, 8 tons, dismantled; Maggie Mason, Toronto, 38 tons, wrecked; Minden, Toronto, 3 tons, broken up; Minnie Wade, Toronto, 6 tons, no information obtainable; Pochahantons, Toronto, 20 tons, out of existence; Queen, Toronto, 5 tons, no information obtainable; Ripple, Kingston, Ont., 10 tons, wrecked; Sarama, Toronto, 1 ton, out of existence; Sea Flower, Toronto, 5 tons, no information obtainable; Silver Wing, Toronto, 2 tons, no information obtainable; Startled Fawn, Toronto, 17 tons, no information obtainable; Stella, Toronto, 5 tons, broken up; Sutton Belle, Toronto, 4 tons, dismantled; Toronto Belle, Toronto, 12 tons, no information obtainable; Undine, Toronto, 15 tons, no information obtainable; Viola, Toronto, 46 tons broken up; Vivid, Toronto, 35 tons, no information obtainable; Zephyr, Toronto, 11 tons, wrecked. Sailing, A. E. Moore, Digby, N.S., 11 tons, broken up; Alouette, Chatham, N.B., 10 tons, broken up; Bruin, Toronto, 104 tons, out of existence; Coral Leaf, Parrsboro, N.S., 374 tons, transferred to West Indies; Coronet, Toronto, 24 tons, no information obtainable; Cygnet, Toronto, 27 tons, broken up; Cyprus, Toronto, 6 tons, no information obtainable; Davidson, Ottawa, 150 tons, broken up; Estelle, Yarmouth, N.S., 15 tons, burnt; F. J. Boswell, Ottawa, 153 tons, broken up; Garfield White, Parrsboro, N.S., 99 tons, sunk; Harry, Ottawa, 166 tons, broken up; Ingonish, Sydney, N.S., 16 tons, transferred to Newfoundland; J. B. Blanchard, Ottawa, 150 tons, broken up; James, Ottawa, 153 tons, broken up; James Cunningham, Ottawa, 176 tons, broken up; John M. Plummer, Halifax, N.S., 83 tons, wrecked; Janett, Halifax, N.S., 32 tons, wrecked; Levi Crannell, Ottawa, 157 tons, broken up; Lithophone, Toronto, 14 tons, out of existence; Maggie, Maitland, N.S., 35 tons, wrecked; Margaret Leonard, Digby, N.S., 37 tons, foundered; Merle, Toronto, 11 tons, sold to foreigners; Mildred M. Bell, Lunenburg, N.S., 54 tons, transferred to Newfoundland; Mink, Toronto, 19 tons, out of existence; Minnie, Toronto, 63 tons, out of existence; R. S. McKenzie, Ottawa, 154 tons, broken up; Rockland, Ottawa, 136 tons, broken up; Stella, Toronto, 5 tons, broken up, and the following were removed during Dec., 1910:—Steam, Acadia, Ottawa, 354 tons, broken up; Beatrice B., Ottawa, 43 tons, dismantled; Bismarck, St. John, N.B., 10 ton, broken up; Clyde, Ottawa, 26 tons, dismantled; Conqueror, Toronto, 17 tons, out of existence; Crusader, Ottawa, 2 tons, wrecked 20 years ago; Cuba, Hamilton, Ont., 599, converted into a sailing vessel; Despatch, Goderich, Ont., 22 tons, broken up; Favorite, Toronto, 24 tons, out of existence; Flora, Ottawa, 4 tons, broken up; G. H. Notter, Ottawa, 9 tons, burnt; Gypsy, Peterboro, Ont., 2 tons, broken up; Helena, Toronto, 9 tons, out of existence; Hubert Larkin, Quebec, 33 tons, broken up; Ida, Ottawa, 6 tons, broken up; Kate Murray, Toronto, 2 tons, out of existence; Kenneth, Brockville, Ont., 2 tons, broken up; Ladas, Toronto, 37 tons, out of existence; Lizzie, Ottawa, 8 tons, broken up; Nalad, Ottawa, 6 tons, burnt; Northern Light, Ottawa, 267 tons, broken up; Onaniche, Ottawa, 1 ton, burnt; Pierreville, Sorel, Que., 76 tons, wrecked; Pilot, Toronto, 48 tons, burnt; Ptar-migan, New Westminster, B.C., 155 tons, broken up; Wanda, Kingston, Ont., 4

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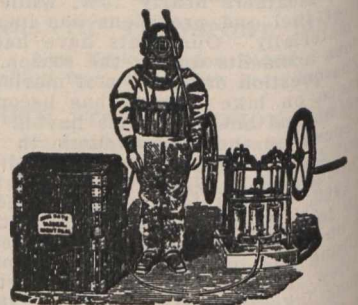
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tons, dismantled. Sailing:—Alphonse Pierre, Quebec, 29 tons, out of existence; Argentina, Chatham, N.B., 12 tons, broken up; Charming Lass, Charlottetown, P.E.I., 67 tons, wrecked; Conductor, Windsor, N.S., 1,063 tons, sold to Brazilians; Dawn, Chatham, N.B., 12 tons, broken up; Emaroy, Ottawa, 79 tons, out of existence; Emery Bailey, Windsor, Ont., 47 tons, wrecked; Emile, Quebec, 55 tons, out of existence; Frank Russell, Toronto, 283 tons, out of existence; Genser, Quebec, 44 tons, out of existence; Gertie, Windsor, N.S., 45 tons, sunk; George Manly, Toronto, 284 tons, out of existence; Hiram, Ottawa, 134 tons, broken up; Hiram Benson, Toronto, 275 tons, out of existence; Humming Bird, Halifax, N.S., 17 tons, supposed to have been lost; John Cuzner, Ottawa, 46 tons, broken up; John Loughrin, Ottawa, 36 tons, broken up; Midnight, Halifax, N.S., 66 tons, sunk in collision; Omega, Windsor, N.S., 199 tons, wrecked; Phillippe, Ottawa, 154 tons, broken up; Preference, Windsor, N.S., 243 tons, abandoned at sea; Rover, Ottawa, 74 tons, broken up; Rupert, Lunenburg, N.S., 78 tons, transferred to Newfoundland; Sea Nymph, Halifax, N.S., 77 tons, wrecked; Shepherd Boy, Ottawa, 62 tons, reported sunk; Sir Hector, Kings- ton, Ont., 183 tons, broken up; Violet, Halifax, N.S., 12 tons, broken up.

Montcalm-Kron Prinz Olaf Collision.

The following judgment was recently delivered by Capt. L. A. Demers, Wreck Commissioners, and concurred in by A. Reid, Port Warden and Surveyor to Lloyds' Register, Montreal, as Assessor, in the case of the collision of the Government s.s. Montcalm, and the s.s. Kron Prinz Olaf, near Channel Patch in the St. Lawrence River, Sept. 24, 1910:

The Court having carefully weighed the testimony adduced finds that L. Thivierge, pilot in charge of the Kron Prince Olaf, displayed a gross lack of knowledge of the recognized laws of navigation of the channel and is guilty of culpable errors of judgment by coming in contravention with the afore enumerated articles of the rule of the road, and in consequence the Court hereby condemns him to a fine of \$200, payable in four monthly payments. The Court further holds that P. A. Nelson, master of the Kron Prince Olaf, deserves censure for his failure to be in readiness on deck to advise his officers while navigating in narrow water, and also that M. Toftdahl, mate of the Kron Prinz Olaf, showed gross lack of judgment and of good seamanship both before and at the time of collision, and as both master and mate, are possessors of Norwegian certificates

with which this Court has no jurisdiction to deal, it is hereby suggested that their conduct be reported to the Norwegian Board of Trade as being deficient in the proper management of their vessel. Regarding the movements of the Montcalm, the Court accepts them as proper from when the Kron Prinz Olaf's lights were first observed up till the moment the latter vessel sounded the two blast signal for a second time, from which juncture the Court holds that Pilot A. Lachance in charge of the Montcalm was guilty of an error of judgment by failing to stop and go full speed astern. No pilot, master or officer in charge of the bridge must take for granted that a certain action or movement may be performed by another vessel, but must at once himself adopt such measures as will eliminate elements of doubt and apprehension, but as the aforementioned error of judgment of which A. Lachance is guilty is not of a culpable nature, the Court desires to admonish him to be more careful in the future. A word of warning is also given the Master, who must bear in mind that the presence of a pilot on a bridge does not relieve him of his responsibilities as Master and that in the event of the pilot performing an action or issuing an order contrary to good judgment, it is his duty to interfere and assert his authority.

LIST OF STEAM VESSELS REGISTERED IN CANADA DURING DECEMBER, 1910.

Name	No.	Where and When Built.	Engines, etc.	Length	Breadth	Depth	Gross Tons	Reg. Tons	Port of Registry	Owners
B. & M. LeBlanc	126,805	Tusket Wedge, N.S., 1910	Screw 8 n. h. p.	51.0	14.6	7.0	33	12	Yarmouth, N.S.	H. A. LeBlanc, M.O., Tusket Wedge, N.S.
Bunney	130,354	St. Peters, N.S., 1910	" 12 " "	43.8	12.4	5.4	14	13	Arichat, N.S.	Stewart Fish Co., St. Peters, N.S.
Colomb	126,926	Lauzon, Que., 1910	" 128 " "	120.6	34.0	15.5	559	338	Quebec, Que.	Levis Ferry, Ltd., Levis, Que.
Cocococache	130,399	Grand Piles, Que., 1910	" 1 " "	23.6	4.6	2.3	1	1	Montreal	J. A. LaFontaine, Grand Piles, Que.
Delbert D.	126,806	Meteghan River, N.S., 1910	" 14 " "	61.0	15.3	7.6	44	16	Yarmouth, N.S.	P. L. LeBlanc, M.O., Tusket Wedge, N.S.
H.C.M., No. 1	130,403	Montreal, Que., 1868	" 7 " "	84.0	24.0	8.2	135	72	Montreal	Harbor Commissioners of Montreal.
H.C.M., No. 2	130,407	" " 1864	" 7 " "	86.5	24.8	8.8	177	107	"	"
H.C.M., No. 6	130,408	" " 1873	" 6 " "	84.0	24.0	7.7	168	102	"	"
H.C.M., No. 7	130,409	" " 1872	" 5 " "	83.5	23.8	8.0	173	108	"	"
H.C.M., No. 9	130,410	" " 1873	" 6 " "	84.0	24.0	7.7	170	105	"	"
H.C.M., No. 10	130,411	" " 1875	" 6 " "	92.0	25.0	8.5	172	117	"	"
H.C.M., No. 14	130,412	" " 1881	" 6 " "	86.2	25.8	9.1	190	119	"	"
H.C.M., No. 15	130,413	" " 1890	" 8 " "	85.5	27.6	7.7	205	125	"	"
H.C.M., No. 16	130,414	" " 1890	" 8 " "	85.5	27.6	7.7	205	125	"	"
H.C.M., No. 17	130,415	" " 1904	" 8 " "	84.5	27.5	8.4	210	129	"	"
H.C.M., No. 18	130,416	" " 1904	" 8 " "	84.5	27.5	8.4	210	129	"	"
Hitaka	126,795	Steveston, B.C., 1910	" 24 " "	37.6	8.8	3.9	10	7	New Westminster, B.C.	Y. Nakanichi, Steveston, B.C.
Hydah	126,615	Skidegate, B.C., 1910	" 2 " "	33.1	9.8	3.7	8	6	Prince Rupert, B.C.	I. Wilson, Skidegate, B.C.
Kawassami	126,794	Steveston, B.C., 1910	" 24 " "	39.0	8.8	4.5	11	8	New Westminster, B.C.	S. Yoshida, Steveston, B.C.
Laura M.	126,819	Tancook, N.S., 1909	" 3 " "	40.2	10.6	5.6	12	11	Lunenburg, N.S.	M. Levy, Lunenburg, N.S.
Levy	130,292	Collingwood, Ont., 1910	" 4 " "	66.4	14.4	6.5	34	23	Port Stanley, Ont.	A. Graham and D.A. Paterson, J.O., Port Stanley, Ont.
Lola May	122,600	Deer Island, N.B., 1910	" 12 " "	34.2	9.2	4.2	9	6	St. Andrews, N.B.	E. H. Carson, St. Andrews, N.B.
Princess	126,925	Lauzon, Que., 1910	" 128 " "	120.6	34.0	15.5	559	338	Quebec, Que.	Levis Ferry, Ltd., Levis, Que.
Yaldah	126,948	Govan, Scotland, 1910	" 13 " "	290.5	46.1	15.0	3061	1910	Victoria, B.C.	C. P. R. Co., Montreal.
Yaldah	112,193	Chatham, Ont., 1901, 1905	Paddle 2 " "	63.0	17.3	4.0	42	26	Chatham, Ont.	J. Hadley, Chatham, Ont.

LIST OF SAILING VESSELS AND BARGES REGISTERED IN CANADA DURING DECEMBER, 1910.

Name	No.	Where and When Built	Rig	Length	Breadth	Depth	Reg. Tons	Port of Registry	Owners
Bertha M.	100,437	Shemogue, N.B., 1910	Schr.	43.0	13.3	4.1	13	Moncton, N.B.	R. Wells, Anderson, N.B.
Calico No. 2	130,400	Longue Point, Que., 1910	Scow	104.5	28.6	9.3	251	Montreal	Canadian General Development Co., Montreal
Calico No. 3	130,401	" " " "	"	105.0	28.6	9.3	252	"	"
Calico No. 4	130,402	" " " "	"	105.0	28.6	9.3	252	"	"
Calcolaria	126,910	Bay St. George, Nfld., 1909	Schr.	60.0	17.0	6.6	30	Halifax, N.S.	S. Swyer, Bay St. George, Nfld.
David Evans	71,153	Kingston, Ont., 1875	Barge	168.7	25.6	11.0	386	Montreal	A. Labrecque, Lanoraie, Que.
Dominic No. 3	126,947	Marshall, Ore, 1901	Schr.	200.4	40.0	15.3	748	Victoria, B.C.	E. H. Hunter, Kobe, Japan
Etha H.	130,397	Lachine, Que., 1910	Scow	100.0	37.6	6.0	183	Montreal	Dominion Barging Co., Lachine, Que.
Foundation Co. No. 4	130,398	" " " "	"	100.0	37.6	6.0	183	"	"
Foundation Co. No. 1	125,911	Tancook, N.S., 1910	Schr.	47.0	12.9	6.2	17	Halifax, N.S.	M. Harrie, Terrance Bay, N.S.
Foundation Co. No. 2	130,403	Lachine, Que., 1910	Scow	62.0	26.0	4.8	65	"	Foundation Co., Montreal
Foundation Co. No. 3	130,404	" " " "	"	62.4	25.8	4.9	63	"	"
Monie Davis	130,405	" " " "	"	79.0	25.7	5.0	84	Montreal	"
O.C.	130,421	Bristok Me., 1876	Schr.	28.2	16.4	6.2	23	St. Andrews, N.B.	S. Browa, Campobello, N.B.
Shabb	126,924	Chateau Richer, Que., 1907	"	70.4	22.4	6.8	54	Quebec, Que.	O. Caron, Jr., Chateau Richer, Que.
W.G. Hartlin	130,344	Richibucto, N.B., 1910	"	34.0	9.4	4.0	10	Chatham, N.B.	W. G. Mills, Hardwick, N.B.
William C. Smith	126,912	Jeddore, N.S., 1910	"	51.0	16.0	6.8	25	Halifax, N.S.	P. Hartlin, M.O., Jeddore, N.S.
William C. Smith	126,818	Lunenburg, N.S., 1910	"	104.8	26.0	10.6	99	Lunenburg, N.S.	W. C. Smith, M.O., Lunenburg, N.S.

