Canadian Railway and Marine World

September, 1916.

The Engineering Department's Plan Room, Canadian Pacific Railway, Montreal.

The plan room in the C.P.R. Chief Engineer's office on the fourth floor of Windsor Street Station, Montreal, is one of the most modern and efficient in America. In a concrete and steel fireproof vault, some 90 ft. long, 30 ft. wide, and 11 ft. high, over 80,000 maps and plans, a large number of engineering reference books, current engineering magazines, catalogues and special reports are filed in steel cabinets in such a manner as to be instantly available at any time. The accompanying plan shows the layout of the room and equipment.

When a new plan is to be placed on file, a detachable stub slip, shown in accompanying fig. 1, filled out with all the information necessary for filing purposes, accompanies it to the plan room. The stub is signed by the attendant in charge and returned at once to the maker. This serves as a receipt, which makes the signer responsible thereafter for producing the plan. He assigns the plan a number, under which it is recorded in the plan number journal in consecutive numerical order. If it is a rolled plan, he attaches a tag bearing the assigned number and places it in the proper pigeonhole; if it is a flat plan the number is placed in the corner of the plan, which is filed in a drawer. If the plan consists of two or more sheets, each sheet bears the assigned number and in addition its own consecutive sub number. Record is kept of these sub numbers so that it is readily ascertained at any time whether the plan is complete, and if not just what sheet is missing. It is then indexed in the proper places and is ready for issue on demand. The detached portion of the filing slip is finally returned to the maker for his record.

Rolled plans which do not exceed 54 in. in width are assigned consecutive numbers and placed in tiers of numerically arranged horizontal dropend sliding steel pigeonholes, which contain 10 plans each; maps and other rolled plans exceeding this dimension are assigned special numbers and filed vertically in the map cases. Special provision is also made for track profiles, which are all of one size, are filed flat in special drawers under special serial standard plan numbers. Small land plans, as well as yard plans, and all Militia, Interior Department and other government maps, are also filed flat in drawers; while magazines, books, and reports are filed on the shelves. All are under cover, thoroughly protected from dust and dirt.

Prior to the installation of steel cabinets, the plans which were filed in pigeon holes were protected by asbestos curtains. To uncover one pigeon hole, it was necessary to uncover one whole section, which resulted in the cases standing open practically all the time and collecting an almost inconceivable amount of dust and dirt. The plans were filthy in spite of persistent use of a vacuum cleaner. At present they accumulate more dirt while in use than while in the files. The pigeonholes and drawers are always closed and during three years of service have required no cleaning. This is a large saving in operating cost, as well as a vital factor in the preservation of the plans themselves.

For indexing, both card and book systems, with extensive cross indexing, are in use. Yard, bridge building, standard, foreign and miscellaneous plans, as well as books, magazines, etc., are recorded in separate portions of the card index cases. They are listed under station names, bridge numbers or general subject headings. Property, resurvey, and generally all extensive plans, which cannot be definitely classified as to location under the card index headings are recorded in the book indexes. These are practically straight line diagrams of the entire system, at a scale of 1 in. to the mile, bound in loose leaf binders in consecutive geographical order. Under the diagrammatic headings, plans are recorded in chronological order, and their location, extent and kind indicated by the location, extent and color of the underlining below the description, as well

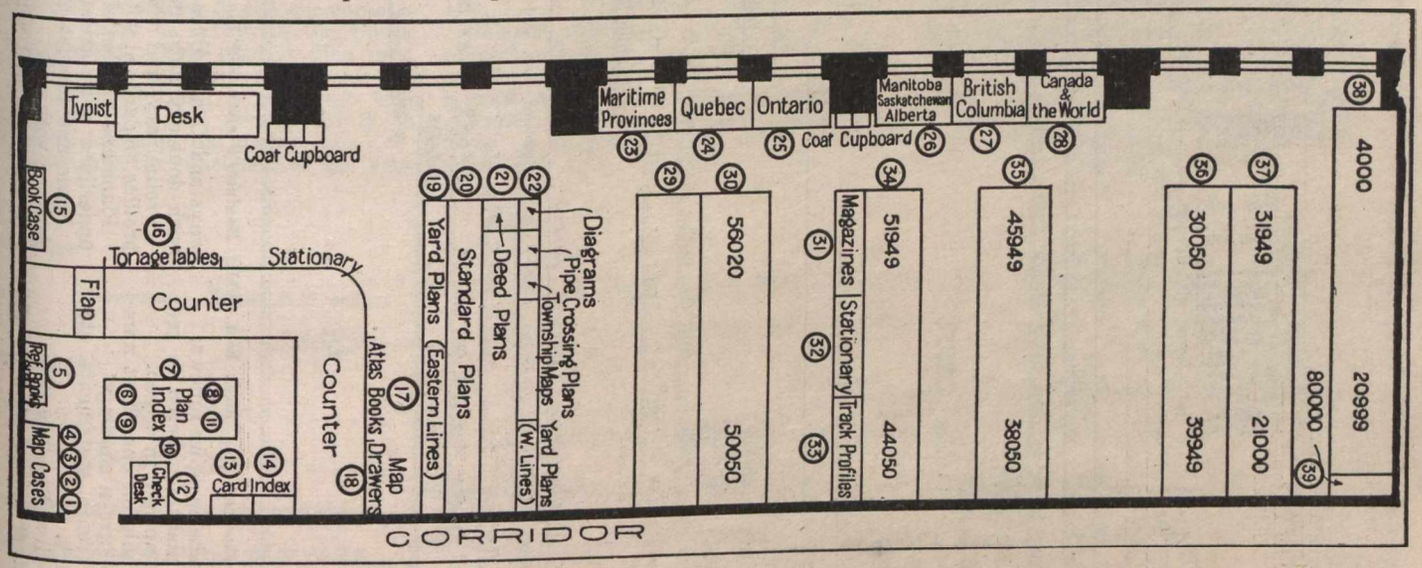


Fig. 1—Plan room, Chief Engineer's office, C.P.R., Montreal.

17. Atlases of Canada, old.
15. Books, engineering, miscellaneous and catalogues.
14. Bridge index, eastern and western lines.
12. Check desk.
21. Deed plans, C.L.O. & W.Ry., G.B. & S.Ry., and Sudbury-Kleinburg Ry.
22. Divisional diagram of lines.
5. Index books, old bridge and miscellaneous.
6. Index books, main line, Nos. 1 and 2 branch line, old.
9. Index books, Eastern main and branch line, new.
10. Index books, Montreal Island, new.
11. Index books, western main and branch lines
13. Index cards, eastern and western yards, station and general.
14. Index, bridge, eastern and western lines.
31. Magazines, various.
1. Maps, large, Maritime Provinces and Quebec.
2. Maps, large, Ontario.
3. Maps, large, Western provinces.
4. Maps, large, Canada general.
18. Maps, Montreal, in sheets.
23. Maps, Maritime Provinces, Interior, Post Office, Militia, Geologic, Admiralty, provincial, counties and townships, general publishers, town and cities.
24. Maps, Quebec, Interior, Post Office, Militia, Geologic, Admiralty, provincial, counties and townships, general publishers, towns and cities.
25. Maps, Ontario, Interior, Post Office, Militia, Geologic, Admiralty, provincial, counties and townships, general publishers, towns and cities.
26. Maps, Manitoba, Alberta, Saskatchewan, Interior, Post Office, Militia, Geologic, Admiralty, provincial, counties and townships, general publishers, towns and cities.
27. Maps, British Columbia, Interior, Post Office, Militia, Geologic, Admiralty, provincial, counties and townships, general publishers, towns and cities.
29. Maps, Canada and World, Interior, Post Office, Militia, Geologic, Admiralty, provincial, counties and townships, general publishers, towns and cities.
20. Plans, standard and drawer.
30. Plans filed, 50050 to 56020.
34. Plans filed, 44050 to 51949.
35. Plans filed, 38050 to 45949.
36. Plans filed, 30050 to 39949.
37. Plans filed, 21000 to 31949.
38. Plans filed, 4000 to 20999.
39. Plans filed, 80000 to ——.
20. Standard and drawer plans.
32. Stationery.
15. Tonnage tables, eastern and western lines.
33. Track profiles, eastern and western lines.
19. Yard plans, eastern lines.
22. Yard plans, western lines.

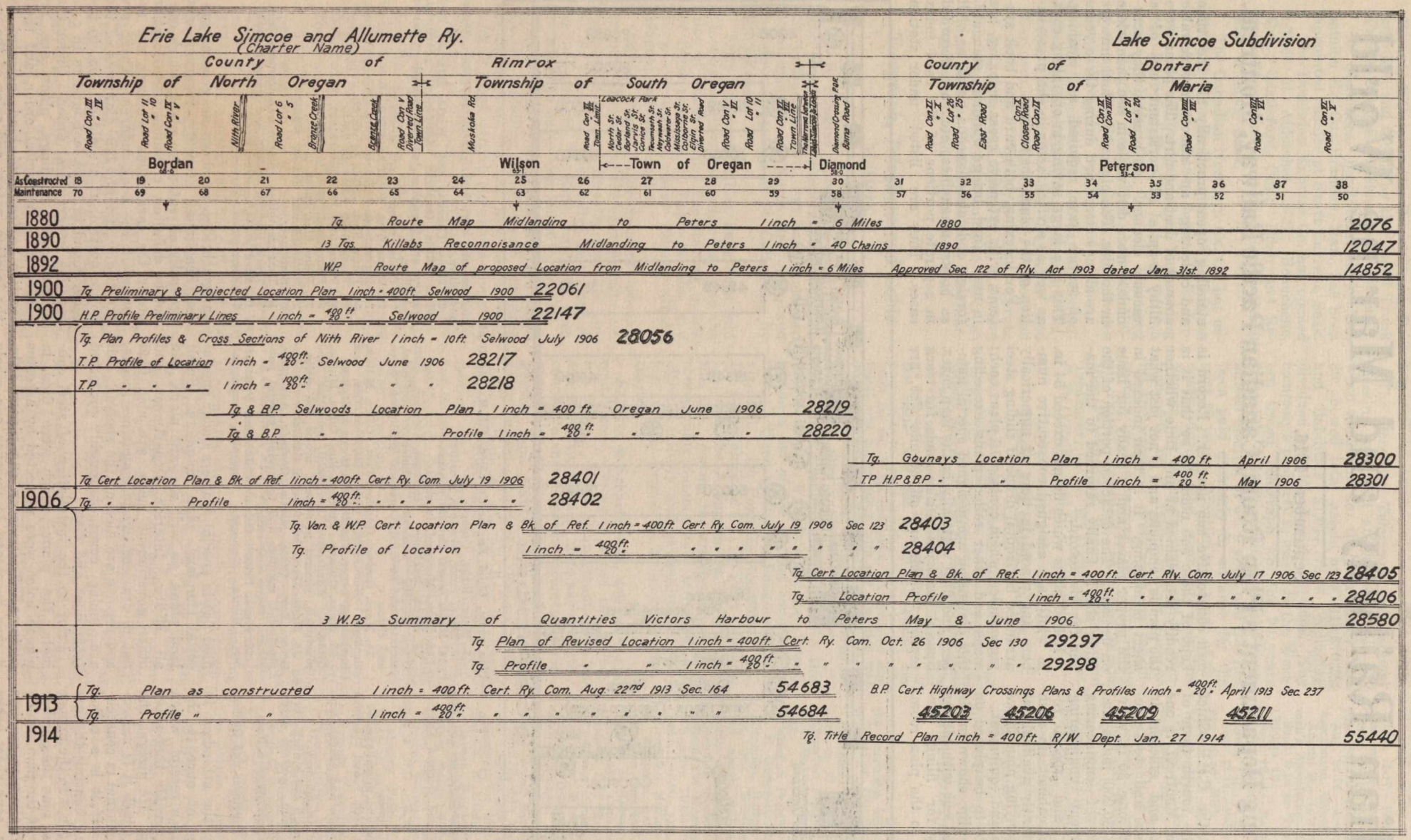


Fig. 3—Sheet of plan index book, Chief Engineer's office, C.P.R., Montreal.

as by the color used in inserting the plan number. The oldest plans are as readily found as the newest, the only distinction in the index being the location on the page, for when one page is filled, another of the same number, plus a subnumber, is inserted immediately following. The sample page illustrated herewith shows this type of indexing in which the color scheme is as follows:

All maps and plans numbered in red.