* Formerly a sailing vessel

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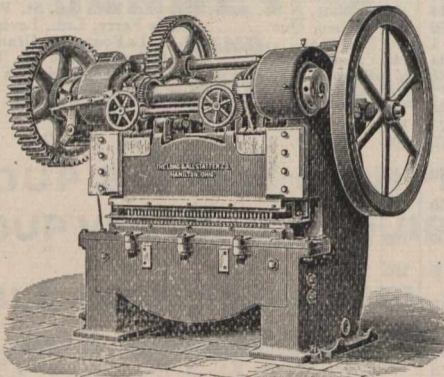
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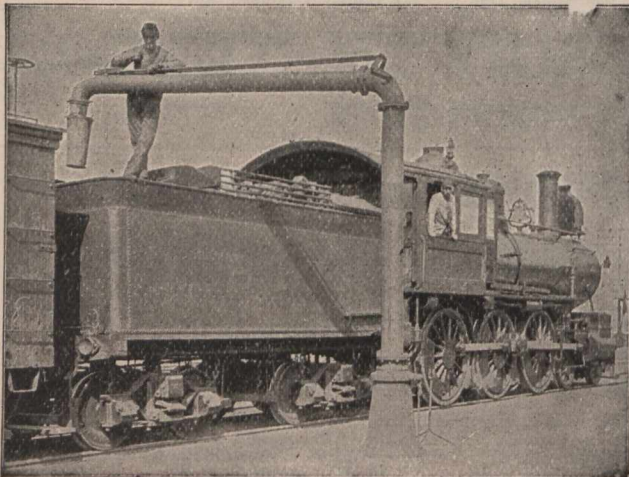
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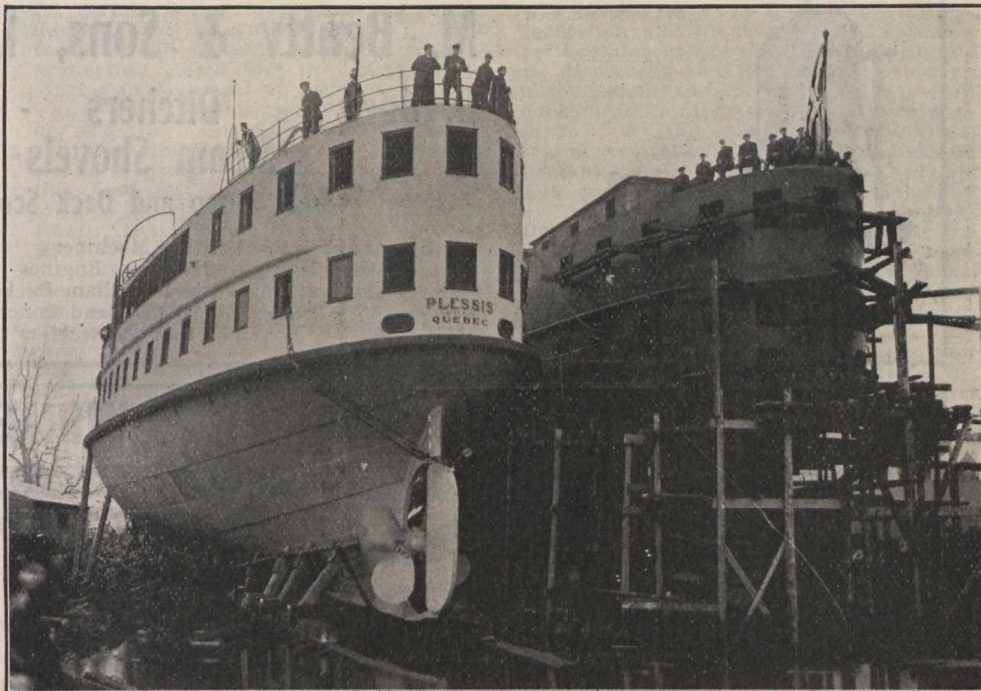
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The Levis Ferry Limited.

This company has four boats for the ferry service between Levis and Quebec City, all of which were built by G. T. Davie & Sons, at their Levis yard, within 10 months. Work on the two summer boats, Lauzon and Levis, was begun in Jan., 1910, and they were running May 1. They are 150 ft. long and 27 ft. beam, their engines being 52 nominal horse power. The winter ice-breaking boats, Plessis and Colomb, were commenced in July, 1910, and finished ready for operation Nov. 25. They are 120 ft. long by 35 ft. beam, web framed throughout, built of 3/4 in. steel plates. They have triple expansion engines 128 nominal h.p. Both summer and winter boats are fitted throughout with electricity, the winter boats having powerful search-lights. All four boats are screw propelled and equipped for both passenger and freight service. The accompanying illustrations show one of the summer boats, Lauzon, and one of the winter ones, Plessis, prior to launching.



The Levis Ferry, Ltd., Winter steamboat Plessis before launching.

Niagara Navigation Company, Ltd.

Following is the report for the year ended Nov. 30, 1910, presented at the annual meeting in Toronto, Jan. 10:—

As authorized at the last annual meeting, Yonge St. dock, Toronto, has been purchased, and the cost thereof added to the dock property owned by the company. The debenture account has been increased by \$105,000, which with cash on hand, was applied to cover cost of Yonge St. dock.

The character of the company's business requires a very high standard of service. To maintain this standard and provide for prospective increase of traffic, it may be necessary in the near future to add a new steamer to the fleet. The steamers and all the properties have been fully maintained.

After providing for the dividend, interest on debentures, writing \$25,000 off steamer values, and placing \$25,000 to renewal and betterment fund, the balance to credit of profit and loss account stands at \$141,317.30.

Assets.	
Steamers	\$834,725.33
Less written off	25,000.00
Dock properties Toronto and Niagara River	\$ 809,725.33
Accounts receivable	347,700.00
Cash in bank	3,552.46
	62,611.78
	\$1,223,589.57
Liabilities.	
Capital stock authorized	\$1,000,000.00
Subscribed and paid	\$ 701,700.00
Debentures outstanding 4 1/2 per cent.	227,000.00
Accrued interest	4,256.25
Reserve for renewals and betterments	231,256.25
	40,000.00

Accounts payable	5,247.12
Fire loss recovered from insurance companies	12,500.90
Mortgage on Yonge St. dock property due Dec. 5, 1912	63,500.00
Dividend 4%, payable Jan. 3, 1911	28,068.00
Balance at credit of profit and loss	141,317.30
	\$1,223,589.57
Profit and Loss Account.	
Balance Dec. 1, 1909	\$133,714.02
Net earnings for year	124,703.07
	\$258,417.09
Interest on debentures	\$ 9,126.29
Written off steamers	25,000.00
Appropriated for renewals and betterments	25,000.00
Discount and charges on debentures issued	1,837.50
Dividend 4% paid July 3, 1910	\$28,068.00
Dividend 4%, payable Jan. 3, 1911	28,068.00
	56,136.00
Balance carried forward	141,317.30
	\$258,417.09

The officers and directors for the current year, as re-elected, are:—President, E. B. Osler, M.P.; Vice President, Barlow Cumberland; other directors, Hon. J. J. Foy, Hon. J. S. Hendrie, J. Bruce Macdonald, W. D. Matthews, H. G. Osler.

J. F. Demers, Manager Levis Ferries, Ltd., died at Quebec recently, after a short illness.

Public Works Dredge for B. C.

The dredge which has been built for the Dominion Government to be used in widening Burrard Inlet, Vancouver, B.C., is of the bow well bucket ladder type, constructed of steel and built under Lloyds' rules to Class A1 steel dredger, special survey, and has the following principal dimensions: Length between perpendiculars, 199 ft.; breadth moulded, 36 1/2 ft.; depth moulded, 13 1/2 ft. The driving gear and bucket chain is designed for dredging hard ground; the buckets are 24 cub. ft. capacity, with solid cast steel backs and links the cutting lips and all wearing surfaces are of manganese steel. The gearing for driving the chain, which is of cast steel, is arranged to give two speeds which are suitable for the material to be dredged. The bucket ladder is suspended on an independent shaft, works in an iron bow well and is capable of cutting the dredge's flotation and dredging to a depth of 50 ft. The dredging machinery and bucket chain are designed for dredging 1,000 tons of free material per hour. Shoots are provided on each side of the dredge to deliver the spoil as required, and are worked by independent steam gear. All the necessary mooring and warping winches are of the most powerful design for dredging in rapid currents.

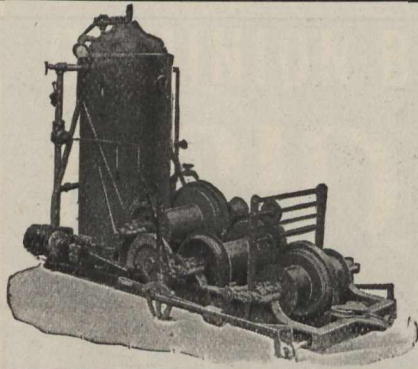
The dredge is propelled by two sets of compound surface condensing engines, and the speed on trial trip in deep load conditions was 10 knots. The engines are arranged to drive direct on the screw shafting or to operate the dredging machinery. Steam is supplied by two Scotch boilers having a working pressure of 120 lbs.

The dredge was built in Scotland, the order being placed through John Reid & Co., Montreal. She was launched on Nov. 7, 1910, and sailed on her long voyage around the Horn on Nov. 17, and should arrive at her destination in the latter part of February.

The C.P.R. has placed a contract at Newcastle-on-Tyne, Eng., for the construction of a steamship for its Pacific coast service, similar to its s.s. Princess Adelaide, to be equipped as an oil burner. She is to be ready for service by June.



The Levis Ferry, Ltd., Summer steamboat Lauzon before launching.

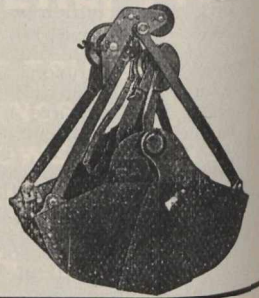


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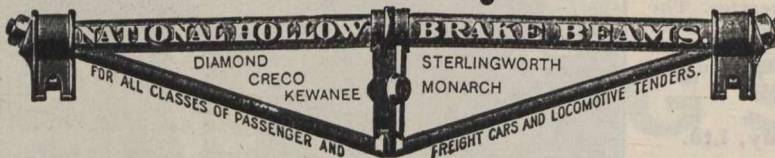
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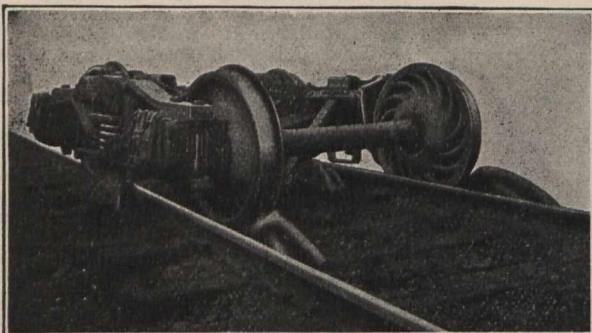
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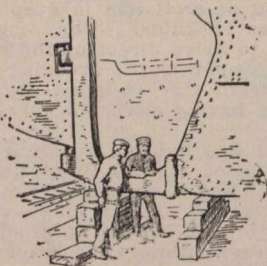
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Dominion Marine Association.

At the annual meeting in Montreal, Jan. 20, the reports of the executive committee and the committee on aids to navigation were adopted and several important resolutions were passed.

The Association declared itself opposed to the present system of examination of masters and mates, and recommended that the examination papers should be prepared at Ottawa, printed there and sent under seal to the examiner, not to be opened until the commencement of the examination, that examinations be held at stated dates and ports, and that as some parts of the examinations are oral, two examiners should sit together.

It was decided to recommend that all improvements or changes in navigable waters be made by the Dominion Government only, and solely with a view to the improvement of navigation, that only such water powers be developed as can be done without injury to navigation, and that before any further concessions are granted a comprehensive scheme should be developed by the Government.

That the Catarqui bridge at Kingston, Ont., be raised and the harbor dredged. That the Dominion Government be requested to keep all canals open on Sundays.

The report that the Gibraltar light on Toronto Island was to be discontinued elicited the remark from A. A. Wright that any captain who could not make Toronto harbor without the aid of that light should be sailing a stone boat behind a yoke of oxen.

The term of office of H. H. Gildersleeve, Northern Navigation Co. of Ontario, L. Henderson, Montreal Transportation Co., F. Plummer, Canadian Lake Transportation Co., and J. Playfair, Inland Lines, Ltd., who were elected in 1909 to serve for two years, having expired, Messrs. Gildersleeve and Henderson retired, Messrs. Plummer and Playfair were re-elected for three years, and E. E. Horsey, Lake Ontario and Bay of Quinte Steamboat Co., and J. E. McLurg, Algoma Central Steamship Lines, were elected for three years to fill the two vacancies. The other members of the executive committee are:—Elected in 1909 for three years, one year yet to serve, A. B. Mackay, Inland Navigation Co.; S. A. Calvin, Calvin Co.; J. W. Norcross, Mutual Steamship Co.; D. Murphy, Ottawa Transportation Co.; elected in 1910, two years yet to serve; H. W. Richardson, H. W. Richardson & Sons; J. P. Cavanagh, Ogdensburg Transportation Co.; W. F. Wasley, Muskoka Lakes Transportation and Hotel Co.; G. B. Green, Upper Ottawa Improvement Co.

The officers were re-elected as follows:—President, F. Plummer; First Vice President, J. S. Playfair; Second Vice President, D. Murphy.

The executive committee's report dealt very fully with the Association's work during the year, the following being extracts therefrom, with summaries of the less important matters:—

PILOTAGE DUES.—The bill introduced in the Commons last session on behalf of the Association to provide for the inclusion of Ontario in the list of provinces enjoying exemption from the compulsory payment of pilotage dues, came up for its second reading and was referred to the standing committee on marine and fisheries. The Association counsel attended with witnesses when this committee considered the matter in Ottawa, and was successful in getting the bill through the committee. Unfortunately, the committee's report was not taken up in the house before Parliament prorogued, although no opportunity was lost to urge its presentation. At the instance of the Association the bill was again introduced early in the present session, and has

led the Department to consider the matter seriously and to propose the introduction of a Government measure. The terms of this measure were discussed at a meeting called by the Minister of Marine in Montreal on Dec. 22, 1910, at which the Shipping Federation of Canada, and this Association were represented. The Shipping Federation presented strong opposition to the proposals of this Association, but ultimately the following conclusions were arrived at: Firstly, the pilotage charge for entering and moving in Montreal harbor will be discontinued; if necessary, by amendment of the statute. Secondly, the Minister considers favorably a suggestion, concurred in by the Shipping Federation, that provision be made for examinations for masters and mates to qualify as pilots in the districts of Montreal, Quebec, etc., similar to the provision now made by sec. 487 regarding other districts. Thirdly, the Minister favorably considers a suggestion, made by this Association and ultimately agreed to by representatives of the Shipping Federation, that sec. 435 be put in operation and second-class pilots appointed accordingly from among the apprentice pilots, and that the employment of these men on certain conditions be permitted on vessels from the lakes. Fourthly, the Minister strongly favors the construction of a second ship channel where necessary between Montreal and Quebec, for the use of lighter draught vessels such as those from Ontario.