All profiles numbered in green.

A plan and profile on one sheet numbered in red with green shading.

Books of reference, statements, etc., numbered in black.

Maps underlined with yellow line.

Maps certified or approved by Railways and Canals Department, underlined with double yellow line.

Preliminary and trial line plans and profiles, underlined with green.

Plans and profiles of projected location underlined with green and dotted red.

Plans and profiles of located lines underlined with red.

Land plans and wire crossings underlined with black.

"As constructed" plans underlined with blue.

Location plans and profiles certified by the Board of Railway Commissioners, Railways and Canals Department, underlined with double red line.

Plans and profiles of highway crossings certified by Board of Railway Com-

missioners, underlined with red and blue.

"As constructed" plans and profiles, certified by Board of Railway Commissioners, underlined with double blue lines.

Any further revision of a certified plan and profile will be denoted by an additional line.

To withdraw a plan from the files, the applicant, after looking it up in the proper index, applies for it by number at

Charge No. 28403

May 15th 1916

Location Plan Mile 25-30 E.L.S.&A.Ry.

R. Simcox Signature

General Drafting DEPARTMENT

Fig. 4—Receipt for plan taken from plan room.

the counter, and an attendant delivers it. Its use in the plan room is unrestricted, ample counter space being provided for unrolling large plans. In order to take it from the plan room, a receipt showing the plan number, date, description of plan and the applicant's signature and department, as shown in the accompanying fig. 4, must be left with the Check desk attendant. This card is filed in a numerical index and withdrawn and destroyed when the plan is returned. The actual plan, or a full receipt for it, is thus at all times in the plan room.

To illustrate the efficiency of the system, an actual instance, which is only typical, may be cited, which occurred recently in the presence of a prominent official of another railway, who was viewing the plan room and its operation. A member of the Bridge Engineer's staff entered the plan room, referred to the bridge index, and requested a plan. An attendant started for it and stopped when the check desk attendant announced, "Out to Mr. ———, in the Building Department." The applicant left the plan room less than a minute after he had entered it, with full information as to where he could find the plan. If the plan had been in the files, he would have taken it with him inside of another minute.

In busy times a staff of 5 attendants has recorded and handled over 1,000 plans across the counter in an 8-hour day. In slack times a staff of 2 has recorded and handled an average of 250 plans a day. This is probably the economic minimum for this type of handling, although one attendant could, no doubt, handle from 75 to 100 plans with little difficulty or delay. It may be stated, generally, that this plan room is giving entire satisfaction as to the four essentials, safety, cleanliness, efficiency, and economy.

(22-10-14-14372)

MONTREAL, Sept. 15th 1913

54683

Received from

R. Simcox

1 sheet Tracing

Purporting to be As Constructed Plan

Lake Simcoe Sub-div. M. 0 to 30

1" = 400'

to be filed in Plan Room.
Ch. Eng. Office,
May. 15th 1913
Cert. Ry. Com.
Aug. 22nd 1913

N. W.
Plan Clerk.

CANADIAN PACIFIC RAILWAY

OFFICE OF THE CHIEF ENGINEER

MONTREAL, September 1913

R. Simcox General Drafting Dept.

For your information 1 sheet Tracing have been indexed under No. 54683

and described as As Constructed Plan Lake Simcoe Sub-division

Mile 0 to 30 1" = 400 ft.

C. E. Office,
May. 15th 1913
Cert. Ry. Com.
Aug. 22nd 1913

N. Willard
Recorder of plans.

Fig. 2—Stub slip for filing plans.

An Analysis of the Increases in Railway Operating Expenses.

By Sir Henry L. Drayton, Chief Railway Commissioner for Canada.

A large proportion of railway expenses is represented in the salary and wages account. The governmental statistics for all railways give the amount of salaries and wages for each year since 1907; and, what is more important, the ratio of salaries and wages each year to gross earnings and operating expenses. The statement is as follows:—

Year.	Salaries and Wages.	Ratio to Gross Earnings.	Ratio to Operating Expenses.
1907	$58,719,493	40.01	56.70
1908	60,376,607	41.09	56.26
1909	63,216,662	43.58	60.43
1910	67,167,793	38.61	55.78
1911	74,613,738	39.53	56.94
1912	94,237,623	39.79	57.92
1913	115,749,825	45.09	63.59
1914	111,762,972	45.97	62.43

Salaries and wages, therefore, now represent more than three fifths of the total railway expenses and have increased at a more rapid ratio than the sum of other expenses, as evidenced by the above returns A comparison of earnings and expenses per train mile is given from 1899 in the Government statistics as follow:—

	Earnings per Train Mile.	Expenses per Train Mile.
1899	$1.192	$0.779
1900	1.282	0.864
1901	1.366	0.944
1902	1.501	1.028
1903	1.591	1.117
1904	1.634	1.216
1905	1.614	1.213
1906	1.723	1.198
1907	1.953	1.381
1908	1.869	1.364
1909	1.816	1.309
1910	2.036	1.409
1911	2.103	1.460
1912	2.173	1.493
1913	2.263	1.604
1914	2.253	1.659

This return shows that, while earnings per train mile have been increased by 89.00% since 1899 and down to June 30, 1914, the cost of service per train mile has increased by 112.96%. While the many economies effected by increased locomotive power, better grades, and more effective loading, as well as the benefit of a largely increased traffic, are reflected in these figures, the percentage of increase in expenses exceeds that in earnings by 23.96%. Taking the last five year period and comparing the results of 1910 with those of 1914, the earnings have increased 10.65%, and the expenses 17.74%.

The recently published statistics for 1915 give for the year ending June 30, 1915, similar earnings and expenses at $2.144 and $1.585 respectively, resulting in a ratio of 74% for the train mile expenses as compared with the train mile earnings. As compared with 1910 the increase in earnings is but 5.3% and the increase in expense 12.42%. In this case the percentage of increase in expenses more than doubles that of receipts. The year, however, including as it does 11 months of operations under war conditions cannot be accepted as a fair example of the earnings of the railways based on the present rates.

The statistics indicate in different directions the causes of this increase.

That the increased ratio is the result of a higher wage scale rather than improvident railway managership in unnecessarily increasing the number of their employes, is quite evident from the fact that the number of railway employes per 100 miles of line operated in 1913 was 609; in 1914 the number amounted to only 517; in 1907, when the ratio was but 56.70, 551 employes are shown per 100 miles; in 1908, where the ratio fell by 0.44, 463 were employed per 100 miles of line. Notwithstanding the resultant economies effected in the wage account by employing 19,510 less men in 1914 than in 1913, a reduction of approximately 11%, the resultant economy expressed in ratio to other operating expenses is but 1.16, while the ratio of salary and wage account to gross earn-

ings shows an increase of 0.88, notwithstanding the great economy worked in the reduction of the force of men employed. Illustrating the situation by percentages, both of men and salaries and wages per 100 miles of line, the following is the result, taking the year 1907 as the basis of comparison:—

	Salaries and Wages.	Percentage of Increase.	Employes.	Percentage
1907...	$263,033	....	551	....
1913...	391,636	48%	609	10% increase
1914...	364,048	38%	517	10% decrease

The result is apparent; notwithstanding a decrease in the number of employes per mile of line in 1914 of 10%, the cost of employment on the same basis rises to 38%.

The government statistics also show that the cost of railway ties has advanced steadily for a number of years, the average cost per tie in 1914 being shown as 49.7c as against 47.8c in 1913, while the average cost in 1907 is shown as 36.7c; 1911, 43.8c; and in 1912, 44.7c. The cost in 1915 is given as 53.7c. The increased cost in 1914 is 38% over the cost in 1907, and in 1915, 46%.

In the same statistics it appears that the cost of fuel per 100 miles of operation has also increased. The cost of running a freight locomotive in 1907, for 100 miles, was $19.61; in 1908, $23.20; in 1909, $22.65; in 1910, $22.48; in 1911, $22.17; in 1912, $24.46; in 1913, $25.51; in 1914, $25.64. The resultant cost in 1915 over 1907 is 30%. The average cost of fuel is given for the year as $3.12 per ton, and for 1909, $2.56 per ton. The price of coal varies, of course, from time to time, being sometimes higher and sometimes lower, but the general trend is to the higher figure. It may be observed that the percentage of increase of cost of coal between 1909 and 1914 amounts to 21.8% while the cost of running a freight locomotive 100 miles in the like period, notwithstanding the fact that the tendency is in the direction of heavier engines, is but 13.25%. The difference in the ratio of increase is an indication of the increase of engine efficiency.

The railway earnings as expressed in the average receipts per ton per mile on the above traffic are given as:—

1907	0.815
1908	0.723
1909	0.727
1910	0.739
1911	0.777
1912	0.757
1913	0.758
1914	0.742

The tax bill of the railways is shown for 1914 as $2,822,774.35, and for 1915, $3,049,727.62, as against $1,581,336.59 for 1909, or an increase of 78.5% for 1914, and of 92.2 for 1915.

On the question of the freight traffic itself indicating the volume of business done by the railways expressed in the number of tons hauled one mile, the figures are as follows:—

1907	11,687,711,830
1908	12,961,512,519
1909	13,160,567,550
1910	15,712,127,701
1911	16,048,478,295
1912	19,558,190,527
1913	23,032,951,596
1914	22,063,294,685

The returns of 1915 only show 17,661 - 309,723 ton miles. In view, however, of the exceptional conditions then obtaining the returns of that year cannot be regarded as characteristic.