The Minister is preparing a bill and hopes to submit the draft measure to representatives of this Association, of the Shipping Federation and of the Pilots Association, early in the year, with a view to having the amendment of the statute made during this session. In the meantime the pending bill of this session, may reasonably be permitted to stand, and its sponsor has been asked to await developments.

U. S. TONNAGE TAX AND CANADIAN HARBOR MASTERS' DUES.—Representations made by the Association and supported by the Lake Carriers Association, secured the passage of the bill by the U. S. Congress, which became effective at the opening of navigation in 1910. The reciprocal arrangement was then completed by the repeal of the order-in-council of 1909, which reimposed harbor masters' dues in Ontario on vessels from the U. S.

U. S. CORPORATION TAX.—Members of the Association carrying freight or passengers from or to ports in the U. S. are subject to this tax of 1% on the net income over \$5,000 received from business transacted and capital invested within the U. S., and also requires the filing annually of a statement showing the amount of this net income. Much correspondence has taken place regarding the application and interpretation of this law, and probably no two companies have adopted exactly the same method of determining the amount of their "business transacted" within the U. S. Apparently the department charged with the collection of the tax has not arrived at satisfactory conclusions as to the method of computation in the case of companies foreign to the U. S., for the request for rulings in the matter, made on behalf of the Association, has elicited only ambiguous and unsatisfactory replies. Attention is called to the penalties provided for failure to make up and file the required annual statements before the dates named in the statute.

POWER DEVELOPMENT IN NAVIGABLE WATERS.—The proposals of the Long Sault Development Co. and of the St. Lawrence Power Co. were considered at the last annual meeting of the Association, and a committee was appointed to join a conference in Montreal of the various interests opposed to the proposals and to attend the session of the International

Waterways Commission in Toronto. It was further resolved that if the full information and plans promised were not forthcoming at the session, details should be demanded and that in any event an adjournment should be asked to permit consideration after the plans were submitted. At the conference in Montreal it was arranged that each interest should present its own case, but that all should join in an effort to obtain the plans and an adjournment for further consideration. The subsequent session of the Commission in Toronto was largely attended and the Association's Counsel and A. A. Wright presented the Association's objections and claims. The Dominion Conservation Commission, the Ontario Hydro-Electric Commission, and various public and private interests, including the Richelieu and Ontario Navigation Co., the Calvin Co., and others, were also heard in opposition to the scheme. An opposite view was taken by certain other members of the Association interested in the transportation of freight on the St. Lawrence, and their views were presented by F. Plummer, who expressed the belief that the proposed undertaking would be advantageous to vessel interests. The Commission took no action beyond undertaking again that the plans would be produced; and it is understood that the question stands for consideration by the new International Commission, for the appointment of which legislation is pending in Parliament.

The application for incorporation of the St. Lawrence Power Transmission Co., although only for transmission rights, met with strong opposition in the house, as its incorporators were largely identical with the promoters of the power development plans, and was only put through after many amendments in the bill and considerable limitation of the company's powers.

A bill introduced on Dec. 14, 1910, in the U. S. Congress to provide for the erection of dams for water power and other purposes in the St. Lawrence near Long Sault Island, was referred to the Committee on Rivers and Harbors in the House of Representatives, and a public hearing was arranged by that committee in Washington for Jan. 9, 1911, at which your committee received due notice, with an invitation to have a representative attend. It was resolved that no action be taken by the Association in the meantime in regard to this bill, as the proposed legislation is expressly subject to the approval of the proper authorities, and the International Commission will doubtless hold further public enquiry in the matter. Your committee recommend, in view of the conflict of opinion within the Association, that the annual general meeting should consider the question and decide whether any and, if so, what further action shall be taken by the Association on the whole question.

The Canadian Light and Power Co. applied for leave to withdraw more water from Lake St. Francis by the Beauharnois canal, and written protests were made on behalf of the Association to the Premier and the Ministers of Railways and Canals, Marine, and Public Works, as soon as the matter became known. Counsel waited upon the ministers later, and an appointment was made for the hearing of all parties. At that hearing it developed that compensating or remedial works were proposed to maintain levels and protect navigation, but a strong protest was made on behalf of the Association against such methods and against further similar power concessions on the St. Lawrence on the ground that experience proved that navigation interests were not always protected; and a plea was also made for better recognition of the admittedly correct doctrine that navigation interests are to be the first considered.

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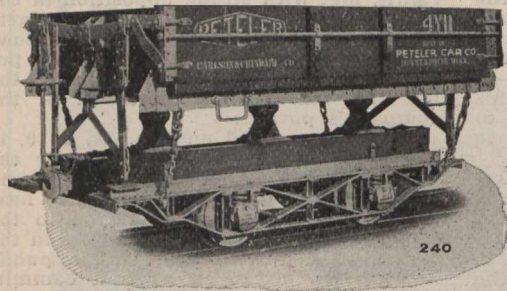
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A. A. HEARD, G.P.A., Albany, N.Y.

An important point in favor of the contentions of the Association was developed at this meeting by the complaint of the Cedars Rapids Manufacturing and Power Co., that, by reason of their existing rights in the Cedar Rapids, the Government could do nothing to alter the flow down these rapids without their consent and proper indemnities being given. The Minister of Canals admitted that there might be something in this Association's contention that the Government was losing control of the river. The Ministers finally agreed to require submission of the plans to an engineer for this Association, and H. Holgate, C.E., was named. Later, in a written memorandum, your Counsel submitted the Association's views maintaining the position of absolute opposition to the proposals and at a meeting of the committee this protest was ratified and confirmed, and it was also resolved that a committee consisting of Messrs. Henderson, Plummer and Smith, should interview Mr. Holgate and ascertain his views and the nature of his recommendations before the Association commit itself to acceptance of his services and advice.

GREAT LAKES PROTECTIVE ASSOCIATION.

—Canadian Lake Protective Association. —At the last annual general meeting of the Great Lakes Protective Association, in Detroit, your Counsel was appointed to represent Canadian owners upon the advisory committee of that Association, and during 1910 he attended all except two out of the dozen meetings which that committee has held at Cleveland. The failure of the Canadian representative to secure support in an effort to bring one of the principal functions of the Great Lakes Protective Association into operation and discipline masters guilty of apparently careless navigation, was a large factor in the discussion that led to the formation of an organization in Canada for that and other purposes. The Canadian Lake Protective Association has been organized among the owners of steel built bulk and package freight boats of British and Canadian register trading on the lakes and St. Lawrence, and proposes to exercise control over the methods of navigation of the boats owned by its members. Rules for masters and engineers have been framed and will be enforced by a committee duly appointed. It is believed that this organization will justify the formation of a preferred class of underwriting and bring about a substantial saving in the cost of insurance for its members. At the date of this report some 80,000 or 90,000 net registered tons of vessel property of the class named are enrolled in the new Association. The formation of this Association, and the adoption of cheaper marine insurance and the adoption of means to justify a decrease in premium rates, have occupied the attention of the grain section throughout the year. Doubtless the readiness with which owners have entered the new organization is an indication of a general intention to try to make a better record in the matter of disasters on the lakes. At one of the last meetings the consensus of opinion, with the exception of only one or two owners, was in favor of asking for no extensions of cover beyond the date Nov. 30, fixed by underwriters for last sailings on the lakes. Your representative so reported to the committee of the Great Lakes Protective Association, and the opinion was concurred in.

—TERMINAL ELEVATORS.—Considering this vexed question, the last annual meeting adopted the recommendation of the executive committee in favor of the complete abolition of the system of Government supervision and certificate in weighing grain into vessels, being driven to this alternative by the intimation from the Department of Trade and Commerce that the application of the system to un-

loading as well as loading ports could not be hoped for. The bill introduced by the Minister of Agriculture to give effect to this recommendation was not enacted, having no further consideration in the house after its first reading, nor is it known whether the measure will be introduced again at the present session. The subject should have the attention of your new committee in 1911.

Later in 1910, at a meeting of the grain section of the Association, it was resolved to ask the Government to take over and operate the terminal elevators, and a recommendation was made accordingly to the Minister of Trade and Commerce and other members of the cabinet. From time to time in the course of interviews with members of the Government, this recommendation has been discussed and the idea has developed that while ownership might not be possible, supervision might in some way be undertaken. Your committee fully appreciate the action of the Government during the past season in holding an investigation into affairs at the Canadian loading ports, and the assistance rendered by the grain exporters of the country in bringing this about is cordially recognized. There is no doubt that this enquiry resulted in a very substantial improvement of conditions. Recently, and since the pressure of the large delegation of western grain growers has brought the matter under immediate discussion, the Premier has intimated the intention of the Government to take control of the situation, a bill is being introduced and the appointment of a commission to control the operation of the terminals is probable at an early date; and having regard to the work of the railway commission and similar bodies, it may reasonably be hoped that a practical remedy for many existing troubles is thus close at hand.

—THE LAKE SHIPPERS' CLEARANCE ASSOCIATION has had one complete season's operation, but unfortunately conditions were such in the season of 1910 that results can scarcely afford a fair or complete test. The consensus of opinion is that the organization has proved distinctly beneficial, and while there are of course individual instances of dissatisfaction, on the whole dispatch in loading has been much improved; and from a variety of causes, including not only the operation of this system, but also the investigation on the part of the Government, discrepancies in weight have not been so heavy or so frequent. The question of the rates charged for loading at one, two or three or more houses remains to be considered, and it has been felt by some that at least the fixed rate of 10c. for any number of houses more than two will require revision. This Association applied for detailed information so that the question might be intelligently discussed, and considerable correspondence ensued, but the request was made in the end that the matter should be allowed to stand until next year, so that the records might be more complete.

—CHARGES FOR TRIMMING GRAIN CARGOES.—A committee was appointed at the last annual meeting to endeavor to arrange a satisfactory schedule of rates with trimmers at Fort William and Port Arthur and to try to carry out the recommendations on record regarding the installation of trimming spouts on all loading elevators. This committee went to Fort William and there made a three-year agreement with the trimmers for the adoption of a schedule of graded charges, and this schedule has now been in force and adhered to throughout the past season. The possibility of installing trimming spouts was also investigated, and the question was discussed with the management of the various elevators, with some hope of improvement, but without material results, at least up to

the present date. Your committee believes that the installation of these spouts should be made compulsory, and recommends that if the authorities do not undertake to make provision for this in the law, private legislation should be introduced on behalf of the Association, as in the case of the Pilotage Bill.

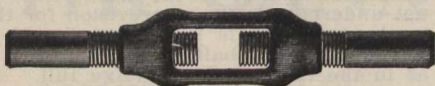
—WELLAND CANAL.—The unanimous adoption of the report of the last executive committee by the annual meeting at Ottawa in Jan., 1910, left this association pledged to the support of the proposal for an improved Welland canal in accordance with many previous resolutions and recommendations. Nevertheless, in view of an existing division of opinion and the belief on the part of some members of the association that the building of the new canal would bring heavy U. S. tonnage into competition with the Canadian tonnage for which the present canal is adapted, this association has not been officially represented at the hearing of any of the delegations which have met the Government this year to urge the commencement of the undertaking, and your counsel when he has appeared has done so on behalf of the Kingston Board of Trade. The only question left open now by the announcements made by the Government is the time at which the work shall commence.

—RIDEAU CANAL.—Active measures were taken on behalf of this association in opposition to the C.P.R. plans for entrance into Ottawa over the bed of the Rideau canal. The proposals involved the closing of the last mile of the canal and the utilization of this space for railway station, yards and sidings. The usefulness of the canal for through traffic between the Ottawa River and Lake Ontario was threatened with destruction, but nevertheless the proposals seemed to meet with serious consideration. Protests were filed on behalf of the association with the Department of Railways and Canals and with the Railway Commission. Later the association joined in the support of a movement to increase the value of the canal by provision for the maintenance of water levels throughout the season of navigation, and in Nov. last authorized members of the association joined a delegation of some 60 or 70 representatives of municipalities and organizations interested in this waterway and assisted in the presentation to the Minister of Railways and Canals of the claims made for protection and improvement. This delegation received a very favorable hearing and was not only practically assured that the C.P.R. application would not be granted, but was also promised an immediate survey of the route with a view to making it navigable at all seasons, at least to the full draft for which the locks are adapted.

—SAULT STE. MARIE LOCK.—The recommendations of the last annual meeting for the building of a new lock on the Canadian side at Sault Ste. Marie and for the posting at suitable points of the available depth of water in the present lock and for better control of the valves in operating the lock, were laid before the Department, but your committee is unable to report what consideration they received.

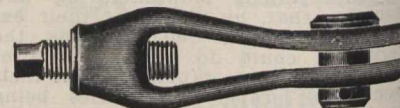
—HANDLING LINES AT CANAL ENTRANCES.—Your last committee's report named the various locks and entrances at which the Department, through its ex-Deputy Minister, M. J. Butler, had arranged to take lines from vessels, and also the points at which the association desired additional men. In spite of the good progress apparently made, your committee has now to report with regret that men were taking lines this season at only two points, namely, the head of the Soulanges and the lower entrance of Farran's Point canal. This condition of affairs was reported by the association to the Department some time be-

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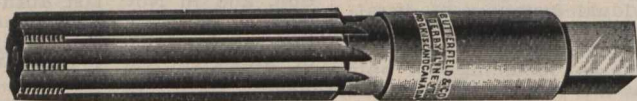
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fore the close of navigation, and the urgent need of assistance in the matter was pressed upon the Department's attention. The Department has, however, vouchsafed no explanation beyond acknowledging the letters.

SOULANGES CANAL.—Recommendations have been made by the association at various times during the season for an early undertaking of the improvement of the entrance at Coteau in accordance with previous recommendations and investigations; and for concrete retaining walls or other preventive works in the stretch above lock 4 to half a mile east of the Delisle River, to obviate the tremendous difficulties that would be entailed if the banks, on account of the nature of the soil, should collapse, as they have done on another occasion. The committee can only report acknowledgment of the receipt of some of these recommendations.

LACHINE CANAL.—The signal lights on lock gates recommended by the last executive committee were installed.

CORNWALL CANAL.—Improvement of the end of the bank at the eastern entrance was recommended, but no action or consideration promised.

MORRISBURG CANAL.—The committee believe that improvement of the upper entrance is desirable, because entrance is impossible in the current, and in time of low water, as in the past season, loaded boats which should have gone down the canal, have touched bottom in the Rapide Plat.

MURRAY CANAL.—In view of the greatly increased traffic in the Bay of Quinte, the association has recommended the lighting of the Murray canal, and the matter is under consideration.

OPENING CANALS ON SUNDAY.—As in other seasons, the association has when special circumstances warranted, asked that the canals remain open on named Sundays, and reasonable requests of this kind were usually granted. The months permanent opening during the fall months was also asked for and granted, and a request was presented that arrangements be made by general rule that the canals remain continuously open each year after Sept. 1.

In your last committee's report, reference is made to the statement by the ex-Deputy Minister, M. J. Butler, that while the association was asking a good deal, he nevertheless appreciated the efforts of the association to improve the efficiency of the canal system. Your present committee regrets to report that its efforts are apparently not looked upon quite so favorably, and that in fact formal or printed acknowledgments of its recommendations and the lack of further evidence of serious consideration rather indicate the need of a better understanding with the present officials of the Department, and it is suggested that an effort be made by your next committee to bring this about.

Dry Docks.—No amendment has been made in the law imposing customs duty on repairs made in a foreign port, but in every case which has been shown by reasonable proof to fall within the provisions of the statute regarding re-payment of the duty, the proper remission and refund has been readily obtained. The Government's policy in favor of subsidies for new docks in Canada was made operative by legislation during the last session of Parliament, and improved docking facilities are already under way at various points. At Kingston the Shipbuilding Co. has leased the Government graving dock and is undertaking the establishment of a shipbuilding plant. The association was instrumental in the revision of the tariff of tolls proposed by this company and in preventing the approval of a schedule by the Department of Public Works which it was generally satisfactory.

CENTRAL PIER BRIDGES.—On account of complaints made, the plans submitted by the C.P.R. for its new bridge over the Kaministikwia River were not approved, and the elimination of the central pier, a wider span, and a change in location were demanded. New plans were prepared and submitted and the promised opportunity was given to the association to inspect them before action was taken, approval only taking place after a declaration from the association that the new proposals, which included a bascule or lift bridge of wider span, were quite satisfactory.

A request for action to lead to improvement of the central pier bridge on the G.T.R., near Welland, met the response that nothing would be done in that regard during 1910. Your new committee should apparently repeat the request.

U. S. COMMERCE COURT.—Attention is called to the Act of Congress of 1910 to create a Commerce Court. By sec. 6 it becomes the duty of every common carrier, subject to the provisions of the act, to designate in writing an agent in the city of Washington upon whom service of all notices and processes may be made in any proceeding or suit pending before the Interstate Commerce Commission or the new Commerce Court, provision being also made that service may be made by posting such notices in the office of the commission if no agent is appointed. The corporations subject to the commission and the new court are named in sec. 7 of the act, and attention is called to that section's definitions of the kind of transportation subject to the statute.

CUSTOMS DUTY ON STEAMBOAT FUEL.—Early in the year the association was asked to endorse a proposal for the removal of the customs duty on coal. The grain section considered the question and came to the conclusion that in view of the conditions under which steamboat fuel is now obtained it would be better to limit the request of the association and to ask simply that all Canadian lines be put on a parity, so that boats plying in Canadian waters only should enjoy the same exemption from duty on their fuel as is enjoyed by Canadian vessels which enter or pass through U. S. waters. Some correspondence ensued with the Department of Customs, but no action was taken, the Department alleging that the distinction was made between Canadian vessels that enjoyed exemption from competition with U. S. tonnage, and those that were not protected by the coasting laws, and that uniformity could only be obtained with due regard to the preservation of the duty on coal for local consumption by withdrawing the privileges altogether.

THE NATIONAL ASSOCIATION OF MARINE ENGINEERS. by deputation and by letter, asked for the appointment of a committee of arbitrators by this association to act with a similar committee of their own appointment and settle all disputes arising between the associations or their members. The communications were considered at a meeting of the grain section early in the year, and it was resolved that no action be taken, an objection being raised that this association had no inherent authority to deal with matters pertaining to the operation of individual vessels.

LIGHT HOUSE BOARD OF CANADA.—The association was invited by the Minister of Marine and Fisheries to nominate a representative to act on the Light House Board in the interests of vessels on the inland waters, and your Counsel was nominated. The Department states that the Board is being reorganized, and it is understood that the appointment of your nominee will be made before long.

LIVINGSTON CHANNEL, DETROIT RIVER.—The association was asked by the presi-

dent of the Lake Carriers' Association to use its influence at Ottawa to prevent opposition to the maintenance of dams, etc., necessary in the construction of this work. Some enquiry was made in the effort to learn what proper basis existed for the local protests made against these dams, but in the absence of accurate data it was considered wise to confine the association's action in the matter to a general petition that no petty or selfish claims of small moment or little substance should be permitted to interfere with the speedy completion of a great undertaking financed by the U. S., and to be enjoyed by this country and its lake shipping without expense.

LAKE ST. CLAIR AND LAKE ERIE CANAL.—A project is on foot for a deep draft canal from the southeast end of Lake St. Clair across the neck of land to Lake Erie to shorten the passage and avoid the dangers of navigation in the Detroit River and in Lake Erie west of the southeast shoal. The association has been approached by the promoters of the undertaking with a view to learning the attitude of vessel owners towards the project, but no formal application for an expression of opinion has been made. It is understood that the plans and proposals in detail will be laid before the association early in the year.

The report dealt at considerable length with various bills introduced at the last session of the Dominion Parliament, and pointed out the association's action in regard to the same and the very satisfactory results secured.

The tonnage entered in the association and upon which dues were paid in 1910 was 175,594 net registered tons, of which 137,384 was steam and 38,210 barge or sailing property. The total shows an increase of over 20,000 tons over tonnage enrolled in 1909. The receipts for the year were:—Balance from 1909, \$1,904.58; interest, \$27.26; membership assessments, \$2,939.43; total, \$4,871.32; expenses, \$3,373.11, balance on hand, \$1,498.21.

Wireless Telegraphy on Ships.

The bill recently introduced in the House of Commons, respecting wireless telegraphy on ships, provides that every sea-going and coasting passenger ship over 400 tons, gross tonnage, registered in Canada, and every sea-going and coasting freight ship over 1,200 tons, gross tonnage, registered in Canada shall be equipped with an apparatus for wireless telegraphy, and that every owner of any such ship who neglects to equip it with the said apparatus shall be guilty of an offence, punishable on summary conviction or on indictment, and be liable to a penalty of not less than \$100, and not exceeding \$1,000, or to imprisonment for a term not exceeding 12 months, or to both fine and imprisonment.

The Allan Line is reported to have purchased premises, adjoining the Canada Life Block, recently bought by the C.P.R., on Main St., Winnipeg, where it proposes to erect an office building, of which it will occupy the ground floor, the remainder being taken by Allan, Killam and Mackay, real estate and insurance brokers.

During Nov. 1910, 12 employees were killed, and six injured in the course of their work in connection with the navigation of Canadian waters. Of the fatalities, 10 were due to drowning, and one each to being caught between vehicles, and to a fall, while of the other accidents, four were due to falls, and one each to falling material and to machinery.

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fore the close of navigation, and the urgent need of assistance in the matter was pressed upon the Department's attention. The Department has, however, vouchsafed no explanation beyond acknowledging the letters.
SOULANGES CANAL.—Recommendations have been made by the association at various times during the season for an early undertaking of the improvement of the entrance at Coteau in accordance with previous recommendations and investigations; and for concrete retaining walls or other preventive works in the stretch above lock 4 to half a mile east of the Delisle River, to obviate the tremendous difficulties that would be entailed if the banks, on account of the nature of the soil, should collapse, as they have done on another occasion. The committee can only report acknowledgment of the receipt of some of these recommendations.
LACHINE CANAL.—The signal lights on lock gates recommended by the last executive committee were installed.
CORNWALL CANAL.—Improvement of the end of the bank at the eastern entrance was recommended, but no action or consideration promised.
MORRISBURG CANAL.—The committee believe that improvement of the upper entrance is desirable, because entrance is impossible in the current, and in time of low water, as in the past season, loaded boats which should have gone down the canal, have touched bottom in the Rapide Plat.
MURRAY CANAL.—In view of the greatly increased traffic in the Bay of Quinte, the association has recommended the lighting of the Murray canal, and the matter is under consideration.
OPENING CANALS ON SUNDAY.—As in other seasons, the association has when special circumstances warranted, asked that the canals remain open on named Sundays, and reasonable requests of this kind were usually granted. The months permanent opening during the fall months was also asked for and granted, and a request was presented that arrangements be made by general rule that the canals remain continuously open each year after Sept. 1.
In your last committee's report, reference is made to the statement by the ex-Deputy Minister, M. J. Butler, that while the association was asking a good deal, he nevertheless appreciated the efforts of the association to improve the efficiency of the canal system. Your present committee regrets to report that its efforts are apparently not looked upon quite so favorably, and that in fact formal or printed acknowledgments of its recommendations and the lack of further evidence of serious consideration rather indicate the need of a better understanding with the present officials of the Department, and it is suggested that an effort be made by your next committee to bring this about.
Dry Docks.—No amendment has been made in the law imposing customs duty on repairs made in a foreign port, but in every case which has been shown by reasonable proof to fall within the provisions of the statute regarding re-payment of the duty, the proper remission and refund has been readily obtained. The Government's policy in favor of subsidies for new docks in Canada was made operative by legislation during the last session of Parliament, and improved docking facilities are already under way at various points. At Kingston the Shipbuilding Co. has leased the Government graving dock and is undertaking the establishment of a shipbuilding plant. The association was instrumental in the revision of the tariff of tolls proposed by this company and in preventing the approval of a schedule by the Department of Public Works which it was generally satisfactory.

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Northern Navigation Co. of Ontario

Following are extracts from the report of the year 1910, presented at the annual meeting in Toronto, Jan. 31:

Navigation opened on Lake Superior on April 16, and the Georgian Bay on April 23, which was 11 days earlier on Lake Superior and eight days earlier on the Georgian Bay than in 1909.

Our statement shows an increase of about \$84,000 in gross receipts, and \$20,000 in net receipts, as compared with the previous year.

Last year 10 steamers appeared in the balance sheet valued at \$1,485,394. This year it shows nine steamers, valued at \$1,479,373. This difference is accounted for by the sale of the City of Windsor and some slight increases in the construction accounts of the Hamonic and Waubic before transferring them to the steamers' account.

The gross earnings of the company were \$729,011.34, and the expenditure \$568,935.95, which, with the balance at credit of profit and loss, Jan. 1, 1910, of \$58,641.66, leaves a balance of \$218,717.05, less appropriation for President and directors of \$3,220.00. Out of this amount your directors have made the following appropriations:—

Claims for 1909 paid in 1910	\$ 5,733.56
Interest on insurance and renewal funds	4,093.77
Renewal fund	28,000.00
Repair and maintenance fund	10,000.00
Written off special improvement account	2,100.00
Appropriation for President and directors, 1910	3,000.00
Interest on bonds hypothecated with Traders Bank	22,231.14
Dividend at 8% per annum on capital account	80,000.00
	\$155,158.47

Leaving a balance to be carried forward at the credit of profit and loss of \$60,338.58.

The reserve funds now stand as follows:—

Renewal fund	\$120,312.43
Marine insurance fund	17,174.43
Profit and loss	60,338.58
	\$197,825.44

The percentage of expenses of gross earnings (not including claims paid for previous years) are as follows:—1903, 94.16%; 1904, 89.71%; 1905, 80.73%; 1906, 77.73%; 1907, 77.63%; 1908, 80.73%; 1909, 77.80%; 1910, 78.04%. The percentage for operating for 1910 over 1909 shows a slight increase, which is accounted for by the loss of revenue during the strike on the G.T.R.

Your directors opened a laundry during the year at Sault Ste. Marie, Ont., it being a central location, the results of which have been satisfactory. On account of the scarcity of labor for handling package freight at Point Edward, your directors found it advisable to erect boarding houses to take care of outside labor.

PROFIT AND LOSS ACCOUNT.

Balance from 1909	\$ 58,641.66
Less appropriation for President, directors and executive fees	3,220.00
	55,421.66
Gross earnings, 1910	729,011.34
Less total expenditure	568,935.95
Net earnings	160,075.39
Dividend 8%	\$ 80,000.00
Steamers renewal fund	28,000.00
Interest on renewal fund \$89,190.78 one year at 3 1/2%	3,121.65
Interest on marine insurance fund \$16,202.31 one year at 6%	972.12
Written off special improvement account	2,100.00
Appropriation for repair and maintenance	10,000.00
Claims 1909 paid 1910	5,733.56
Appropriation for president, directors and executive fees, 1910	3,000.00

Interest on bonds hypothecated with Traders Bank	22,231.14
	155,158.47
	\$ 60,338.58

ASSETS.

Nine steamers	\$1,479,373.49
Buildings and furniture	41,808.68
Fuel and supplies	16,297.77
Insurance unexpired	17,349.00
Accounts receivable	58,498.84
Stocks and bonds	1,500.00
Bills receivable	2,000.00
Repair and maintenance	11,727.90
Special improvement account	2,200.00
Fuelling plant	19,399.53
Grain Exchange seat, Winnipeg	1,450.00
	\$1,651,605.21

LIABILITIES.

To shareholders:	
Capital stock	\$1,000,000.00
Renewal fund	120,312.43
Marine insurance fund	17,174.43
Profit and loss	60,338.58
Dividend, 1910	80,000.00
To the public:	
Traders Bank	364,853.93
Accounts payable	8,925.84
	\$1,651,605.21

Jas. Playfair, of Midland, Ont., President of the Inland Lines, Ltd., on behalf of himself and associates, made an offer in the middle of January of \$1,250,000 for the \$1,000,000 of the Northern Navigation Co.'s stock, \$50,000 to be paid Feb. 15 and the balance Mar. 31. The matter was expected to come up at the N.N. Co.'s annual meeting Jan. 31, which had not been held when this issue was closed for the press.

Notices to Mariners.

The Department of Marine has issued the following:

119. Nov. 19.—313. Ontario, Lake Ontario, Cobourg harbor, changes in lighting arrangement.

120. Nov. 14.—314. British Columbia, Burrard Inlet, First Narrows, Prospect point, red sector to be inserted in light.

315. British Columbia, Vancouver island, east coast, Baynes sound, Port Augusta, Goose spit, intended change in light.

121. Nov. 25.—316. Nova Scotia, Cape Breton island, Cape North, change in position and character of light. 317. New Brunswick, Miramichi River, northwest branch, light on bridge discontinued.

122. Dec. 14.—318. Quebec, River St. Lawrence, Saguenay river entrance, Pointe Noire, daymarks on range light-houses. 319. River St. Lawrence, Crane island, change in character of light. 320. River St. Lawrence, ship channel between Quebec and Montreal, Ste. Croix, arc of visibility of range lights. 321. River St. Lawrence, ship channel between Quebec and Montreal, Lake St. Peter, gas buoy at No. 3 curve.

123. Dec. 15.—322. British Columbia, Active Pass, Galiano island, Mary Anne point, beacon light established. 323. Queen Charlotte sound new channel, Crane Islets, beacon light established.

124. Dec. 15.—324. Prince Edward Island, south coast, Hillsborough bay, Charlottetown harbor, change in color of Brighton Beach range lights. 325. Prince Edward Island, south coast, Bedegree harbor, Summerside harbor, change in description of island shoal buoys.

125. Dec. 28.—326. British Columbia, Vancouver Island, east coast, Baynes sound, Port Augusta, Goose spit light, erratum. 327. Alaska, Clarence strait, Ship island, light established. 328. Alaska, Sumner strait, Strait island, light established.

126. Dec. 30.—329. Ontario, Georgian bay, Nottawasaga island, period of flashes of light. 330. Ontario, Georgian bay, Parry Sound, wreck removed.

1. Jan. 4.—1. Nova Scotia, south coast, Halifax harbor, Leopard shoal, gas buoy established. 2. Newfoundland, south coast, Trepassey bay, Powles head, change in characteristic of fog alarm.

2. Jan. 5.—3. British Columbia, Queen Charlotte islands, Hecate strait, off Selwyn inlet, Low island, gas lighted beacon established. 4. United States of America, Washington, Juan de Fuca strait, Neah bay, range lights established. 5. United States of America, Washington, Juan de Fuca strait, Neah bay, Baaddah point, light changed.

3. Jan. 9.—6. New Brunswick, Bay of Fundy, Whitehead island, Gull cove, light pole replaced by tower.

4. Jan. 9.—7. Ontario, Lake Ontario, west end, Burlington channel, main light improved. 8. Ontario, Lake Superior, Thunder bay, Hare island reef, gas and bell buoy to be established.