The above figures have reference to railway operations for Canada as a whole, and cover the activities of all railway companies, under the act, as reported to the Department of Railways and Canals. They are compiled from returns made in the ordinary course of business. The returns were not made for the purpose of any rate increase or for any object, except to show the shareholders and the public the position of the different railway companies, and to conform with the statute. The results are of value as constituting a check for and standard by which the evidence given and exhibits filed in this case for the purpose of obtaining higher rates may, to some extent, be measured.

On the side of expenses, the Grand Trunk figures show that hardwood ties purchased by that company in 1909 averaged 61.68c, softwood ties 39.4c, while the average price of hardwood ties in 1914 was 69.2c, and for softwood 44.9c, resulting in an increase in hardwood of 12.15% and for softwood 13.95%. The prices here again vary. For example, the average cost of hardwood ties to the Grand Trunk in 1910 was 62.55; so that the percentage of 1914 over 1910 is but 10.63%, while on the other hand, softwood ties were lower in 1910, the percentage increase in average cost in 1914 over that of 1910 amounted to 15.15%. The general trend is, however, higher.

The average rate of pay on the Grand Trunk varies in detail from the figures paid by lines generally in Canada, but in general conform to the conclusions to be drawn therefrom. In some instances, the wages paid by the Grand Trunk System are lower than the general average, in other instances higher; but the general result, however, is that the increase in the average rate of pay on the Grand Trunk System, comparing the year 1914 with 1909, amounted to 23.19%, or a total advance in the rate of pay of $3,005,-238.64.

I think it was only suggested by one opponent to any increase that wages should be reduced. In my view this is not possible. As a matter of fact, increases have been given in some instances by the company since the hearing. These increases, which individually may be small, nevertheless amount to a total percentage increase of 4.3%. I think it may be taken for granted that the company is paying no larger wages than it finds itself compelled to pay and that it is not being extravagant on this head. On the other hand, the company is economizing in connection with its labor expenses as well as on other items. The figures in this connection are as follows:—

Year.	Number.	Compensation.	Earnings per man.
1913	27,434	$18,127,745.12	$660.77
1914	25,663	17,861,294.66	695.99
1915	22,969	16,914,374.85	736.40

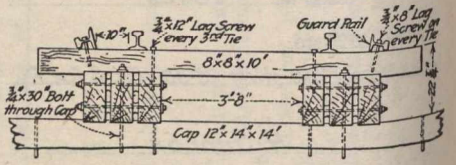
It will be observed that on this return there is an increase of 11.4% in earnings per man in 1915 over 1913, with a further result that, although there was a reduction of no less than 16.27% in the number of men employed, owing to the increased cost of wages, the net reduction in wages paid only amounted to 6.69%.

The company's coal figures may be said to agree with the general results of a sharp increase in the price of coal which has taken place in the last year. The increased cost to the company approximated $600.000.

(EDITOR'S NOTE.—The foregoing is reproduced from Sir Henry Drayton's judgment in the Eastern Freight Rates case, recently, a summary of which was published in Canadian Railway and Marine World for August.)

Bridge Floor With Old Rails for Outside Guards.

Steel guard rails for bridge floors, placed outside the track rails and used instead of the usual guard timbers, are standard practice for bridges and trestles on the Atlanta and West Point Rd. and the Western Ry. of Alabama. Old rails are used, laid on their sides, with the base 10 in. clear from the base of



Old Rail Guard on Railway Bridge.

track rails, as shown in the accompanying drawing. At the ends of the bridge the guard rails are flared away from the track. Each guard rail is fastened to every tie by a ¾ in. lagscrew 8 in. long. No inside guard rails are used. This construction has been followed for some years with satisfactory results, and in cases of derailed trucks it has guided them safely across the structure.

South African Railways are administered by a newly constituted railway board, which came into existence June 1. In addition to the railways previous operated by the Union of South Africa, those running through the recently acquired territory, formerly known as German Southwest Africa, are subject to the Board's jurisdiction, subject to military authority, which still obtains in the conquered territory. The former German lines total 1,319 miles, and there are also 315 miles of privately owned lines. These are all of a variety of gauges, from 2 to 3½ ft. The Board meets once a month, the Minister of Railways presiding, and acts chiefly in an advisory capacity. Should the Minister not follow the advice tendered by the Board, on matters within its competence, he must state his reasons for not doing so to Parliament. Opinion is expressed that as these latter railways will be operated at a loss for some time, they should be at the cost of the Defence Department, until a settlement is arrived at as to the terms on which they shall be incorporated in the South African railway system.

Thunder Bay Terminal Elevator Co., Ltd., has been incorporated under the Dominion Companies Act, with $1,000,000 capital, and offices at Winnipeg, to carry on a general elevator and grain warehouse business, and to own and operate steam and other vessels, docks, wharves, etc. C. B. Piper, H. Phillips, C. S. A. Rogers, W. M. Shaw, and K. B. Armstrong, Winnipeg, are the incorporators.

Canadian Car Service Bureau.—At the recent annual meeting at Montreal, the C.P.R., G.T.R., Central Vermont Ry., Toronto, Hamilton & Buffalo Ry., Quebec Central Ry. and Canadian Government Railways, were elected members of the executive board, and W. J. Collins was reappointed Manager for the current year.

Among the kinds of trespass on railways complained of by the Intercolonial Ry. is the practice of driving horses along the track. Near Campbellton, N.B., recently, a freight train was wrecked in stopping to prevent it running into a number of horses which were being driven on the track. The trespassers are being prosecuted.

Thermit Welding and its Application at Transcona Shops, National Transcontinental Railway.

By S. Lewis, Master Blacksmith, National Transcontinental Railway.

The technological aspect and importance of thermit reaction can hardly be over-estimated, being a branch of alumino-thermics, a science only in its infancy, and which has been taken up so rapidly by the steel industries of Canada and the United States that a knowledge of it is nowadays indispensable. Already thermit reaction serves for the preparation of a number of pure metals and alloys of considerable value in the iron and steel and allied industries. Among the alloys I may mention chromium (98 to 99% pure), which is used extensively in the manufacture of high speed tool steel and armor plate. Other alloys I may mention are chromium-manganese, manganese-titanium, ferro-titanium, ferro-vanadium, and ferro-boron.

In foundry work thermit, containing a small quantity of titanium-oxide, is used to prevent blowholes, and to give clean, dense castings. The fluidity of the metal is increased, producing a finer grain and decreasing the sulphur contents, the slag rising to the top can be removed very easily. It has also been discovered that, from the reaction of chromium under thermit, minute rubies are found in the slag, but being so small, they are of no commercial value. The slag itself, being free from metallic impurities, is mixed with certain clay, burned and manufactured into chemical apparatus, which can stand great changes in temperature.

Thermit may be well termed a new kind of fire, a fire that is different from all other varieties of fire. In its combustion thermit is not air consumed, nor is there any gas evolved, as in the case of wood, coal, gas, or any other kind of flammable combustion. Its heat density is also high and violent, and of such a peculiar nature that its application for welding purposes has been determined for industrial use with success. Then again, that the actual amount of heat obtainable from a given weight of thermit is much less than that from the same weight of anthracite has been demonstrated, but the reaction between quantities of iron oxide and aluminum is so instantaneous, caused by the combustion of thermit, that a heat density is produced unattainable otherwise. Thermit would therefore be of no practical use were it not for these peculiarities in its behavior.

The thermit process of welding as applied to railway locomotive and machine repair, particularly in the welding of frames, and other heavy sections, maintains its advantage in the factors of time, portability in manipulation, simplicity of apparatus required, and its convenience in the smaller outlying points of modern facilities. At the Transcona shops ordinary locomotive frame fractures are thermit welded in from about 4½ to 6 hours, from start to pour, and mould boxes to accommodate all required shapes are built up from adjustable scrap boiler plate specially designed to suit the job, and which form part of the welding outfit. The thermit process is one of the oldest of autogenous welding in the railway shop, although there have even here, been recent improvements and changes affecting details, which have brought about further improvements and economy. Special railway thermit can now be obtained, already mixed with proper proportions, thus relieving the individual in charge entirely from what previously was one of the most important features in securing good results.

Too much emphasis cannot be placed on the value of using good moulding material. It should always be remembered that on account of the high tem-

Fig. 1.—Cast iron boring bar of vertical boring mill.

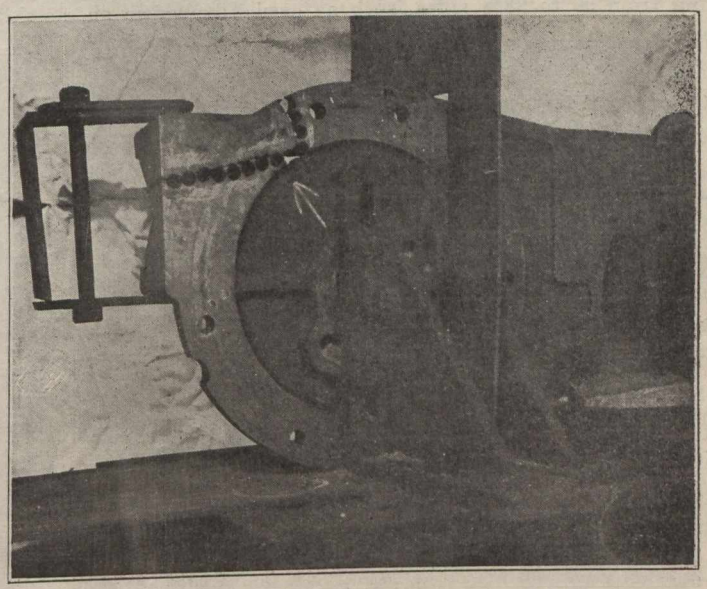


Fig. 2.—Quadrant of vertical boring mill.

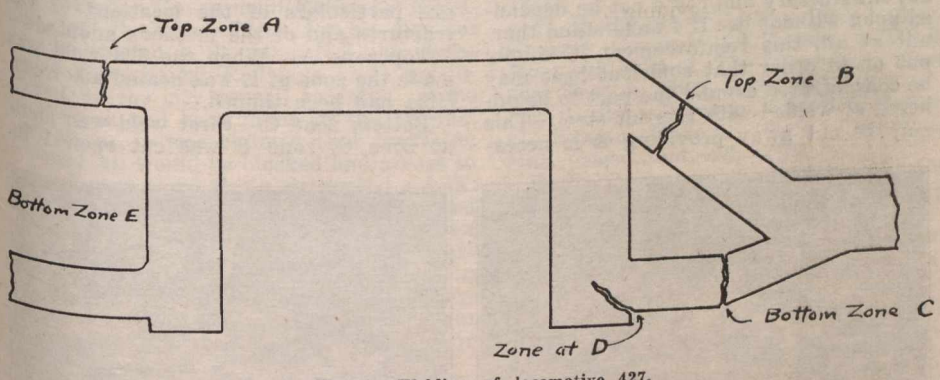


Fig. 3.—Welding of locomotive 427.