5. Jan. 11.—9. Quebec, Ottawa River, McTavish point, light pole replaced by tower. 10. Ontario, Lake Ontario, Bay of Quinte, Onderdonk point, lighthouse established. 11. Ontario, Lake Huron, Kincardine, change in character of back range light.

6. Jan. 14.—12. New Brunswick, Bay of Fundy, Deer island, off North West harbor, Pompey ledge, change in color of beacon. 13. Nova Scotia, Bay of Fundy, Chignecto channel, Shulie, position of lighthouse. 14. Quebec, Chaleur bay, St. Omer, lighthouse established.

7. Jan. 20.—15. Quebec, River St. Lawrence, Matane, bell buoy replaced by gas and bell buoy. 16. Newfoundland, north coast, Strait of Belle Isle, Cape Norman, change in appearance of lighthouse.

8. Jan. 20.—17. Ontario, River St. Lawrence, Thousand Islands, buoy established south of Howe island. 18. Ontario, Georgian bay, Victoria harbor, range lights established.

9. Jan. 21.—19. Nova Scotia, southwest coast, Pubnico harbor entrance, St. Ann point, bell buoy established. 20. Nova Scotia, Cabot strait, St. Paul island, northeast point, fog alarm established. Atlantic cove, fog alarm discontinued. 21. New Brunswick, east coast, Northumberland strait, Jourmain islands, change in position of lighthouse.

Atlantic and Pacific Ocean Marine.

The Merchants and Shippers Steamship Co., of Sydney, Australia, has proposed to its Government to establish a 15 knot service between Australia, New Zealand and Canada.

The Elder Dempster Co.'s s.s. Kwarra, which was scheduled to sail from St. John to South African ports in January, was reported to have run ashore in Pentland Firth, Scotland, Jan. 3.

The White Star Line's s.s. Teutonic will be transferred to the Canadian service on the reopening of the St. Lawrence season. She will carry second and third class passengers only.

Press reports state that the steamship companies running to St. John, N.B., are considering a reduction of service to that port, on account of the increased harbor dues there, and the decrease in freight offering at remunerative rates.

The charges recently brought against the local agent of the Uranium Steamship Co., for bringing undesirable immigrants into the country, were dismissed at Halifax, N.S., on the ground that he was not responsible for any violation of the act.

A cargo of iron was landed at Halifax, N.S., Jan. 5, which has been salvaged from the Allan Line s.s. Hungarian, which was wrecked on the Nova Scotia coast in 1860. Several years ago a quantity was landed from the same source, but the work was abandoned as it did not pay, but owing to the present price of



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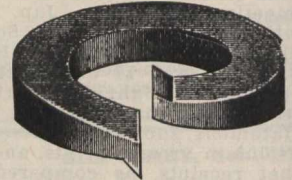
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Notice is hereby given that a Dividend at the rate of Eight Per Cent. on the paid-up Capital Stock of this Company has been declared for the current year ending Dec. 31st. The same will be payable on Friday, Jan. 20th, 1911, to shareholders of record Jan. 16th, and the transfer books will be closed from Jan. 17th to 31st, 1911, both dates inclusive.

By Order of the Board.

H. H. GILDERSLEEVE,
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iron, the salving is considered remunerative.

The Canadian Mexican Pacific Steamship Co., announces that it has arranged for the purchase of a steamship of about 7,000 tons capacity, to commence service in March, to replace the s.s. Henley, the charter for which expires in Feb. Capt. T. H. Worsnop, General Manager, states that by the autumn, another vessel will be added, making three in the service between the B.C. coast and Salina Cruz, Mexico.

Application is being made to the Dominion Parliament to incorporate the All Red Steamship Co., with powers to own and operate steamers from Canadian ports on the Atlantic and Pacific oceans, and waters contiguous thereto, and to build, own and operate harbors, docks, wharves, piers and other works in connection therewith. E. N. Armstrong, Montreal, is solicitor for applicants.

The U.S. Government has brought action against a number of steamship companies, including the C.P.R., Allan Line and International Mercantile Marine Co., and against a number of persons, connected therewith, including B. J. Allan, of the Allan Line, Boston, Mass., as members of the Atlantic Conference, for making an illegal contract, and asks that they be enjoined from further agreeing or conspiring to injure or destroy the business of any corporation engaged in carrying steerage passengers between points in the U.S. and Europe. It is stated that the action is a "friendly" one, and also that so far as purely Canadian companies are concerned in Canadian business, there is no jurisdiction. It is claimed that the action has been taken at the instance of a steamship company, not a member of the Conference, and which claims that "all the competitive devices of the conference are in full force" against it.

Maritime Provinces and Newfoundland.

The city of St. John, N.B., received from harbor fees, dues and wharfage, during 1910, \$92,835, against \$84,649 during the previous year.

The New Brunswick Public Works Department has received tenders for the construction of a low water wharf at Mauseville, in Sunbury county.

The Dartmouth, N.S., Ferry Commission, it is reported, has decided to order a steel ferry steamboat, to be built in Glasgow, Scotland, at a cost of about \$62,000.

J. McGill recently launched, at Shelburne, N.S., a schooner named Lloyd George, for Zwicker & Co. Her dimensions are, length, 108 ft., breadth, 26 ft., depth 10 ft. 5 ins.

The s.s. John Irwin, which recently stranded at Queensport, N.S., has been docked at Halifax, and tenders have been called for repairs. It is stated that 29 new plates will be required, in addition to minor repairs.

W. D. Reid, President Reid Newfoundland Co., in an interview recently, indicated that the establishment of a Pasques and North Sydney, is a probability of the coming season.

The Governor of Newfoundland has declared, by proclamation, that the provisions of chap. 121 of the Consolidated Statutes concerning outport pilots and pilotage, shall apply to Port aux Basques, effective July 1.

The Reid Newfoundland Co.'s coastal bay service, which completed its season on the last day of the year, handled a considerable increase in both passengers and freight, over the previous season, and without any fatal accident.

The name of the schooner Rowena, register no. 103261 at St. John, N.B., which was wrecked some time ago, has been changed by order in council, the requirements of the law having been complied with, to Ethel McLeod.

The St. John, N.B., city council ferry committee, decided recently in response to the offer of the Pennsylvania Rd., to sell one of its ferry steamers, to send the Superintendent of the ferry service to New York, to inspect the vessel and report.

S. Brookfield, of the Halifax dry dock, recently offered the use of the plant to the city, for the construction of two, or more, steel schooners for the deep sea fisheries. The city council and board of trade are taking the matter up, with a view to giving practical effect to the offer.

The Government s.s. Stanley, which, with the s.s. Earl Grey, has been running to Charlottetown, P.E.I., was compelled to change to the Georgetown route, Jan. 4, on account of the heavy formation of ice. The latter vessel is able to continue on the Charlottetown route.

Bowring Bros.' sealing steamer, Stephano, which is under construction in Glasgow, Scotland, will, it is stated, be completed by the end of March, and is due to arrive at St. John's, Nfld., early in April. She will be operated on the St. John's, Halifax and New York route, with the s.s. Florizel.

The survey of the St. John River, which is being undertaken by the International St. John River Commission, is being continued throughout the winter. When completed, a complete survey of the river, with its tributary streams and lakes will have been obtained. The work is in charge of H. M. Ranney.

The Port Elgin Fish Co., Ltd., has been incorporated under the New Brunswick Companies Act, with a capital of \$24,000, and office at Seal Cove, to carry on a general fishing and fish dealing business along the coast of New Brunswick, and in connection therewith to own and operate boats, wharves and all the necessary facilities therefor.

The returns of trade at the port of St. John, N.B., for the portion of the winter season to the end of 1910, show Canadian exports of \$1,785,267, against \$2,355,476 for same period 1909. There was also a decrease of about \$43,000 in foreign exports through the port. The chief falling off was in the export of lumber to Great Britain.

The Star Line Steamship Co., Ltd., is applying in the N.B. courts for a winding up order. J. W. Smith, President, is reported to have said, in St. John recently, that this action was necessary, in the interest of the creditors, as the company had been going behind. The sale of the assets would probably follow the granting of the winding up order.

R. G. Reid, General Superintendent Reid Newfoundland Co., in a conference with the representatives of the Longshoremen's Protective Union, at St. John's, Nfld., recently, effected a settlement of the dispute with the men, which provides that the company will not employ non-union men, except in cases where the demand for men cannot be met by the union.

The Dominion Public Works Department will shortly call for tenders for the construction of a steel sand suction dredge for work in the Maritime Provinces. The specifications provide for a dredge 110 ft. over all, 30 ft. beam, and 7 ft. 8 ins. deep, fitted with a 15 ins. suction, triple expansion engine, Scotch marine boiler and service condenser adapted for salt water. The discharge will be on the pontoon system.

Press reports from Halifax state that

the Nova Scotia Fish Co., is being organized, to own and operate 25 vessels, two of which will be of steel, and two fishing stations, one on the Newfoundland coast and one at Cape Breton. It is proposed that after the fishing season, the vessels will take the fish to the Mediterranean and Brazil. It is stated that French capital is chiefly interested in the scheme.

The Naval Service Department recently received tenders for the supply of a schooner for the Naval Service Supply service. The vessel required is to be of 100 tons burden, not more than three years old and well and strongly built of oak, built along the lines of those used by fishermen along the Newfoundland banks, complete with all gear, sheathed with greenhart, and equipped with auxiliary engine. The two latter items are optional.

The Labrador Whaling Co. has ordered a whaling steamship to be built in Norway, to replace the steamer Cachelot which was lost during last summer. The new vessel will bear the same name, but will be larger and stronger, and will be equipped with the latest patent gun, which is claimed to be a distinct advance on the weapon at present in general use. She will be ready in the spring, and will reach St. John's in time for next year's operations.

The Hilyard Dock and Construction Co. is applying for incorporation in New Brunswick, with a capital of \$250,000 and office in St. John. Among the powers asked, are those for the building, owning and operating of steam and other vessels, wharves, docks, graving docks, etc., and to carry on a general transportation business. The applicants are, A. H. and G. A. Hilyard, G. G. Murdoch, W. H. Harrison and H. A. Powell, St. John.

The Dominion Government quarantine steamboat Alva, which has been built at Dartmouth, Eng., for the quarantine station at Halifax, N.S., arrived there Jan. 8, after a lengthy and stormy passage from England, which she left Nov. 22, via the Azores and Bermuda. Her dimensions are, length, extreme, 89 1/4 ft.; length from stem to stern post, 83 1/2 ft.; beam, molded, 19 ft.; depth, 10 ft.; draft with 15 tons of water and 30 tons of coal, 8 ft. at stern and 6 ft. at bow. Her cost is \$22,600. A full description was given in our Mar. 1910, issue.

Province of Quebec Marine.

The Quebec Harbor Commission recently received tenders for the construction of a bascule, single track railway bridge.

The city of Quebec recently received tenders for the erection of a bascule span, or a swing bridge, to span the St. Charles River, in Limoullou ward.

The Richelieu and Ontario Navigation Co. will move its head office in Montreal, in March or April, to the building it has secured in Victoria Square, where it will occupy five of the seven stories, the remaining two being let as offices.

The Department of Marine has arranged for a series of lectures to be given on subjects connected with navigation, seamanship, rules of the road, etc., for the benefit of candidates who wish to qualify for the examination of masters and mates.

Aqueducts, Ltd., has been incorporated under the Dominion Companies Act, with a capital of \$100,000 and office at Quebec, Que., to carry on a general contracting business. The incorporators are, R. O. Sweeney, A. H. Hall, F. A. La Rue, J. B. Churchill, and A. Leofred, Quebec.

The Department of Marine will receive tenders, to Feb. 15, for the construction of a twin screw steel steamer for survey and inspection work in connection with the St. Lawrence River ship channel, to be delivered at Quebec, to the following leading dimensions: length, between perpendiculars, 130 ft.; breadth, molded, 27 ft.; depth, molded, 13½ ft.; draught, mean, 9½ ft. It is reported that this vessel will be named Bellechasse.

On the re-opening of navigation, the light shown from the lighthouse on the outer end of the Government wharf on the south side of Crane island in the St. Lawrence River, below Quebec, will be changed from its present occulting characteristic, to fixed white. The apparatus will remain dioptric to the fourth order, but the light will be reinforced in the downstream range by reflectors. The light is produced by vaporized petroleum burned under a mantle.

The Dominion Premier, in a recent interview at Quebec, is reported to have stated that when the Marine Department's workshops at Quebec, were removed from their present location, they would be installed at the mouth of the St. Charles river, or thereabouts. He also stated that the reorganization of the Quebec Harbor Commission, on the lines adopted in connection with the Montreal Harbor Commission, was under consideration.

The Minister of Marine had a conference recently with representatives of ocean steamship companies, and the Pilots' Association, with reference to a proposal contained in a bill to be presented to Parliament, to provide that lake vessels should have the privilege of navigating the St. Lawrence ship channel without a pilot. The representatives present, it is stated, are opposed to the proposal.

Press reports from Ottawa state that the Government has decided to pay a subsidy on a first class dry dock at Montreal, providing the promoters vary their application. It is stated that this has been agreed to by all concerned, and that contracts for the work will be signed shortly. On a first class dock, the Subsidy Act provides for an annual payment of 3½%, for 35 years, on a maximum of \$4,000,000, and although it is said that the subsidy granted may not reach this figure, the work will be in the first class. The same report states that the proposal to construct a dry dock at Levis appears to be in suspense for the present.

The Frasersville Navigation Co.'s s.s. Canada was offered for sale at the end of January, under an order of the Quebec Admiralty Court, on behalf of Mrs. G. St. Pierre. The matter has been before the courts for some time, a seizure being placed on the vessel in favor of G. St. Pierre, last October, for \$12,000 on a second mortgage, there being also a first mortgage for \$20,000, and a third mortgage for \$5,000. The vessel, formerly known as Pro Patria, was built at Kinghorn, Scotland, in 1892. She is equipped with engine of 131 n.h.p., driving a screw, her dimensions being, length, 185.5 ft., breadth 27.2 ft., depth 19.5 ft.; tonnage, 704 gross, 449 register.

The Montreal Harbor Commissioners are proceeding with preparatory work in connection with the construction of a dry dock in the harbor. The site is opposite Molson's Creek, the distance from the shore, at this point, to the ship channel, being about 2,500 ft., the dry dock site and protection works projecting from the shore, about half that distance. The land which is to be reclaimed, will be filled with material dredged from the basin and approach from the ship channel. The dock will be of the floating type, with a capacity of over

25,000 tons, the cost of this and the ship-repairing plant, being in the neighborhood of \$4,000,000. The approach from the channel will give ample room for waiting vessels to anchor, and to turn, if necessary to proceed down channel. The centre of the dock basin requires a depth of 50 ft., while the remainder will be made the same depth as the ship channel. The dimensions of the dock, as shown on the plan, are, length, about 650 ft., breadth, about 130 ft., and it will be built in sections, so that smaller vessels will not require the whole dock to be utilized.

Ontario and the Great Lakes.

The New Liskeard board of trade decided recently to ask the Dominion Government that work on the construction of the new dock there be started immediately. The estimate for the dock and harbor facilities is \$18,000.

The Owen Sound Dredge and Construction Co., Ltd., is applying to the Legislature for the acceptance of the surrender of its charter, as it has parted with its property, divided its assets rateably amongst its shareholders, and has no debts nor liabilities.

The Western Dry Dock and Shipbuilding Co.'s dry dock at Port Arthur was recently completed and put into operation. A number of the shops comprising the ship building plant are in course of erection, and it is anticipated that the whole will be completed in the early spring.