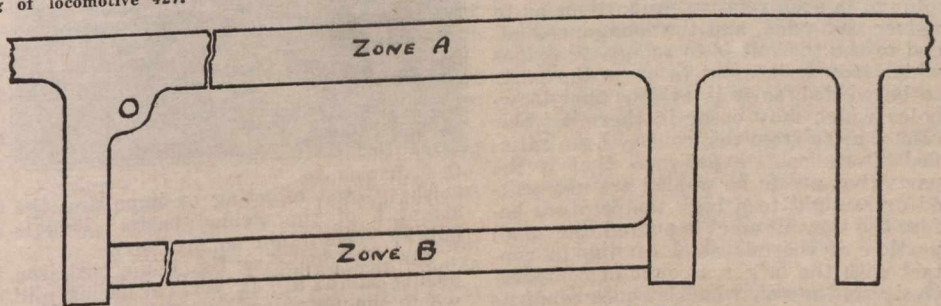


Fig. 4.—Welding of locomotives 405 and 634.

perature of the thermit steel, it being 5400 deg. Fahr., it will cut the moulding material if the ingredients are of poor quality, or if they are not carefully selected and properly mixed together. Even in cases where the moulding material, while poor in quality is yet sufficiently refractory to prevent the thermit from running out, the resulting weld will be anything but satisfactory. Upon close inspection it will be found that the moulding material has been carried into the metal, impairing its value and possibly spoiling the weld. Sand containing from 96 to 98½ silica, such as used by the steel foundries, when available, should be mixed, two parts of sand and one part of good fire clay.

Although great importance is attached to the moulding material, no less attention should be given to the preheating system. From personal observation sometimes I have found, upon machining thermit welds, that the metal is not perfectly solid, containing blowholes, impairing the strength of the weld greatly. Now from experience I have found this can be avoided. Do not assume for one moment that this fact is peculiar to the thermit process and cannot be avoided. Welding with thermit is essentially the same as making a steel casting, the process of reasoning will apply to both cases in so far as the conditions are the same. The chief cause of blowholes in steel castings is the presence of ferrous oxide in the metal, this is removed by adding some very active deoxidizer such as aluminum manganese or silica. Thermit itself is a mixture of iron oxide and aluminum, in such relative proportions as to reduce the oxide, and the manganese added to the thermit is to reduce all oxides which may be present in or on the parts to be welded, so it is evident that blowholes which may occur in thermit welds cannot arise from this cause. I am satisfied from past experience that if the parts that are to be welded are not heated or brought to a high temperature before the thermit steel is poured, the small portion of thermit steel coming in contact with the larger amount of comparatively cold metal, which at once conducts away the heat of the former so rapidly at the junction of the two metals, it becomes so thick and the shrinkage so severe that it results in blowholes. These precautions I make mention of, as the tendency by a great number of men doing this class of work is to overlook the fact that unless all the work done be in accordance with standard thermit practice they cannot expect to obtain satisfactory results. It should be remembered also that the same precautions should be taken in thermit welding as are observed in the best regulated steel foundries, especially in regard to the construction of venting, gating, providing the proper number of risers and the mould properly arranged, so that the parts may be preheated evenly and thoroughly and the crucible properly tapped. Let me point out that this is a decided advantage that does not hold for any other class of autogenous welding, as results are always dependent on the skill of the operator, as there are no fixed rules laid down, such as there are in thermit welding.

Let us consider the reinforcement provided around the welded section. I have heard a great deal of comment about this reinforcement, as if it was something to help the welded part, which was not satisfactory and could not be depended upon without it. If I understand thermit at all, this reinforcement is simply put on in order that sufficient heat may be concentrated around the part to be adhered or welded with thermit steel. This may be cut away providing it is necessary, without affecting or impairing the strength of the welded parts. This is not an assumption on my part.

The accompanying fig. 1 is a cast iron boring bar of a 6 ft. vertical boring mill which was repaired in 1913, under my own care, and fig. 2 is a quadrant belonging to the same, which had to be machined and cleaned before assembling. This mill has been doing heavy work, such as boring steel tires and cylinder rings since repaired. A recent test on a riser that was cut off, which is considered the poorest part of any resulting thermit steel weld, showed a fine granular structure and a tensile strength of about 60,000 lb. per sq. in., with elongation of from 11 to 15%, which is considered very good for cast steel.

The question of expansion and contraction, not only on locomotive frames but on all other sections where the contraction is affected by thermit welding, is one of great importance. A great many men regard the words "expansion and contraction" purely as relative, and they do not give the matter the consideration it should have. There is no fixed law regarding the exact amount of expansion on any piece of work, be it iron, steel, or cast iron, but practical knowledge and experience is just as safe a guide as will ever be needed along this line.

We will take the following locomotives which have recently been welded at Transcona shops: On locomotive 427 four welds were made. See fig. 3. Following are particulars of the locations of the fractures and of the methods adopted:—

Top zone A. When the 3rd weld was made the zone at E was heated after crucible had been tapped.

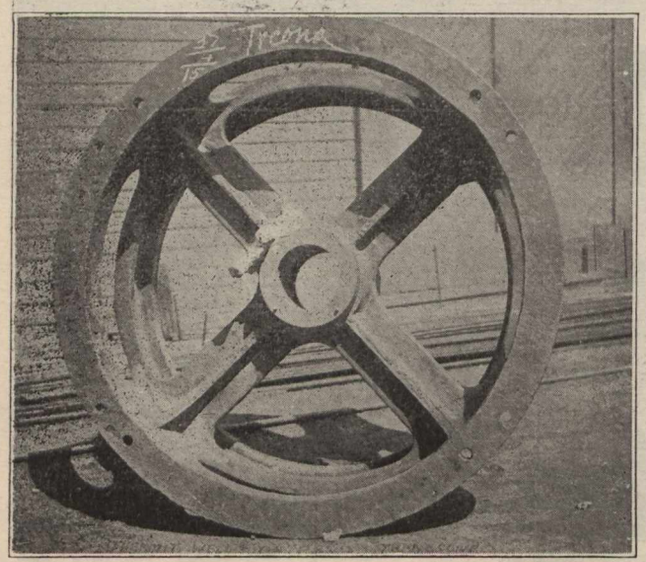
Bottom zone C. First weld was made at zone C, zone B was cut open 1 in. wide, front end was jacked up, expanding from 3/16 in. After 3 hours jack was lowered to normal condition.

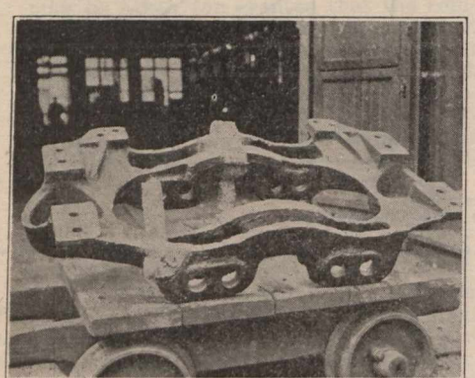
Zone at D. In welding D heat was applied at C.

Top zone B. Second weld was made at zone B, jacks were lowered at front of locomotive and secured an expansion of 3/32.

Following are particulars of work on locomotives 405 and 634. See fig. 4. On locomotive 405 zone B was heated. On locomotive 634 zone A was heated.

Experience has already shown the advantage of the thermit process over other



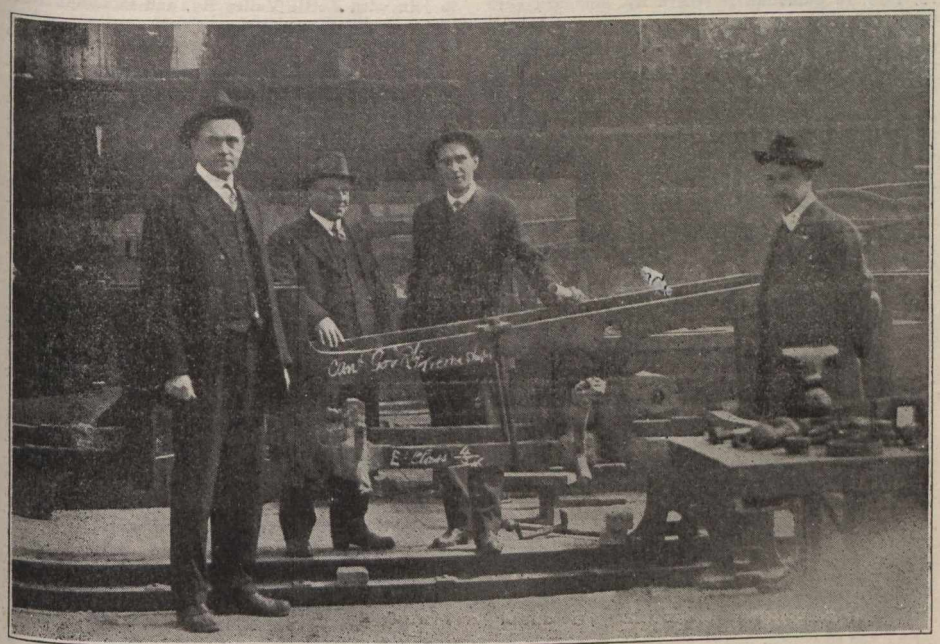


methods and the future alone will doubtless draw still more distinct lines around this individual field of usefulness and economy. Following is a statement of comparative cost of thermit welds:—

Locomotive 405. — Labor $5.00, one weld; material $15.60; total $20.60.

Locomotive 212.—Labor $14.64, four welds; material $38.00; total $52.64.

Locomotive 427.—Labor $15.60, four welds, material $40.00, total $55.64.



Locomotive 634.—Labor $5, one weld; material $15.60, total $20.60.

(EDITOR'S NOTE.—The other illustrations, not particularly referred to in the foregoing article, show thermit welds done by S. Lewis, at Transcona.

Canadian Government Railways' Elevator at St. John.—Plans for an elevator to be erected in St. John, N.B., by Canadian Government Railways, were considered by the city council recently. Some objection had been taken to the original plans, as it was claimed that traffic on Water St. would be blocked and access to the Lower Cove Basin prevented. J. K. McNeillie, General Superintendent, stated that it was the intention to provide an elevator of 500,000 bush. capacity, so arranged that it could be increased to 1,000,000 bush. when desirable. New wharves will be built, and later, the grain conveyors will be removed from their present location.

The Minneapolis, St. Paul & Sault Ste. Marie Ry. has awarded contracts for the construction of a reinforced concrete ore dock at Ashland, Wis., for a total capacity of 60,000 tons. It will be 900 ft. long with four tracks 80 ft. above water level. Including the dock head, the reinforced concrete portion of the structure will be 1,132 ft. long.

The Mutual Grain Co., Ltd., has been incorporated under the Dominion Companies Act, with $199,000 authorized capital and office at Winnipeg, to carry on a general grain elevator, warehouse and milling business, and in connection therewith to own and operate grain elevators, steam and other vessels, etc.

The C.P.R. has increased the wages paid to machinists, boiler makers, pipe fitters, car men, electrical and sheet metal workers, on its lines east of Fort William, Ont., by 8%, and has also granted improved working conditions which it is said are equal to a further 25%.

Birthdays of Transportation Men in September.

Many happy returns of the day to:—

G. W. Alexander, Local Treasurer, G.T.R., Western Lines. Detroit, Mich., born at Lightcliff, Yorks., Eng., Sept. 10, 1859.

H. Bailey, Bridge and Building Master, National Transcontinental Ry., Parent, Que., born at Huntsville, Ont., Sept. 2, 1879.

W. B. Bamford, District Freight Agent, C.P.R., Toronto, born at Belleville, Ont., Sept. 10, 1863.

G. T. Bell, Passenger Traffic Manager, G.T.R., Montreal, born there, Sept. 7, 1861.

W. H. Biggar, K.C., Vice President and General Counsel, G.T.R., and G.T.P.R., Montreal, born at The Carrying Place, near Trenton, Ont., Sept. 19, 1852.

E. J. Blais, Foreman Tinsmith, National Transcontinental Ry., Transcona, Man., born Sept. 26, 1876.

E. R. Bremmer, ex-Division Freight Agent, Ottawa Division, G.T.R., Ottawa, born at Toronto, Sept. 9, 1875.

M. H. Brown, Division Freight Agent, Ontario Division, C.P.R., Toronto, born at Victoria Square, Ont., Sept. 2, 1866.

W. B. Bulling, ex-Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, born there, Sept. 16, 1858.

W. E. Burke, Assistant Manager, Canada Steamship Lines, Ltd., and President, Dominion Marine Association, Toronto, born at Belleville, Ont., Sept. 23, 1881.

A. D. Cartwright, Secretary, Board of Railway Commissioners, Ottawa, born at Kingston, Ont., Sept. 30, 1864.

A. S. Dawson, M.Can.Soc.C.E., Chief Engineer, Department of Natural Resources, C.P.R., Ca'gary, Alta., born at Pictou, N.S., Sept. 6, 1871.

W. E. Duperow, Assistant General Passenger Agent, Grand Trunk Pacific Ry., Winnipeg, born at Stratford, Ont., Sept. 4, 1872.

W. H. Estano, Traffic Auditor, Intercolonial Ry., Moncton, N.B., born at Halifax, N.S., Sept. 29, 1874.

C. B. Foster, Assistant Passenger, Traffic Manager, Eastern Lines, C.P.R., Montreal, born at Kingston, N.B., Sept. 30, 1871.

J. P. Ferguson, representing Galena Signal Oil Co., Ottawa, Ont., born at Drummondville, Que., Sept. 12, 1856.

R. S. Gosset, Auditor of Disbursements, Canadian Northern Ry., Toronto, born there, Sept. 28, 1879.

E. Goulet, Agent, C.P.R., New Westminster, B.C., born at Quebec, Que., Sept., 1865.

John Gray, General Agent, G.T.R., Toronto, born at River Beaudette, Que., Sept. 28, 1863.

D. W. Hatch, Travelling Agent, Atchison, Topeka and Santa Fe Ry., Montreal, born at Bedford, Que., Sept. 1, 1841.

W. B. Howard, District Passenger Agent, C.P.R., Toronto, born at Chatham, N.B., Sept. 15, 1877.

W. R. Howard, Chief Dispatcher and Trainmaster, District 1, Atlantic Division, C.P.R., Brownville Jct., Me., born at St. Andrews, N.B., Sept. 14, 1871.

E. Humphreys, Storekeeper, C.P.R., Winnipeg, born at Hull, Eng., Sept. 24, 1869.

J. E. Hutcheson, General Manager, Montreal Tramways Co., Montreal, born at Brockville, Ont., Sept. 15, 1858.

C. B. King, Manager, London St. Ry., London, Ont., born at Galena, Ind., Sept. 12, 1871.

S. King, ex-Superintendent, Canadian Car and Foundry Co., director, National Steel Car Co., now of London, Ont., born at Thetford, Norfolk, Eng., Sept. 12, 1853.

R. E. Larmour, General Agent, Freight Department, C.P.R., New York, born at Brantford, Ont., Sept. 26, 1868.

H. D. Lumsden, M.Can.Soc.C.E., Engineering Department, C.P.R., Toronto, born at Belhaire, Scotland, Sept. 7, 1844.

G. S. Lytle, Car Service Agent, Manitoba Division, C.P.R., Winnipeg, born at Dennison, Ia., Sept. 23, 1878.

C. D. MacKintosh, Superintendent, District 1, Alberta Division, C.P.R., Medicine Hat, born at Auckland, New Zealand, Sept. 24, 1882.

F. J. Mahon, Inspector of Telegraphs, Saskatchewan Division C.P.R., Saskatoon, born at Montreal, Sept. 18, 1865.

W. A. Mather, Assistant General Superintendent, British Columbia Division, C.P.R., Vancouver, born at Oshawa, Ont., Sept. 1885.

J. F. Mundle, City Freight Agent, C.P.R., Montreal, born at Prescott, Ont., Sept. 20, 1857.

M. B. Murphy, Superintendent, District 2, Central Division, Canadian Northern Ry., Winnipeg, born at Napa, Cal., Sept. 11, 1866.

J. Paul, District Freight Agent, Canadian Northern Ry., Winnipeg, born in Euphrasia Tp., Ont., Sept. 13, 1858.

W. J. Pickrell, Master Mechanic, Ontario Division, C.P.R., Toronto, born at London, Ont., Sept. 15, 1880.

W. D. Robb, Superintendent of Motive Power, G.T.R., Montreal, born at Longueuil, Que., Sept. 21, 1857.

H. T. Ruhl, Division Engineer, Canadian Government Railways, Moncton, N.B., born at Mifflinburg, Pa., Sept. 29, 1882.

A Scott, Resident Engineer, Prince Edward Island Ry., Charlottetown, P.E.I., born at Kirkcaldy, Scotland, Sept. 6, 1884.

J. M. Silliman, Resident Engineer, District 3, Eastern Division, C.P.R., Montreal, born at Easton, Pa., Sept. 8, 1885.

H. A. Young, Ontario Storage and Cartage Co., Ltd., Toronto, born at Brooklyn, N.Y., Sept. 1, 1864.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has 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 hearings took place, and not those on which the orders were drawn.

General order 167. July 3.—Authorizing railway companies operating in Eastern Canada tc increase freight rates on various classes of general merchandise and commodities between points east of Port Arthur, Ont., in accordance with judgment dated June 9. Summary of which was published in our August issue..

General order 169, July 27.—Ordering that railway companies subject to Board's jurisdiction furnish Board and bodies enumerated in general order 153, Nov. 4, 1915, with statement showing all changes made in rules of proposed Canadian Freight Classification 17, grounds upon which they are sought to be justified, and results such changes would make on traffic in eastern and western Canada respectively.

25171. July 17.—Authorizing G.T.R. to build spur for St. Catharines Steel & Metal Co., St. Catharines, Ont.

25172. July 17.—Amending order 25085, June 19, re C.P.R. spur in Lots 56 to 58, Kildonan Parish, Man.

25173. July 18.–Approving changes in Canadian Northern Ry., location at Osgood, Sask.

25174. July 18.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur for Laidlaw Bale Tie Co., Hamilton, Ont.

25175. July 18.—Authorizing C.P.R. to build road diversion on its Swift Current Southeasterly Branch in s.w. ¼ Sec. 29-15-13 w. 3 m. Sask., and to close within its right of way the existing roadway at mileage 0.2, Vanguard Subdivision.

25176. July 17.—Authorizing C.P.R. to build spur at mileage 67.6 on London Subdivision, crossing Ayr and Waterloo road by bridge, and to divert highway and use same for one month from date.

25177. July 17.—Ordering Bell Telephone Co. to lay conduit on Queen St., Berlin, Ont., from Queen St. South, between Church St. and Schneider's Creek; to be completed by Sept. 15, and within 3 years from date, poles to be removed from said street and wires placed upon private right of way provided by City of Berlin, on both sides of Queen St.

25178. July 24.—Authorizing Edmonton, Dunvegan & British Columbia Ry. to open for traffic its Grande Prairie branch from mileage 0 to 50.19; trains not to exceed 15 miles an hour.

25179. July 24.—Amending order 25063, June 13, re road building at Canadian Northern Ry. station at Menzie, Man.

25180. July 24.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. to connect its line with Canadian Northern Pacific Ry. at Sumas Landing, B.C.

25181. July 24.—Dismissing application Ben-Nevis Collieries, Nevis, Alta., for order directing C.P.R. to continue service on spur formerly operated by Turnbull & Cousins.

25182. July 24.—Dismissing Crawford Bay Farmers' Institute's complaint against C.P.R. rates and service to Crawford Bay, B.C.

25183. July 24.—Ordering C.P.R. to build highway crossing at mileage 69 west of Moose Jaw, Sask., in accordance with Board's standard regulations.

25184. July 24.—Ordering C.P.R., within 60 days to install improved type automatic bells at Crawford's and Pardy's crossings, at mileage 13.55, between Westfield and Hillandale, N.B., 20% of cost to be paid out of railway grade crossing fund.

25185. July 25.—Authorizing C.P.R., temporarily, to build extension to lead spur at Port Arthur, Ont., for taking in construction material for Grain Growers' Elevator Co.'s and Saskatchewan Co-operative Elevator Co.'s elevators.

25186. July 22.—Authorizing C.P.R. to build spur for Roelofson Machine Tool Co., Galt, Ont.

25187. July 22.—Authorizing C.P.R. to build connection to Imperial Oil Co.'s siding which connects with G.T.R. at boundary between n.w. ¼ Sec. 29 and s.w. ¼ Sec 32-17-19, w.2m., Sask.

25188. July 24.—Dismissing application of Great West Coal Co., Edmonton, Alta., for order directing Grand Trunk Pacific Ry. to rebate $31,189.30.

25189. July 24.—Dismissing complaint of Clover Bar Coal Co., Edmonton, Alta., against Grand Trunk Pacific Ry. rates on eastbound coal from Clover Bar mine.

25190. July 22.—Authorizing G.T.R. to build spur for Beachville White Lime Co., Oxford North Tp., Ont.

25191. July 25.—Extending to Aug. 10 time within which Grand Trunk Pacific Branch Lines Co. shall complete transfer and storage track at Battleford, Sask. with Canadian Northern Ry.

25192. July 25.—Ordering Canadian Northern Ry. to appoint station agent at Merid, Sask., by Sept. 1; agent to be retained until further order.

25193. July 22.—Approving Canadian Northern Ontario Ry. location through McGregor Tp., Thunder Bay District, mileage 548.45 to 568.13.

25194. July 25.—Dismissing Saskatchewan Department of Agriculture's complaint against charge made by Canadian Northern Express Co. on shipments of cream in cans.