The Toronto harbor master reports that during 1910 3,402 vessels arrived, an increase of 461 over 1909. At the commencement of the year there was a cash balance in hand of \$13,954.96, which, with receipts during the year of \$14,891.70, less expenses, \$13,425.51, leaves a balance in hand of \$15,321.15.

The Public Works Department received tenders, Jan. 30, for the construction of a breakwater at Port Burwell, 1,200 ft. long, 30 ft. wide and 8 ft. above low water, sunk in a dredged berth 23 to 25 ft. below the low water line. The substructure is to be of timber crib work filled with stone, and the superstructure of concrete.

At the recent annual meeting of the Turbine Steamship Co. in Hamilton the usual routine business was conducted. Following are the officers and directors for the current year: President, J. C. Eaton; Vice President, R. Y. Eaton; Secretary-Treasurer, J. J. Vaughan; Manager, J. A. Goodearle; other directors, H. McGee and T. A. McCrea.

The Inland Lines steamboat Dunelm, which it was intended to dock at the Port Arthur dry dock for overhauling and repairs, after the wreck at Isle Royale, Dec. 7, when she was abandoned to the underwriters, has been tied up at the King elevator dock, where she will remain for the winter on account of the ice.

The U.S. Lake Survey reports the levels of the Great Lakes, during December, in feet above tide water, as follows: Superior, 601.50; Michigan and Huron, 579.51; Erie, 571.19; Ontario, 244.89. As compared with the average December levels for the past 10 years, Superior was 1.11 ft. below; Michigan and Huron 0.80 ft. below; Erie 0.52 ft. below, and Ontario 0.47 ft. below. It was anticipated that during January, Superior would fall 0.3 ft., Michigan and Huron 0.2 ft., and Erie and Ontario remain stationary.

Jas. Playfair, President Inland Lines Ltd., Midland, is negotiating with the shareholders of the Northern Navigation Co., to acquire their shares, and has offered to purchase the whole of the stock at \$125. The Northern Navigation Co. has a paid up capital of \$1,000,000,

which, the directors were authorized at the last annual meeting, to increase to \$1,500,000, the additional capital to be issued as required. The question was to come up for discussion at the annual general meeting of shareholders, Jan. 31.

Montreal press reports of Jan. 20 stated that negotiations were pending for the amalgamation of several large navigation companies, with the Richelieu & Ontario Navigation Co. interests in control. It is stated that preliminary matters have already been discussed with certain companies, and that, among others, overtures have been made to the Niagara Navigation Co., R. Forget, President R. & O.N. Co., subsequently stated that while there was some talk of a merging of navigation companies, nothing had been decided.

The Hamilton Steamboat Co.'s annual meeting was held at Toronto, Jan. 4, and a dividend of 10% was declared for the past year. Following are the officers and directors for the current year: President, J. C. Eaton; Vice President, R. Y. Eaton; Secretary-Treasurer, J. J. Vaughan; Manager, W. E. Bishop; other directors, H. McGee, C. Booth and T. A. McCrea. The officers of the company's steamboats for the forthcoming season will be: Macassa, captain, J. Henderson; chief engineer, O. Flumerfelt; Modjeska, captain, P. Walsh; chief engineer, W. Noonan.

Application is being made to the Dominion Parliament to incorporate the Western Canal Co., to construct a canal from the Rainy River, below Fort Frances, Ont., to the Rainy River, five miles below the Long Sault Rapids; to carry on the business of forwarding and manufacturing; to erect and operate telegraph and telephone lines; to transmit electrical energy, and for the purposes of such canal and waterway construction and operation, to exercise all the powers and rights of the Railway Act, and with power to amalgamate with other companies. Smith and Johnston, Ottawa, are solicitors for applicants.

A proposal has been mooted in Toronto recently to construct a canal from Goderich to Hamilton, 35 ft. deep and 300 ft. wide, which, with the deepening of the St. Lawrence canals, would enable vessels to pass right up to Port William and Chicago. A. P. Gilles, when interviewed on the subject in Toronto, recently, said that the matter would be brought to the attention of the Dominion and Ontario Governments, and the municipal and local bodies concerned, and even if their assistance was refused, the Canadian National Canal Co. was determined to carry out the scheme on its own responsibility. He has been interested in several large schemes, more or less visionary, a recent one being the establishment of a large terminal system in Toronto for handling all the railway traffic entering and passing through the city.

The Inland Lines s.s. Emperor, which was launched at Collingwood, recently, is 525 ft. long, 56 ft. beam, 31 ft. deep, and has been built with heavy double bottom and double sides, on the arch and web frame system. The pilot house and captain's and mates' quarters are at the forward end, and boiler and engine rooms at the stern. Between these the deck space is clear of spars and superstructures, and has 19 hatches, 9 ft. clear, with centres of 12 ft., with ore chute at each hatchway. The side ballast and water bottom tanks are directly connected with large steel pipes, with a combination header connected to sea valves and ballast pump. She is equipped with triple expansion engines, with cylinders 23, 38½ and 63 ins. dia., by 42 ins. stroke, supplied with steam by two Scotch boilers, 15½ by 12 ft., at a pressure of 180 lbs. a square inch.

Application is being made to the Dominion Parliament to incorporate the Nipigon, Albany Canal and Transportation Co., to build and operate a canal, waterway and transportation system from Nipigon Bay on Lake Superior, by way of the Nipigon River and Lake Nipigon, northerly to and along the Albany River to James Bay, and to utilize, deepen, widen and alter the course of waterways in the route; to build or otherwise acquire and operate steam and other vessels, wharves, docks, terminals and other facilities for the development of the undertaking. Power is also sought to carry on telegraph, telephone, express, warehousing, forwarding, hotel and other business, and to exercise the rights granted by the Railway Act, and that the work be declared to be for the general advantage of Canada. A. T. Thompson, Ottawa, is solicitor for applicants.

The Peterborough and Lake Simcoe Navigation Co., Ltd., the incorporation of which was announced in a recent issue, has taken over the steamboats recently operated by the Otonabee Navigation Co., and named Manita, Monarch, Otonabee and Water Lily. The route over which these vessels will be run on the re-opening of navigation, covers Lakes Simcoe, Scugog, Sturgeon, Cameron, Balsam, Pigeon, Bald, Sandy, Buckhorn, Chemong, Deer, Lovesick, Stony, Clear, Katchewanooka, and Rice Lake, 20 miles down the Otonabee River from Peterborough, aggregating over 150 miles. An issue of cumulative preference stock at 7% to the amount of \$75,000 in \$100 shares, has been put on the market. K. Finchin, formerly interested in the Otonabee Navigation Co., is Manager, and the other directors are W. A. Cressman, T. F. Matthews, W. H. Robertson, Peterboro; J. H. Brandon, Fenelon Falls, and W. H. Smith, Toronto.

The Ontario and Quebec Navigation Co., Ltd., which was recently incorporated, has been organized to take over the businesses and vessels of the former Ontario and Quebec Navigation Co., Ltd., and the Quinte Navigation Co. The O. & Q.N. Co. owned the steamboats Aberdeen, Alexandria, Lloyd S. Porter and Water Lily, and the Q.N. Co. owned the steamboats Aletha, Brockville, Varuna and Where Now, running on Bay of Quinte waters, between Picton, Belleville, Deseronto, Trenton and Kingston. An order has been given for the construction of another steamboat, which will be operated between Toronto, Charlotte, Montreal and Quebec, during the coming season. Following are the officers and directors for the current year: President and General Manager, E. R. Hepburn; Vice President, J. F. Chapman, General Freight and Passenger Agent Rathbun Lines; General Freight and Passenger Agent, J. D. Hepburn; other directors, W. V. Cooper, A. Leslie, H. Dempsey.

The Toronto city council, in accordance with a recent vote of the ratepayers, is applying to the Dominion Parliament to change the constitution of the Harbor Commission so as to provide that hereafter the board shall consist of five members, three to be appointed by the city council, one by the Governor-in-council, on his own motion, and one on the recommendation of the Toronto Board of Trade, each for three years, with powers for removal and withdrawal. It is also provided that the board may take and hold the management of Ashwater's bay, with the dock property and harbor, and along the east and west shores to the city limits, with the docks and shores on the island property, as far as is necessary for the protection and development thereof, and the regulation for the use of vessels. Power is also being sought to build docks, chan-

nels, railway tracks, equipment, etc., for carrying on a harbor and transportation business, and to levy harbor rates, tolls, etc., to be approved by the Governor-in-council, on all goods landed or shipped in the harbor, or moved on the harbor tracks, and to commute any such rates. It is also being asked that the commission shall have power to pass by-laws for the regulation and control of navigation and all works and operations within the harbor, to regulate building operations, deposit of material, pipes or conduits, to impose penalties for infringement of such by-laws, and for other purposes.

The Great Lakes and Atlantic Canal and Power Co. is asking the Dominion Parliament for incorporation, with power to build a canal from the eastern shore of Lake Huron, in Huron county, Ont., to the northern shore of Lake Erie, in Elgin county, and another canal from the northeastern shore of Lake Erie, in Haldimand county, to the western shore of Lake Ontario, in or near Lincoln county; to improve and deepen, if necessary, a channel in Lake Ontario and the St. Lawrence River, to or near Grenville county; to build a canal from or near Grenville county to the Ottawa River, near Ottawa; to improve and deepen a ship channel in the Ottawa River from the canal to its junction with Riviere des Prairies; to improve and deepen the channel in the Riviere des Prairies to join the St. Lawrence ship channel below Montreal Island, at or near Varennes, or by an alternative route, if deemed of better advantage, from St. Ann's, in Jacques Cartier county, Que., through Lake St. Louis to Montreal, with power to make surveys and determine the location of the waterway, whether canal or ship channel, and carry out such works, so as to complete a waterway from Lake Huron to the St. Lawrence ship channel or Montreal, of not less than 28 ft., and not over 33 ft. depth, and of such width as may be found necessary to enable ocean going vessels to meet and pass in safety at any point; to construct, own and operate wharves, docks, terminals, warehouses, elevators, tramways, steam and other vessels, dry docks, ship building plants, and to enter into agreements with the Government respecting subsidies and exemption from duty on articles used in the construction of such work, and for other purposes.

Manitoba, Saskatchewan and Alberta.

The Prince Albert, Sask., ratepayers have voted \$26,000 for the building of a steamboat, and some barges, for hauling building materials on the Saskatchewan River for various city works.

A number of vessels of various types for navigation on the Red River, are reported to be under construction at Winnipeg, by the Hyland Navigation and Trading Co., the Eli Sand Co., and other companies.

The Moosonee Development Co., Ltd., has been incorporated under the Manitoba Companies Act, with a capital of \$20,000 and office at Winnipeg, to acquire certain lands in the province, and to develop same; to build, own and operate steam and other vessels from its lands to a place on an existing or established railway, and to build wharves, docks, tramways, telegraph lines, etc., in connection therewith. The incorporators are, G. A. Elliott, A. C. Miller, E. J. Campbell, F. C. Kennedy, R. W. Wydeman, Winnipeg.

B.C. and Pacific Coast Marine.

The name of the G.T.P. Coast Steamship Co.'s s.s. Bruno was officially changed to Prince Albert, Jan. 3.

The Washington Tug and Barge Co. of Seattle, Wash., has been licensed to carry on its business in British Columbia, with D. Donahy, Vancouver, as attorney.

The repairs on the C.P.R. s.s. Princess May, which ran aground on Sentinel Island last summer, have been completed, and she has been again put into service.

The Canadian North Pacific Fisheries Co. is reported to have five whaling vessels on the way from Norway to the Pacific coast, for operation during the coming season.

The recently arrived C.P.R. s.s. Princess Adelaide has been overhauled after her voyage from Great Britain, and has been put on her route. Capt. Hunter of the company's s.s. Charmer has been appointed to the Princess Adelaide.

The C.P.R. s.s. Princess Mary was reported at Coronel, about the middle of January, on her way from Great Britain to the B.C. coast. It was expected she would call at Callao, where she would coal for her final run to Victoria.

Capt. M. B. Wilson, for some time connected with the Liverpool Salvage Association, and a number of large salvage matters on the Pacific coast, has been appointed Manager of the British Columbia Salvage Co., Esquimalt.

The G.T.P.R. is reported to have purchased the Albion ironworks site and waterfront lot at Vancouver, where it is proposed to build wharves and other accommodation for handling of G.T.P. steamship business.

Press reports from Nelson state that the C.P.R. has arranged to build an all steel car transfer barge to hold 15 of the heaviest cars on the system, to be used in the Proctor and Kootenay Landing service, at a cost of about \$68,000.

The C.P.R. s.s. Princess Adelaide, which recently arrived on the coast from Great Britain, has been placed in service, relieving the Princess Royal. A full description of this vessel was given in our Apr., 1910, issue.

A steam tug, unnamed, has been built at Lulu Island, for the logging business at Cracroft. Her dimensions are: length, 55 ft.; breadth, 11 ft.; depth, 5 ft. The machinery which has been installed was taken from the tug Gypsy.

The Kyax Navigation Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of \$25,000, to build, purchase or otherwise acquire and operate steam and other vessels, and to carry on a general transportation business.

Wallace Fisheries, Ltd., has been incorporated under the B.C. Companies Act, with a capital of \$2,000,000, to carry on a general fisheries business, and in connection therewith to own and operate steam and other vessels of every description.

The arrangements whereby the G.T.P. Steamship Co.'s s.s. Prince Rupert were chartered for a trip to the Hawaiian Islands, in the spring, have been cancelled, the Seattle, Wash., parties responsible for the excursion not having complied with the conditions agreed to.

The B.C. Telephone Co. has prepared plans for a cable repair steamer, which it proposes to build for its repair service, at a cost of about \$35,000. The hull will, it is said, be built in the province, and the equipment purchased in England.

The Marine Department's s.s. Newington, which returned to Victoria Jan. 4, after replacing several missing buoys, and placing a spar buoy at the entrance to the inner harbor, has been dispatched to Nootka Sound, where a lighthouse is under construction.

The plans for the dry dock, which the

G.T.P.R. proposes to build at Prince Rupert, have been filed with the Dominion Public Works Department. They provide for a dock of the second class, at a cost of about \$2,000,000, which will carry a subsidy of 3 1/2 % for 25 years.

The order for the construction of the Marine Department's lighthouse and buoy steamer Estevan, for the British Columbia coast service, has been placed in Collingwood, Ont. The contract price is stated to be \$260,000. A full description was given in our Nov., 1910, issue.

The Evans, Coleman Wharf Co., Ltd., registered under the B. C. Companies Act, Sept. 5, 1905, passed a resolution, recently, to voluntarily wind up the company's affairs. A company of the same name has recently been incorporated under the B.C. Companies Act, as announced in our Dec. 1910 issue.

The dredge which the Dominion Public Works Department recently ordered

in Glasgow, Scotland, for the widening of the channel in the Narrows, is reported to be on the way to the coast, where she is expected about the end of February. The width of the channel is to be increased from about 1,200 ft. at its narrowest, to about 2,400 ft. at its widest.

C. H. Nicholson, Manager G.T.P. Steamship Co., is reported to have stated recently that a representative is at present in Great Britain looking for a suitable vessel for use between Prince Rupert and Queen Charlotte Islands. The desired vessel will have first class passenger accommodation, and will be somewhat smaller than the company's s.s. Prince Albert.