25195. July 22.—Authorizing Canadian Northern Ontario Ry. to build spur for Graves, Bigwood Co., Hennessy Tp.

25196. July 24.—Rescinding order 23955, June 22, 1915, re Canadian Northern Ry. standard wire stock pen.

25197, 25198. Jul 24.—Approving agreements between Bell Telephone Co. and Stormont Telephone Co., July 5, and Euphrasia Tp., Ont., June 30.

25199, 25200. July 21, 22.—Authorizing City of Hamilton, Ont., to widen Depew St., from 30 to 66 ft. across Hamilton Radial Ry. and G.T.R., in Lot 6, Con. 1, Barton Tp.

25201. July 22.—Authorizing C.P.R. and St. John Ry. to operate trains and cars over crossing on Douglas Ave., St. John, N.B., without first stopping; speed not to exceed 10 miles an hour.

25202. July 24.—Authorizing City of Edmonton, Alta., to build its street railway across Grand Trunk Pacific Ry. at intersection of 27th St., between Armstrong and Cochrane Ave., under supervision of G.T.P.R. engineer, and to insert diamond in G.T.P.R. at said crossing; half interlocking plant to be installed, question of maintenance cost reserved.

25203, July 24.—Ordering G.T.R. to stop westbound train 37 at Malton, Ont., on flag, for passengers from Toronto or points east.

25204. July 26.—Authorizing C.P.R. to put into effect by Aug. 1, following train service,—train 615, Kingston to Renfrew, Mondays, Wednesdays and Fridays; 616, Renfrew to Kingston, Tuesdays, Thursdays and Saturdays—on same time schedule as published in summer timetables.

25205. July 26.—Ordering railway companies which, on May 18, increased minimum carioad weight applicable to lumber and articles taking lumber rates from points of shipment in British Columbia and Alberta, when loaded in cars under 36 ft. long, from 30,000 to 35,000 lbs., to modify increased minimum by providing minimum weight of 30,000 lbs., for cars of 2050 cub. ft. or less capacity; said modification to be published and filed immediately upon receipt of this order, and, to destinations in Canada, to be made effective forthwith.

25206. July 26.—Approving clearances at siding for Seaman Kent Co., Meaford, Ont.

25207. July 26.—Authorizing Mackenzie, Mann & Co., to build Third St. West over Canadian Northern Ry. at Eston, Sask.

25208. July 22.—Ordering Grand Trunk Pacific Ry. forthwith to build siding for elevator site at St. Louis, Sask., in substitution of siding referred to in order 22784, Oct. 30, 1914.

25209. July 22.—Authorizing Canadian Northern Ontario Ry. to build spur from mileage 26.8, Parry Sound Subdivision, southeasterly through Lot 13, Con. 4, Burton Tp., for 772 ft.

25210. July 22.—Ordering Esquimalt & Nanaimo Ry. within three months to install improved type of automatic bell at Lampson St., Esquimalt Tp., 20% of cost to be paid out of railway grade crossing fund.

25211. July 27.—Suspending, until further order, increased rates on ores and concentrates, in C.P.R. Tariff C.R.C. no. W-2168, effective Aug. 1, from points in British Columbia.

25212. July 22.—Dismissing application of farmers in the vicinity of Greenshields and Wainwright, Alta., for order directing Grand Trunk Pacific Ry. to build siding at crossing near mileage 659, n.e.¼ Sec. 7-44-5.

25213. July 27.—Amending order 25083, June 17, re City of Toronto's overhead crossing of C.P.R. east of Strachan Ave.

25214. July 27.—Authorizing G.T.R. to cancel slow order at crossing of public road near Lyn, Ont.

25215. July 22.—Authorizing G.T.R. to build branch with spurs and team tracks and Y connecting with main line, near Angus, thence about 4 miles to Camp Borden, and approving span diagram carrying Y over Pine River, and also location of station at camp.

25216. July 28.—Authorizing C.P.R. to build diversion in lieu of original road allowance between Secs. 17 and 18-39-2, w.4.m, near Provost, Alta.

25217. July 26.—Relieving Canadian Northern Ry. from providing further protection at highway crossing near Camrose Jct., Alta.

25218. July 26.—Authorizing Grand Trunk Pacific Ry. to build highway over its track in s.w.¼ Sec. 29-53-8, w.5.m., Alta.

25219. July 26.—Authorizing Ontario Government to build highway on trunk road across C. P. R. west of North Bay, near Meadowside.

25220. July 29.—Authorizing Kettle Valley Ry. to open for traffic its line from Brodie, 13.2 miles east of Coquihalla Summit, to a connection with C.P.R. main line at Petain, west of Hope station, B.C., mileage 112.3 to 165.2; speed of trains between mileage 130 and 136 not to exceed 15 miles an hour.

25221. July 29.—Authorizing G.T.R. to build siding for Canadian Milk Products, Ltd., Burford Tp.

25222. July 29.—Authorizing G.T.R. to lay additional track across South St., Preston, Ont.

25223. July 29.—Authorizing Kettle Valley Ry. and Canadian Northern Pacific Ry. to operate over crossing at Hope, B.C., without first stopping trains.

25224. July 31. Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to join with Kettle Valley Ry. and Canadian Northern Pacific Ry. at places shown on plan and to cross and divert certain avenues and streets in Hope, B.C.

25225. July 31.—Ordering that Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) pay to City of Vancouver, B.C., $50,000 on account of work done under orders relating to construction of Pender and Hastings St. viaducts, without prejudice to railway company or any objection it may desire to make to any of items of the account.

25226. July 31.—Approving agreement between Bell Telephone Co. and South Crosby Rural Telephone Co., Leeds, Ont., July 20.

25227. July 27.—Amending order of Oct. 12, 1904, re G.T.R. crossing of C.P.R. near Woodstock, Ont.

25228. July 31.—Ordering C.P.R. to stop trains before crossing Twelfth St., New Westminster, B.C., trains to be flagged over crossing by trainmen.

25229. July 31.—Authorizing C.P.R. to build 1,000 ft. spur and 500 ft. switching track for Wentworth Orchard Co., and 210 ft. extension to spur for Slater & Copp, Flamboro Tp., Ont.

25230. Aug. 1.—Authorizing C.P.R., Canadian Nortnern Ry. and Grand Trunk Pacific Ry. to revise distributing or "town" tariff rates from Winnipeg, Portage la Prairie and Brandon, to conform to basis laid down in Board's judgment, Apr. 6, 1914, as applicable from distributing centres in Saskatchewan and Alberta.

25231. July 29.—Ordering Pere Marquette Rd. to change time of train leaving Chatham, Ont., at 8.05 p.m. and arriving at Sarnia, Ont., at 10.15 p.m., daily, except Sunday, to leave Chatham at 6.35 p.m. and arrive at Sarnia at 8.45 p.m.; time at intermediate stations to be changed accordingly; service to be in effect Aug. 14, and P. M. R. to report result to Board by Nov. 15.

25232. July 31.—Ordering Great North Western Telegraph Co., pending further order, to restore telegraph tolls charged prior to July 1, from Pas, Man., and to file amendments to its tariff accordingly.

25233. Aug. 1.—Extending for three months from date time within which Canadian Northern Ry. shall complete spur to serve block B, plan B, Prince Albert, Sask.

25234. July 31.—Authorizing Winnipeg Electric Ry. to build across C.P.R. spur to Hero Mfg. Co., on Levis St., Winnipeg.

25235. July 25.—Authorizing Saskatchewan Highway Commissioners to build highway over Grand Trunk Pacific Ry. Regina-Boundary Branch in s.e.¼ Sec. 22-12-16, w.2.m.

25236. Aug. 3.—Ordering Grand Trunk Pacific Ry. to appoint station agent at Lawson, Sask., by Sept. 1.

25237. July 31.—Authorizing Canadian Northern Ry. to remove station agent at Stoco, Ont., pending further order, caretaker to be appointed to meet passenger trains, keep station clean and heated, and see that l.c.l. freight and express matter is properly housed.

25238. July 18.—Authorizing Toronto and Hamilton Highway Commissioners to cross G.T.R. at Burlington, Ont.; Hamilton Radial Ry. at Maple Ave., and to divert highway along Water St. and across G.T.R., and Toronto & Niagara Power Co.'s wires.

25239. Aug. 1.—Ordering Grand Trunk Pacific Branch Lines Co., pending further order to stop its trains before crossing Twelfth St., Calgary, Alta.

25240. Aug. 2.—Authorizing C.P.R. and Canadian Northern Ontario Ry. to operate over crossing at Russell Road, Gloucester Tp., without first stopping trains.

25241. Aug. 2.—Authorizing City of Port Moody, B.C., to extend Fraser St. across C.P.R. at mileage 115.2, Cascade Subdivision.

25242. Aug. 1.—Ordering Canadian Northern Ry. to build roadway to Woodnorth, Man., C.N.R. to be liable for acquisition of necessary property to extent of $25 an acre, and to build fence on south boundary; any sum over $25 an acre that C.N.R. is put to by acquisition of property to be paid by Pipestone mural municipality, Man.

25243. Aug. 1.—Rescinding order 24733, Feb. 17, re clearances at country elevators on railways.

25244. July 28.—Ordering Quebec & Lake St. John Ry. (C.N.R.) to build station at Chicoutimi, Que., within one year from date.

25245. Aug. 3.—Authorizing Canadian Northern R... to build transfer track with C.P.R. at Basque, B.C.

25246. July 27.—Ordering Quebec Oriental Ry., by Oct. 15, to build shelter, with waiting and freight rooms, about midway between Caplin and Bonaventure, Que.

25247. July 26.—Dismissing application of City of St. Hyacinthe, Que., to open St. Joseph St. across G.T.R.

25248. Aug. 2.—Approving re-numbered Supplement 8 to Express Classification for Canada 3, applying on shipments of ale, beer, wine, whiskey, and other alcoholic liquors or beverages packed in barrels, kegs, or wooden or corrugated board boxes.

25249. Aug. 3.—Ordering C.P.R. and Canadian Northern Ry. to refund Doucet & Freres, Grand Piles, Que., ½c. per 100 lbs., on shipments of brick to Shawinigan Falls and Grand Mere, on which 4c. per 100 lbs. has been charged.

25250. Aug. 3.—Dismissing complaint of F. L. Getzler, Montreal, against 10th class rate of 16c. on pig iron in carloads from Welland, Ont., to Montreal.

25251. Aug. 5.—Rescinding order 24994, May 22, which suspended certain tariffs showing charges for heated refrigerator cars provided that sec. 3 shall apply only when loading is done by shippers and that sec. 4 be eliminated.

25252. Aug. 4.—Approving Chatham, Wallaceburg and Lake Erie Ry. bylaw 12, authorizing W. J. Curle, General Superintendent, to issue tariffs of tolls.