The Canadian North Pacific Fisheries Co. has purchased the s.s. Petriana from the Northern Navigation Co., for use as a tender for its whaling stations. She has recently had her accommodation in-

creased by the addition of four staterooms, and electric light apparatus, with a powerful searchlight has been installed. She was built at Workington, Eng., and has a single screw driven by triple expansion engines, developing 1,000 h.p. Her dimensions are: length, 182.7 ft.; breadth, 27.9 ft.; depth, 12.3 ft.; tonnage, 700 gross, 289 register.

The Westham Steamship Co., Ltd., has been incorporated under the B.C. Companies Act, with a capital of \$5,000, to acquire and operate the steamship Westham; to own and operate steam and other vessels of all descriptions and to carry on a general ship owning and transportation business. The Westham is a screw driven vessel, with engine of 10 n.h.p., and is registered at New Westminster, where she was built in 1909. Her dimensions are: length, 83 ft.; breadth, 22 ft.; depth, 8.3 ft.; tonnage, 199 gross, 126 register.

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.

- Acetylene**
Commercial Acetylene Co.....Toronto.
- Aerated Waters**
E. L. DrewryWinnipeg.
- Air Brakes and Fittings**
Allis-Chalmers-Bullock Ltd.Montreal.
Canadian Westinghouse Co. Hamilton, Ont.
- Ales**
E. L. DrewryWinnipeg.
- Alloys**
American Vanadium Co....Pittsburg, Pa.
- Angle Bars**
Hamilton Steel & Iron Co..Hamilton, Ont.
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
- Anti Rail Creepers**
The Holden Co., Ltd.....Montreal.
- Automobiles**
Preston Car & Coach Co..Preston, Ont.
- Axes**
James Smart Mfg. Co....Brockville, Ont.
- Axles**
Canadian Car & Foundry Co...Montreal.
Hamilton S. & I. Co., Ltd., Hamilton, Ont.
James Hutton & Co.Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Jas. W. Pyke & Co.....Montreal.
- Babbit Metal**
Tallman Brass & Metal Co., Hamilton, Ont.
- Beacons**
International Marine Signal Co...Ottawa.
- Bearings, Side**
Canadian Car & Foundry Co...Montreal.
Chicago Railway Equipment Co.Chicago.
- Blankets and Bedding**
The Hudson's Bay Co.
- Boiler Checks**
Nathan Manufacturing Co.....New York.
- Boilers**
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
- Boilers, Portable**
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
- Boilers, Stationary and Marine**
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd.....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
- Boiler Staybolt Iron or Steel Bars**
Falls Hollow Staybolt Co.Cuyahoga Falls.
- Boilers, Steam**
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd.....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
- Boilers, Water Tube**
Babcock & Wilcox, Ltd.....Montreal.
John Inglis Co., Ltd.....Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd..Amherst, N.S.
- Bolsters**
Canadian Car & Foundry Co...Montreal.
Canadian Ry. Equipment Co., Welland, Ont.
- Bolts, Bridge**
Montreal Rolling Mills Co.....Montreal.
- Bolts, Track**
Montreal Rolling Mills Co.....Montreal.
Nova Scotia S. & C. Co., New Glasgow, N.S.

- Borers, Car Wheel**
John Bertram & Sons Co....Dundas, Ont.
- Braces, Cross Arm**
Montreal Rolling Mills Co.....Montreal.
- Brake Beams**
Canadian Car & Foundry Co...Montreal.
Chicago Railway Equipment Co.Chicago.
- Brake Shoes**
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
The Holden Co., Ltd.....Montreal.
- Brake Shoes, Locomotive Driver**
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd..Montreal.
Railway Materials Co.New York.
- Brass and Copper Cloth**
The B. Greening Wire Co..Hamilton, Ont.
- Brasses, Car**
T. McAvity & SonsSt. John, N.B.
- Brick Numbers**
Acton Burrows, LimitedToronto.
- Bridges**
Canadian Bridge Co....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
- Bronze**
American Vanadium Co....Pittsburg, Pa.
- Buckets, Coal, Ore and Concrete**
M. Beatty & Sons, Ltd...Welland, Ont.
Brown Hoisting Machinery Co., Cleveland.
Williams & Wilson, LtdMontreal.
- Buildings, Steel**
Canadian Bridge Co....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
- Bumping Posts**
Dominion Equip. & Supply Co., Winnipeg.
The Holden Co., Ltd.....Montreal.
McCord & Co.Chicago, Ill.
- Buoy Lighting**
Safety Car Heat. & Light. Co..New York.
- Buoys**
International Marine Signal Co...Ottawa.
- Cables, Electric and Feeder**
Chapman & Walker, Ltd.....Toronto.
E. F. Phillips Electrical Works, Montreal.
The Wire and Cable Co.....Montreal.
- Caps, Uniform**
W. H. CoddingtonHamilton, Ont.
- Car Furnishings**
Guilford S. Wood.....Chicago, Ill.
- Car Loaders, Box**
Mussens, Ltd.Montreal.
- Car Movers**
F. H. Hopkins & Co.....Montreal.
Mussens, Ltd.Montreal.
- Cars**
Crossen Car Mfg. Co.....Cobourg, Ont.
Canadian Car & Foundry Co...Montreal.
J. T. GardnerChicago, Ill.
Hart-Otis Car Co., Ltd.....Montreal.
The Males Co.,Cincinnati, O.
Ottawa Car Co., Ltd.....Ottawa.
Pay-As-You-Enter Car Co...New York.
Preston Car and Coach Co., Ltd..Preston.
Russel Wheel & Fdry Co...Detroit, Mich.
Silliker Car Co., Ltd.....Halifax, N.S.
- Cars, Logging**
Peteler Car Co.Minneapolis, Minn.
Russel Wheel & Fdry Co...Detroit, Mich.

- Castings**
Edgar Allen & Co., Ltd.Montreal.
American Vanadium Co....Pittsburg, Pa.
Canadian Car & Foundry Co...Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
John Inglis Co., Ltd.Toronto.
Lumen Bearing Co....West Toronto, Ont.
I. Matheson & Co....New Glasgow, N.S.
Russel Wheel & Fdry Co...Detroit, Mich.
Standard Steel Works Co.Philadelphia, Pa.
- Castings, Brass**
Canadian Bronze Co.Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co.Walkerville, Ont.
Lumen Bearing Co....West Toronto, Ont.
Tallman Brass & Metal Co., Ltd.Hamilton.
- Castings, Car**
Edgar Allen & Co., Ltd.Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Canada Iron Corporation, Ltd...Montreal.
Russel Wheel & Fdry. Co..Detroit, Mich.
- Castings, Iron**
Allis-Chalmers-Bullock Ltd.Montreal.
Canada Iron Corporation, Ltd...Montreal.
Kerr Engine Co....Walkerville, Ont.
Russel Wheel & Fdry. Co..Detroit, Mich.
- Castings, Iron and Steel**
Edgar Allen & Co., Ltd.Montreal.
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
- Castings, Malleable**
Galt Malleable Iron Co.....Galt, Ont.
Taylor & ArnoldMontreal.
- Castings, Manganese Steel**
Edgar Allen & Co., Ltd.Montreal.
Lumen Bearing Co....West Toronto, Ont.
Montreal Steel Works, Ltd.....Montreal.
- Castings, Steel**
Edgar Allen & Co., Ltd.Montreal.
American Vanadium Co....Pittsburg, Pa.
Canada Iron Corporation, Ltd...Montreal.
W. Kennedy & Sons, Ltd., Owen So'd Ont.
Montreal Steel WorksMontreal.
- Chains**
B. J. Coghlin & Co.....Montreal.
- Chisels for Pneumatic Chipping Hammer**
Edgar Allen & Co., Ltd.Montreal.
Cleveland Punch & Shear Wks., Cleveland.
- Closets, Car**
Duner Co.Chicago, Ill.
- Coal**
Nova Scotia S. & C. Co., New Glasgow, N.S.
- Compressors, Air**
Allis-Chalmers-Bullock Ltd.Montreal.
The American Well Works...Aurora, Ont.
Canadian Rand Co.Montreal.
The Holden Co., Ltd.....Toronto.
John Inglis Co., Ltd.Toronto.
Vandeleur & NicholsToronto.
- Concrete Mixers and Rock Crushers**
Edgar Allen & Co., Ltd.Montreal.
F. H. Hopkins & Co.....Montreal.
Mussens, LimitedMontreal.
- Contractors' Supplies**
F. H. Hopkins & Co.....Montreal.
Rice Lewis & Son.....Toronto.
Peteler Car Co.Minneapolis, Minn.
Russel Wheel & Fdry. Co..Detroit, Mich.
Williams & Wilson, LtdMontreal.
- Conveyors, Coal and Ash**
Babcock & Wilcox, Ltd.....Montreal.
Williams & Wilson, LtdMontreal.
- Copying Presses**
James Smart Mfg. Co....Brockville, Ont.

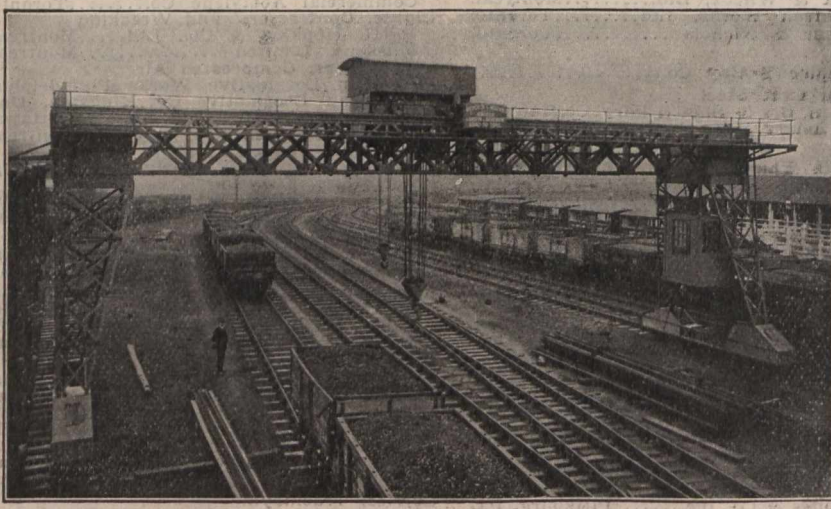
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Couplers, Car and Locomotive
Canadian Car & Foundry Co...Montreal.
McConway & Torley Co...Pittsburg, Pa.
Montreal Steel Works, Ltd...Montreal.
Taylor & ArnoldMontreal.
Couplers, Steam
Consolidated Car Heating Co., Albany, N.Y.
Cranes
Brown Hoisting Machinery Co., Cleveland.
Northern Engineering Wks., Detroit, Mich.
Williams & Wilson, LtdMontreal.
Cranes, Electric
Babcock & WilcoxMontreal.
Dominion Bridge Co.Montreal.
Mussens, LimitedMontreal.
Northern Engineering Wks, Detroit, Mich.
Cranes, Locomotive
The Males Co., Cincinnati, O.
Cranes, Wrecking
Mussens, LimitedMontreal.
Crowbars
E. J. Coghlin & Co.....Montreal.
Curtains and Fixtures, Car
The Holden Co., Ltd.....Montreal.
Preston Car & Coach Co...Preston, Ont.
Cuts
Acton Burrows, LimitedToronto.
Cylinders
American Vanadium Co...Pittsburg, Pa.
Derricks
M. Beatty & SonsWelland, Ont.
Mussens, LimitedMontreal.
Diaphragms, Vestibule
Guilford S. Wood.....Chicago, Ill.
Dies
Butterfield & Co.Rock Island, Que.
A. B. Jardine & Co.Hespler, Ont.
Ditchers
M. Beatty & SonsWelland, Ont.
Diving Outfits
John DateMontreal.
Mussens, LimitedMontreal.
Doors, Steel Rolling
Mussens, LimitedMontreal.
Door Signs
Acton Burrows, LimitedToronto.
Draft Gear
The Holden Co., Ltd.....Montreal.
McCord & Co.Chicago, Ill.
Standard Coupler Co....New York City.
T. H. Symington & Co....Baltimore, Md.
Draughtsmen's Supplies
John A. Hart & CoWinnipeg.
Dredges
M. Beatty & SonsWelland, Ont.
Polson Iron Works, Ltd.....Toronto.
Drills, Air
Canadian Rand Co.....Montreal.
Drills, Flat Twisted
Cleveland Punch & Shear Wks., Cleveland.
Dry Goods
The Hudson's Bay Co.....Toronto.
Dump Cars, Contractors'
Dominion Equip. & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Peteler Car Co.Minneapolis, Minn.
Western Wheeled Scraper Co., Aurora, Ill.
Dump Cars, Hand
Meaford Wheelbarrow Co., Ltd., Meaf'd, Ont.
Dynamo
Northern Electric & Mfg. Co....Montreal.
Vandeleur & NicholsToronto.
Dynamo and Electric Castings
Am. Brake Shoe & F'dry Co., Mahwah, N.J.
Economizers
Babcock & Wilcox, Ltd.....Montreal.
Electric Apparatus
Allis-Chalmers-Bullock Ltd.Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co....Montreal.
Vandeleur & NicholsToronto.
Electric Car Route Signs
Acton Burrows, LimitedToronto.
Preston Car & Coach Co...Preston, Ont.
Electric Light Plant
Allis-Chalmers-Bullock Ltd.Montreal.
Elevators, Grain
John S. Metcalf Co.Chicago, Ill.
Enamelled Iron Signs
Acton Burrows, LimitedToronto.
Engines, Automatic
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd., Amherst, N.S.
Russel Wheel & Fdry Co., Detroit, Mich.
Engines, Corliss
Allis-Chalmers-Bullock Ltd.Montreal.
John Inglis Co., Ltd.Toronto.
Robb Engineering Co., Ltd., Amherst, N.S.
Engines, Gas
Allis-Chalmers-Bullock Ltd.Montreal.
Vandeleur & NicholsToronto.
Williams & Wilson, LtdMontreal.
Engines, Gasoline
Canadian Fairbanks Co., Ltd...Montreal.
Ontario Wind Engine & Pump Co. Toronto.
Vandeleur & NicholsToronto.
Engines, Hoisting
Allis-Chalmers-Bullock Ltd.Montreal.
M. Beatty & SonsWelland, Ont.
Dominion Equip. & Supply Co., Winnipeg.
John Inglis Co., Ltd.Toronto.
Polson Iron Works, Ltd.....Toronto.
Russel Wheel & Fdry. Co., Detroit, Mich.
Williams & Wilson, LtdMontreal.

Engines, Pumping
John Inglis Co., Ltd.Toronto.
Engines, Stationary and Marine
John Inglis Co., Ltd.Toronto.
Polson Iron Works, Ltd.....Toronto.
Robb Engineering Co., Ltd., Amherst, N.S.
Engines, Stationery, Appliances
Nathan Manufacturing Co.....New York.
Engines, Steam
Allis-Chalmers-Bullock Ltd.Montreal.
Vandeleur & NicholsToronto.
Explosives
Standard Explosives, Limited ..Montreal.
Express Office Signs
Acton Burrows, LimitedToronto.
Fencing
Owen Sound Wire Fence Co., Ltd., O'n S'd.
Ferro-Vanadium
American Vanadium Co. ..Pittsburg, Pa.
Fire Appliances
Missouri Lamp & Mfg. Co., St. Louis, Mo.
Flags
The Hudson's Bay Co.....Toronto.
Flour
The Hudson's Bay Co.....Toronto.
Forgings
Eugar Allen & Co., Ltd.Montreal.
American Vanadium Co. ..Pittsburg, Pa.
Canadian Car & Foundry Co..Montreal.
Cleveland City Forge & Iron Co., Cleveland.
Crossen Car Mfg. Co.....Cobourg, Ont.
Nova Scotia S. & C. Co., New Glasgow, N.S.
Standard Steel Works Co., Philadelphia, Pa.
Steel Co. of Canada, Ltd. ..Hamilton, Ont.
Foundry Appliances
Goldschmidt Thermit Co.Toronto.
Ont. Wind Eng. & Pump Co., Ltd., Toronto.
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Canadian Ry. Equip't Co., Welland, Ont.
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Canadian Ramapo Iron Wks. Niagara Falls.
Peteler Car Co.Minneapolis, Minn.
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Continental Iron Works....Brooklyn, N.Y.
Furnaces, Oil
Railway Materials Co.New York.
Furnaces, Shop
Railway Materials Co.New York.
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Standard Explosives Limited...Montreal.
Fuse Detonators
Standard Explosives Limited...Montreal.
Fuses, Electric
Standard Explosives Limited...Montreal.
Gaskets
The Holden Co., Ltd.....Montreal.
McCord & Co.Chicago, Ill.
Gates
Owen Sound Wire Fence Co., Ltd., O'n S'd.
Gates, Crossing
The N. L. Piper Ry. Supply Co...Toronto.
Gauge Cocks
Nathan Manufacturing Co.....New York.
Gauges, Locomotive
Taylor & ArnoldMontreal.
Utica Steam Gauge Co.....New York.
Gauges, Water
Nathan Manufacturing Co.....New York.
Gears
American Vanadium Co. ..Pittsburg, Pa.
Generators, Electric
Northern Electric & Mfg. Co....Montreal.
Grates, Shaking
Babcock & Wilcox, Ltd.....Montreal.
Polson Iron Works, Ltd.....Toronto.
Vandeleur & NicholsToronto.
Groceries
The Hudson's Bay Co.....Toronto.
Hammers, Cast Steel
American Brake Shoe & Fdry Co. Mahwah.
James Smart Mfg. Co....Brookville, Ont.
Handcars
Canadian Fairbanks Co., Ltd...Montreal.
Crossen Car Mfg. Co.....Cobourg, Ont.
Dominion Equip. & Supply Co., Winnipeg.
F. H. Hopkins & Co.....Montreal.
Mussens, LimitedMontreal.
Rice Lewis & Son.....Toronto.
Hardware
The Hudson's Bay Co.....Toronto.
Rice Lewis & Son.....Toronto.
Hats
W. H. Coddington.....Hamilton, Ont.
Headlights
Commercial Acetylene Co.....Toronto.
The N. L. Piper Ry. Supply Co...Toronto.
Pyle National Elec. Headlight Co., Chicago.
Headlinings
Crossen Car Mfg. Co.....Cobourg, Ont.
Heaters, Feedwater
Robb Engineering Co., Ltd., Amherst, N.S.
Heaters, Oil-burning
Tate, Jones & Co. Inc. Pittsburg, Pa.
Heating, Car
Canadian Gold Car H'g & L'g Co. Montreal.
Consolidated Car Heating Co., Albany, N.Y.
Safety Car Heating & L'ting Co. New York.
Hoists, Pneumatic
Taylor & ArnoldMontreal.

Hollow Staybolt Iron and Steel Bars
Edgar Allen & Co., Ltd. Montreal.
Hoppers, Car, Wet or Dry
Duner Co.Chicago, Ill.
Hose, Air Brake and Steam
Guilford S. Wood.....Chicago, Ill.
Hydrants
Canadian Fairbanks Co., Ltd...Montreal.
Kerr Engine Co.....Walkerville, Ont.
Illustrations
Acton Burrows, Limited.....Toronto.
Injectors
T. McAvity & SonsSt. John, N.B.
Nathan Manufacturing Co.....New York.
Inspections
R. W. Hunt & Co.....Montreal.
Insurance, Accident
Can. Casualty & Boiler Ins. Co...Toronto.
Canadian Ry. Accident Ins. Co...Ottawa.
Imp. Guarantee & Acc. Ins. Co. Toronto.
London Guar. & Accident Co., Ltd. Toronto.
Insurance, Boiler
Can. Casualty & Boiler Ins. Co...Toronto.
Interlocking Plant and Signals
Montreal Steel Works, Ltd....Montreal.
Railway Signal Co. of Canada...Montreal.
Saxby & Farmer, Ltd.....Montreal.
Iron, Pig
Nova Scotia S. & C. Co., New Glasgow, N.S.
Iron Signs
Acton Burrows, Limited.....Toronto.
Iron Staybolt Bars
Falls Hollow Staybolt Co., Cuyahoga Falls.
Jacks
Canadian Fairbanks Co., Ltd...Montreal.
Dominion Equip. & Supply Co., Winnipeg.
H. & E. Lifting Jack Co., Waterville, Que.
F. H. Hopkins & Co., Ltd....Montreal.
Montreal Steel Works, Ltd....Montreal.
Mussens, LimitedMontreal.
A. O. NortonCoaticook, Que.
James Smart Mfg. Co....Brookville, Ont.
Williams & Wilson, LtdMontreal.
Japans
The Dougal Varnish Co., Ltd...Montreal.
Journal Bearings
Canadian Bronze Co.Montreal.
Crossen Car Mfg. Co.Cobourg, Ont.
Kerr Engine Co.Walkerville, Ont.
Jas. W. Pyke & Co.Montreal.
Journal Boxes
The Holden Co., Ltd.....Montreal.
McCord & Co.Chicago, Ill.
Lager Beer, &c.
E. L. DrewryWinnipeg.
Lagging and Covering, Locomotive
Taylor & ArnoldMontreal.
Lamps, Arc
Northern Electric & Mfg. Co....Montreal.
Lamps, Gas
Commercial Acetylene Co.....Toronto.
Lamps, Incandescent
Canadian Westinghouse Co., Hamilton, Ont.
Lamps and Lanterns
The Hudson's Bay Co.....Toronto.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co. Toronto.
Lamps, Switch
The N. L. Piper Ry. Supply Co. Toronto.
Lathes
John Bertram & Sons Co....Dundas, Ont.
Williams & Wilson, LtdMontreal.
Lighting, Car
Canadian Gold Car H'g & L'g Co. Montreal.
Commercial Acetylene Co.....Toronto.
Safety Car Heating & L'ting Co. New York.
Lighting, Signal
Commercial Acetylene Co.....Toronto.
Lights, Contractors' and Wrecking
F. H. Hopkins & Co., Ltd....Montreal.
Mussens, LimitedMontreal.
Locomotives, Compressed Air
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co., Kingston, Ont.
International Marine Signal Co...Ottawa.
Montreal Locomotive W'ks (Ltd.) Montreal.
Locomotives, Contractors'
Dominion Equip. & Supply Co., Winnipeg.
Locomotives, Electric
Baldwin Locomotive Works..Philadelphia.
Montreal Locomotive W'ks (Ltd.) Montreal.
Locomotives, Logging
Baldwin Locomotive Works..Philadelphia.
Canadian Locomotive Co., Kingston, Ont.
Locomotives, Rack
Baldwin Locomotive Works...Philadelphia.
Canadian Locomotive Co., Kingston, Ont.
Montreal Locomotive Works....Montreal.
Locomotives, Steam
Baldwin Locomotive Works..Philadelphia.
Canadian Fairbanks Co., Ltd...Montreal.
Canadian Locomotive Co. ..Kingston, Ont.
J. T. GardnerChicago, Ill.
The Males Co., Cincinnati, O.
Montreal Locomotive Works....Montreal.
Vulcan Iron WorksWilkesbarre, Pa.
Lorries, Tracklaying
Crossen Car Mfg. Co.....Cobourg, Ont.
F. H. Hopkins & Co.....Montreal.
Lubricators
McCord & Co.Chicago, Ill.
Nathan Manufacturing Co.....New York.
Taylor & ArnoldMontreal.

- Lumber**
Imperial Timber & Trading Co., Vancouver.
Parry Sound Lumber Co. Toronto.
- Machines and Plant, Contractors'**
M. Beatty & SonsWelland, Ont.
Canadian Fairbanks Co., Ltd.Montreal.
J. T. GardnerChicago, Ill.
F. H. Hopkins & Co.Montreal.
Mussens, LimitedMontreal.
- Machines and Tools, Prospecting**
The American Well Works...Aurora, Ill.
- Machines and Tools, Well Drilling**
The American Well Works...Aurora, Ill.
- Machines, Boring and Turning**
John Bertram & Sons Co....Dundas, Ont.
- Machines, Car Shop**
John Bertram & Sons Co., Ltd.Dundas, Ont.
Cincinnati Punch & Shear Co., Cincinnati.
Greenlee Bros. & Co.Chicago, Ill.
- Machines, Cement**
James W. Pyke & Co.Montreal.
- Machines, Drilling**
John Bertram & Sons Co. ..Dundas, Ont.
- Machines, Earth and Stone Handling**
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John Bertram & Sons Co. ..Dundas, Ont.
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Cleveland Punch & Shear Wks.Cleveland.
- Machines, Tire Welding**
Long & Allstatter Co. Hamilton, Ohio.
- Machines, Track**
Greenlee Bros. & Co.Chicago, Ill.
- Machines, Tracklaying**
F. H. Hopkins & Co.Montreal.
- Machines, Wood and Iron Working**
Canadian Fairbanks Co., Ltd...Montreal.
Williams & Wilson, LtdMontreal.
- Machine Tools**
John Bertram & Sons Co. ..Dundas, Ont.
Pratt & Whitney Co.Dundas, Ont.
- Manhole Frames and Covers**
American Brake Shoe & Fdry Co.Mahwah.
Canada Iron Corporation, Ltd...Montreal.
- Marine Repairs**
Goldschmidt Thermit Co.Toronto.
- Marine Supplies**
Rice Lewis & Son.....Toronto.
- Metal, Babbit**
Tallman Brass & Metal Co., Hamilton. Ont.
- Metals**
Goldschmidt Thermit Co.Toronto.
- Metal Work, Structural**
Canadian Bridge Co....Walkerville, Ont.
Dominion Bridge Co.....Montreal.
Montreal Locomotive Works.....Montreal.
Jas. W. Pyke & Co.Montreal.
- Milepost Numbers**
Acton Burrows, Limited.....Toronto.
- Motors**
Canadian Fairbanks Co., Ltd...Montreal.
McCord & Co.Chicago, Ill.
- Motors, Electric**
Allis-Chalmers-Bullock Ltd.Montreal.
Canadian Crocker-Wheeler Co.Montreal.
Chapman & Walker, Ltd.....Toronto.
Northern Electric & Mfg. Co....Montreal.
Vandeleur & NicholsToronto.
- Motor Generator Sets**
Allis-Chalmers-Bullock Ltd.Montreal.
Chapman & Walker, Ltd.....Toronto.
Vandeleur & NicholsToronto.
- Motors, Turntable**
Taylor & ArnoldMontreal.
- Nickel**
The Orford Copper Co.New York.
- Nickel for Nickel Steel**
The Orford Copper Co.New York.
- Numbers**
Acton Burrows, LimitedToronto.
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Positive Lock Washer Co. ..Newark, N.J.
- Nuts, Clevis**
Cleveland City Forge & Iron Co.Cleveland.
- Nuts, Square and Hexagon**
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- Oakum**
The Hudson's Bay Co.....Montreal.
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Can. Office & Sch'l Furn. Co....Preston.
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- Oils**
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Anchor Packing Co. of Can., Ltd., Montreal.
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- Pipe, Gas, Cast Iron**
Gartshore-Thompson Pipe Co..Hamilton.
- Pipe, Sewer, Cast Iron**
Gartshore-Thompson Pipe Co..Hamilton.
- Pipe Stocks**
Butterfield & Co.Rock Island, Que.
A. B. Jardine & Co.....Hespeler, Ont.
Gartshore-Thompson Pipe Co..Hamilton.
- Planers**
John Bertram & Sons Co. ..Dundas, Ont.
- Platforms, Steel**
Standard Coupler Co.New York City.
- Ploughs, Contractors'**
Meaford Wheelbarrow Co., Ltd., Meaf'd, Ont.
Mussens, LimitedMontreal.
- Porter**
E. L. DrewryWinnipeg.
- Powder, Blasting**
Standard Explosives, Limited ..Montreal.
Preservative for Hose
Gulford S. Wood.....Chicago, Ill.
- Printing**
Southam PressToronto.
- Propellor Wheels**
W. Kennedy & Sons, Ltd., Owen So'd, Ont.
- Pumps**
Canadian Fairbanks Co., Ltd...Montreal.
S. F. Bowser & Co., Ltd.....Toronto.
Ontario Wind Engine & Pump Co..Toronto.
James Smart Mfg. Co....Brockville, Ont.
Vandeleur & NicholsToronto.
- Pumps, Centrifugal**
The American Well Works...Aurora, Ill.
M. Beatty & SonsWelland, Ont.
John Inglis Co., Ltd.Toronto.
- Pumps, Deep Well, Steam and Power**
The American Well Works...Aurora, Ill.
- Pumps, Fire Pressure**
The American Well Works...Aurora, Ill.
- Pumps, Irrigating**
The American Well Works...Aurora, Ill.
- Pumps, Reclamation**
The American Well Works...Aurora, Ill.
- Pumps, Sprinkler Systems**
The American Well Works...Aurora, Ill.
- Pumps, Underwriters' Fire**
The American Well Works...Aurora, Ill.
- Punches and Shears**
Cincinnati Punch & Shear Co., Cincinnati.
Cleveland Punch & Shear Wks., Cleveland.
Long & Allstatter Co. Hamilton, Ohio.
Williams & Wilson, LtdMontreal.
- Rail Benders, Roller**
Dominion Equip. & Supply Co., Winnipeg.
F. H. Hopkins & Co.Montreal.
- Rail Drilling Machines**
A. B. Jardine & Co.Hespeler, Ont.
- Rails, new**
Dominion Iron & Steel Co....Sydney, N.S.
Drummond, McCall & Co.....Montreal.
J. T. GardnerChicago, Ill.
J. J. GartshoreToronto.
F. H. Hopkins & Co.Montreal.
Peteler Car Co.Minneapolis, Minn.
- Rails, for relaying**
F. H. Hopkins & Co.Montreal.
J. J. GartshoreToronto.
Mussens, LimitedMontreal.
Provincial Steel Co., Ltd. .. Cobourg, Ont.
Jas. W. Pyke & Co.Montreal.
- Rail Joints**
Goldschmidt Thermit Co.Toronto.
The Rail Joint Co. of Canada...Montreal.
- Rails, Re-rolled**
Provincial Steel Co., Ltd. .. Cobourg, Ont.
- Railway Supplies**
Canadian Fairbanks Co., Ltd...Montreal.
T. McAvity & SonsSt. John, N.E.
The Hiram L. Piper Co.....Montreal.
The N. L. Piper Ry. Supply Co..Toronto.
Rice Lewis & Son.....Toronto.
Russel Wheel & Fdry. Co..Detroit, Mich.
Williams & Wilson, LtdMontreal.
- Reamers**
Butterfield & Co.....Rock Island, Que.
Cleveland Punch & Shear Wks.Cleveland.
A. B. Jardine & Co.Hespeler, Ont.
- Replacers, Car and Locomotive**
Alexander Car Replacer Mfg. Co.Scranton.
Dominion Equip. & Supply Co., Winnipeg.
The Holden Co., Ltd.....Montreal.
F. H. Hopkins & Co.Montreal.
- Rivets, Boiler, Bridge and Structural**
Montreal Rolling Mills Co.....Montreal.



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