25253. Aug. 8.—Authorizing Canadian Northern Ontario Ry. to build spur for Toronto Builders Supplies, Ltd., Toronto.

25254. Aug. 11.—Suspending until further order, item 8-B in Supplement 5, to F. G. Airy's tariff C.R.C. 1972, which provides for the cancellation of the arrangement whereby fish in carloads is carried by express at net weight from Edmonton, Alta., to U. S. points and continuing in effect item 8-A in Supplement 4, to C.R.C. 1972.

25255. Aug. 11.—Suspending until further order increased rates on crushed stone from Hagersville to Windsor and Pelton, Ont., shown in supplement 12, to Michigan Central Rd. tariff C.R.C. 2490.

25256. Aug. 10.—Approving Grand Trunk Pacific Ry. station and site at Riverhurst, Sask.

25257. Aug. 11.—Rescinding order 23231, Feb. 2, 1915, suspending certain New York Central Rd. and Ottawa & New York Ry. tariffs and authorizing companies to publish tariffs between points in Canada in accordance with the recent judgment in the so called Eastern Rates Case.

25258. Aug. 11.—Approving location of new G.T.R. station at Mimico, Ont.

25259. Aug. 5.—Ordering G.T.R. to protect crossing of Drouillard Road, Walkerville, Ont., by day and night watchmen.

25260. Aug. 10.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to make certain changes in its railway near Sapperton, B.C.

25261. Aug. 11.—Approving agreement between Bell Telephone Co. and Bethesda & Stouffville Telephone Co., July 28.

25262. Aug. 16.—Suspending Supplement 15, to C.P.R. tariff E 2847, disallowing rates on pulpwood to Mechanicville.

25263. Aug. 15.—Authorizing Canadian Northern Ontario Ry. to build branch line for Cobourg Dyeing Co., Cobourg, Ont.

25264. Aug. 15.—Authorizing Canadian Northern Ontario Ry. to build spur to water front in Port Arthur.

25265. Aug. 15.—Authorizing G.T.R. to change position of one track across Albert St., Oshawa, Ont., and to build two additional tracks.

25266. Aug. 15.—Authorizing Canadian Northern Ontario Ry. to build spur for Field Lumber Co. Field Tp., Ont.

25267. Aug. 15.—Authorizing C.P.R. to build 65 ft. extension to Barrett's siding for C. H. Cochrane, Ottawa.

25268. Aug. 14.—Authorizing C.P.R. to make road diversions in s.e. ¼ Sec. 13, Tp. 34, r. 23, w.3.m., Sask., and at mileage 102.12 Kerrobert Subdivision, Sask.

25269. Aug. 14.—Relieving Niagara, St. Catharines & Toronto Ry. from providing further protection at crossing between lots 90 and 91, Stamford Tp., Ont.

25270. Aug. 14.—Authorizing Alberta Government to build two crossings over Grand Trunk Pacific Ry. at Cooking Lake.

25271. Aug. 15.—Ordering Canadian Northern Ry. to appoint station agent at Browning, Sask., by Sept. 1.

25272. Aug. 14.—Authorizing C.P.R. to build branch for Godson Contracting Co., Toronto.

25273. Aug. 8.—Authorizing G.T.R. to build branches for Hodgson Bros. Chemical Co., Lindsay, Ont.

25274. Aug. 14.—Authorizing C.P.R. to build switching lead and to re-arrange present switch lead across the main street in Farnham, Que.

25275. Aug. 14.—Extending for 3 months from date, time for completion of G.T.R. branch for B. Blair Co., Woodstock, Ont.

25276. Aug. 15.—Authorizing C.P.R. to build lead switch and 4 spurs also new spur for St. Maurice Paper Co., Cap de la Madeleine Parish, Que., also to build 2 tracks across public highway for same company.

25277. Aug. 14.—Authorizing Canadian Northern Ontario Ry. to cross Kingston St., Harrowsmith, Ont.

25278. Aug. 10.—Ordering C.P.R. within 60 days to install improved type of automatic bell at Antoine St. crossing, Rigaud, Que.

25279. Aug. 14.—Approving amendment to express classification 3, re shipment of fruit in baskets, to be effective Sept. 1, 1916.

25280. Aug. 16.—Recommending to Governor in Council for sanction agreement between C.P.R. and Canadian Northern Ry. Oct. 1, 1915.

25281. Aug. 17.—Authorizing Canadian Northern Ry. to build across highway between river lots 224 and 223, St. Andrew's Parish, Man.

25282. Aug. 17.—Ordering Canadian Northern Ry. to erect station at Krydor, Sask.

25283. Aug. 17.—Authorizing Canadian Northern Ry. to cross highway in river lot 79, St. Clement Parish, Man.

25284. Aug. 17.—Approving C.P.R. station and tower location and plans aat Adirondack Jct.

25285. Aug. 18.—Authorizing G.T.R. to charge $1 a car a day or part thereof, after three days, and $2 a car a day for each succeeding day or part thereof, for detention of cars containing lumber and forest products at Sarnia, Ont., in addition to ordinary demurrage toll prescribed by general order 1.

25286. Aug. 18.—Relieving C.P.R. from providing further protection at crossing at Elmhurst Ave., Montreal West.

25287. Aug. 17.—Extending to Oct. 1, time within which the C.P.R. shall install gates at crossing of Dorchester St., Quebec.

25288. Aug. 17.—Approving C.P.R. plan of revision of interlocking plant at junction of St. Lawrence and Adirondack Ry. mileage 40.66 Farnham Subdivision, Que.

25289. Aug. 17.—Approving C.P.R. plan of changes in interlocking plant at Arnprior, Ont.

25290, 25291. Aug. 18.—Ordering Canadian Northern Ry. to build siding to hold not less than 7 cars at Alderdale, Otn., and a 10-car loading siding at Wasing, Ont.

25292. Aug. 18.—Authorizing City of Ft. William, Ont., to build crossing over Canadian Northern Ry., at Kingsway, Ont.

25293. Aug. 17.—Authorizing Canadian Northern Ry. to build transfer track with National Transcontinental Ry. at Empire Ave., Fort William, Ont.

25294. Aug. 18.—Authorizing G.T.R. to build two spurs for Dominion Government in Lindsay, Ont., south of Hamilton Street.

25295. Aug. 18.—Ordering G.T.R. to rebuild fence along its right of way in lot 134, Con. A and lots 134, 135, and 136 Con. B. Foley Tp. Ont.

25296. Aug. 17.—Authorizing Wainfleet Tp., Ont., to divert road so as to cross G.T.R. between east and west halves of lot 1, Con. 1.

25297. Aug. 18.—Approving Toronto, Hamilton & Buffalo Ry. bylaw authorizing G. C. Martin, G. F. & P. A., and R. F. Hill, A. G. F. & P. A., to issue tariffs of tolls.

General order 170, Aug. 5.—Rescinding after Sept. 1, general order 148, Sept. 1, 1915, which authorized railway companies in Alberta and Saskatchewan to endorse upon bills of lading amount of advances for seed grain, fodder for animals and other goods.

The Esquimalt & Nanaimo Ry.—The pioneer railway on Vancouver Island—was opened for traffic in the autumn of 1886, the last spike having been driven at Shawnigan Lake, Aug. 13, 1886. Construction was commenced in 1883, and was carried out under the charge of Joseph Hunter as Chief Engineer. He is now President of the Wellington Collieries Co., and of the Wellington Collieries' Ry.

Imperial Rolling Stock Co.—An agreement dated Aug. 1, made between the Imperial Rolling Stock Co., the Fidelity Trust Co., Philadelphia, Po., and the Canadian Northern Ry., has been filed with the Provincial Secretary at Toronto. Under the agreement the Imperial Rolling Stock Co. assigns to the Fidelity Trust Co., the railway rolling stock and equipment issued to the Canadian Northern Ry. under a lease and agreement dated Aug. 1.

Rogers Pass Tunnel Suit.—We are advised that Foley, Welch and Stewart have deposited in court an accepted cheque for $600,000 as directed by Justice Morrison. This is the necessary preliminary to the firm prosecuting an appeal against the amount of damages, $576,155.98, found by the court as due to McIlwee & Sons, in the suit for breach of contract over the boring of the C.P.R. tunnel at Rogers Pass.

The Pere Marquette Rd., is reported to be negotiating with the St. Thomas, Ont., Hydro Electric Power Commission for the use of 160 h.p. of hydro electric power to replace its present steam plant.

Freight and Passenger Traffic Notes.

The first through train over the Kettle Valley Ry. arrived in Vancouver, B.C., Aug. 1.

"Resorts of the Canadian Rockies," is the title of a handsome tourist folder issued recently by the C.P.R.

The Canadian Northern Quebec Ry. through service which was stopped by the burning of the bridge at St. Ursule recently was restarted Aug. 17.

The Great Northern Ry. local ticket office has been removed to 918 Government St., Victoria, B.C., from its former location at the corner of View and Douglas Streets.

Geo. Porter has been appointed to handle the Canadian Northern Ry. cartage and distribution business in Saskatoon, Sask., in place of the Western Distribution Co.

The Union Pacific Rd., has arranged to give considerable attention to Victoria and Vancouver Island, in the publicity campaign now being carried on by its passenger department.

Local freight agents from the various Canadian railways met in Vancouver, B.C., recently and decided to organize the Canadian Association of Local Freight Agents.

The C.P.R., the Grand Trunk Pacific Ry., and the Canadian Northern Ry. are giving a 1c a mile rate for harvest hands from British Columbia to Alberta and Saskatchewan points, Aug. 1 to 18.

The C.P.R. is arranging for the provision of considerable special advertising matter descriptive of the attractions of the British Columbia coast, as reached by its railways and steamship lines.

The Victoria and Island Development Association carried out during the autumn of 1915 and the spring of 1916, a publicity campaign through the passenger and ticket agents of U. S. railways. The association now reports that good results have been achieved therefrom.

The Hamilton, Ont., City Council claims that the Grand Trunk Ry., under some old agreement, must provide a passenger service on its line from Hamilton to Burlington Beach. An application is to be made to the Beach Commissioners asking them to apply to the company to put on such a service, and in the event of refusal to make application to the Board of Railway Commissioners. The matter affects the summer traffic and the council desires to get it settled before the summer of 1917.

The Transportation Club of Vancouver has secured quarters at 553 Granville St., Vancouver. The officers are: Honorary President, R. Marpole; Honorary 1st Vice President, D. E. Brown; Honorary 2nd Vice President, H. W. Brodie; President, J. A. M. Faulds; Vice President, K. J. Burns; 2nd Vice President, C. E. Lang; 3rd Vice President, W. D. Power; Secretary Treasurer, H. W. Schofield.

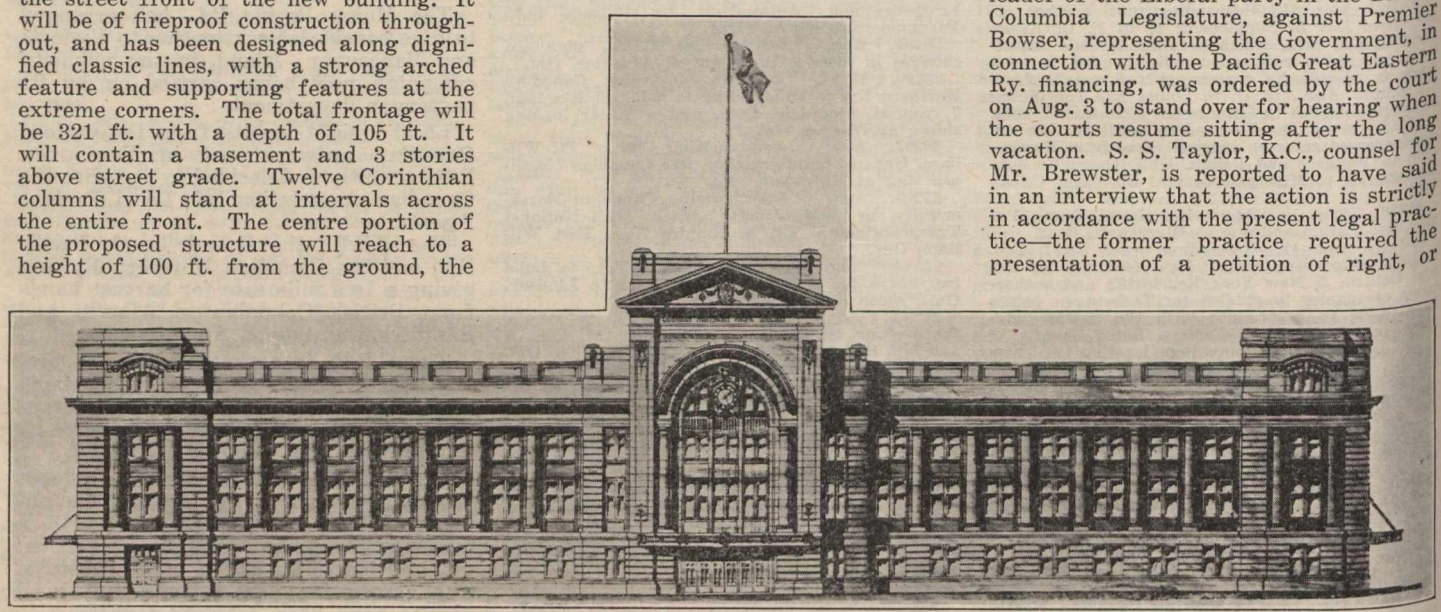
Alaska Northern Ry.—Seward, Alaska, press dispatch, July 7:—"Final payment of $650,000 has been made by the United States Government to Canadian bondholders for the old Alaska Northern Ry., thus completing the Government's title to this property, which was taken over as part of the federal railways between Seward and Fairbanks."

The Timiskaming & Northern Ontario Ry. Patriotic Association has, up to date, contributed $27,358.11 to various patriotic funds, about a quarter of which was sent direct to men at the front.

Canadian Northern Railway Station for Vancouver.

The Vancouver City Council has granted a permit to the C.N.R. for the erection of its station buildings. The estimated cost of the work proposed to be done under the permit is given as $574,929. When the contract price for the station building was first mentioned the city council made a protest, calling attention to the fact that the agreement called for the expenditure of $1,000,000 on the building. A letter was subsequently received from M. H. MacLeod, General Manager and Chief Engineer, stating that the difference covered the cost of train sheds, platforms, and station equipment which were not included in the contract, as well as architects' fees and other costs.

The accompanying illustration shows the street front of the new building. It will be of fireproof construction throughout, and has been designed along dignified classic lines, with a strong arched feature and supporting features at the extreme corners. The total frontage will be 321 ft. with a depth of 105 ft. It will contain a basement and 3 stories above street grade. Twelve Corinthian columns will stand at intervals across the entire front. The centre portion of the proposed structure will reach to a height of 100 ft. from the ground, the tower proper being 96 ft. high. The ends of the building will stand 64 ft. high, and the portions between the centre and the ends, 60 ft. high. These sections will be 3 stories high, and the ends and the centre portion 4 stories high.



Vancouver Station, Canadian Northern Railway.

Externally the front and both side walls will be constructed of granite up to base, and above, in stone, both of which materials will be procured locally. The general waiting room will be finished in marble about 6 ft. up, above which Caen stone will be used to ceiling, the latter to be panelled in ornamental plaster. The floors will be finished in terazzo. Marble will also be used in all corridors and lavatories, with terazzo floors. It is the intention as far as practicable to use British Columbia materials in the construction.

The building will be amply supplied at all points with natural light and ventilation, the form of the building on the upper floors permitting of direct light and air to all rooms and corridors. The large waiting room, which will have a lofty ceiling, will be lit not only from the top but also by means of clerestory lights on three sides, which will also afford splendid natural ventilation.

The part of the building set apart for public service will be the ground floor, the main entrance to which will be up a flight of steps in the centre of the block, leading into a vestibule 28 ft. 9 in. x 12 ft. 2 in. On the right of the vestibule will be located a room for the station constable, and a telephone booth. Passing through the vestibule door, the main lobby will be reached, this will be 41 ft. 9 in. x 27 ft. 9 in., to the right being the elevator hall, and stairway leading to the upper stories. The lobby will open on to the general waiting room, 148 ft. 9 in. x 48 ft. 8 in. deep. Right opposite the entrance lobby will be another lobby, 41 ft. 9 in. x 20 ft. 11 in., leading to a covered concourse 50 ft. wide, running along the entire length of the rear of building. From this concourse access to the various train platforms will be had. These platforms will also be covered. In all there will be 16 tracks leading into the station and the average of the platforms will be about 1,200 ft.

Opening off the general waiting room, to the right will be arranged in the following order:—Train enquiry office, Y. W. C. A. travellers' aid office, barber shop; men's waiting room with lavatory, 54 ft. x 27 ft. 9 in. The women's waiting room, retiring room and lavatory will be on the opposite side, and will occupy a total space of 64 x 29 ft. Adjoining this will be the lunch counters and dining room, 70 x 29 ft., with serving room about half the size to the rear. Adjoining this will be the baggage room, transfer and customs office, 70 x 30 ft., the public counter being in the general waiting room, with receiving and dispatching sections, to the street and train platforms. At the platform ends of the general waiting room, to the right of the lobby will be the company's mail room, parcel checking room, drug store, and news stand. Inside the lobby will be a room for first aid purposes. The ticket office will be to the left of the lobby, and will be provided with four wickets. The entire end of the building to the right of the men's waiting room and the general waiting room will be devoted to the sleeping and dining car supplies department, the entrance to which will be from the platform; and to the company's express department. The section to the street front of the building, 40 x 29 ft. 8 in., will be used for general office purposes, and the remaining section, 52 x 72 ft., will be devoted to express traffic, with a portion of the area set apart for Government mail room. The two upper floors will accommodate the company's general offices in Vancouver. There will be elevator service to all floors.

The general scheme also calls for the construction at once of freight offices, with freight shed, and the usual trackage and teamway facilities for the rapid handling of this branch of the business.

The cost of the passenger station, with its concourse and platforms, will be about $1,000,000. The architects are Pratt & Ross, of Winnipeg and Vancouver, The contract for the building has been let to Carter, Halls, Aldinger & Co., and the Northern Construction Co., Winnipeg, who tendered jointly.

Litigation Over Aid to Pacific Great Eastern Railway.

The action brought by H. C. Brewster, leader of the Liberal party in the British Columbia Legislature, against Premier Bowser, representing the Government, in connection with the Pacific Great Eastern Ry. financing, was ordered by the court on Aug. 3 to stand over for hearing when the courts resume sitting after the long vacation. S. S. Taylor, K.C., counsel for Mr. Brewster, is reported to have said in an interview that the action is strictly in accordance with the present legal practice—the former practice required the presentation of a petition of right, or the securing of a fiat. The action is to secure a declaration that certain acts done by Mr. Bowser as Attorney General were illegal. Mr. Taylor continued: "The case falls under four main headings. The first and principal of these is the payment by the government of $18,000,000 to the contractors contrary to statute. These payments, according to law, should only have been made as the work progressed and the full amount should not have been paid out until the line was completed. We seek a declaration to this effect. The second part upon which we base our case is the payment of $300,000 by the government as interest on the guaranteed bonds. This, we contend, should not have been done, and the government had no right to do it under the law until the railway was finished. We ask a declaration on this point also. The third part of our case deals with the issue of $25,000,000 worth of stock to Foley, Welch & Stewart, which we claim should be restored to the P. G. E. Ry. And the fourth asks for a declaration that the new loan to the P. G. E. Ry. passed by the last legislature is illegal, it having been passed after the expiration of the legal session of the House."

It appeared from the proceedings before the judge, Aug. 3, that the Attorney General had not filed any defence, and did not propose to do so. The judge held that the case should be tried thoroughly as it involves important questions.

Canadian Pacific Railway Earnings for Year Ended June 30, 1916.

After a C.P.R. directors' meeting in Montreal, Aug. 14, a preliminary statement of earnings and expenses for the year ended June 30 was given out. Following are the figures, with a comparison for the three previous years:

	1915-16.	1914-15.	1913-14.	1912-13.
Gross earnings	$129,481,885	$98,865,210	$129,814,824	$139,395,699
Working expenses	80,255,965	65,290,582	87,388,896	93,149,825
Net earnings	$49,225,920	$33,574,628	$42,425,928	$46,245,874
From steamship dept.	.....	.....	.....	1,245,563
Total net earnings	$49,225,920	$33,574,628	$42,425,928	$47,491,437
Fixed charges	10,306,196	10,446,510	10,227,311	10,876,352
Surplus	$38,919,724	$23,128,118	$32,198,617	$36,615,085
Steamship replace	.....	.....	.....	1,000,000
Balance	$38,919,724	$23,128,118	$32,198,617	$35,615,085
Pension fund	125,000	125,000	125,000	125,000
Balance	$38,794,724	$23,003,118	$32,073,617	$35,490,085
To special income	1,923,289	1,494,152	2,115,842	.....
Available for dividends	$36,871,435	$21,508,966	$29,957,774	$35,490,085
Dividends for year	21,427,277	21,419,051	20,259,521	17,179,828
Net surplus for year	$15,444,158	$89,915	$9,698,254	$18,310,257
SPECIAL INCOME ACCOUNT.				
Special income	*$9,940,955	$10,969,392	$8,587,870	$6,598,151
Dividends	7,800,000	7,800,000	7,350,000	5,850,000
Surplus	$2,140,955	$3,169,332	$1,237,870	$ 748,151
Previous surplus	6,266,144	3,096,812	1,858,941	1,110,790
Total surplus special income	$8,407,099	$6,266,144	$3,096,812	$1,858,941

*After making allowance for contingent reserves.

The chief feature of interest in the statement was the special income account, in view of the fact that the principal features of the regular railway earnings had been previously announced. The special income consists of interest on the proceeds of land sales, interest on deposits and loans, earnings from ocean steamships and hotels, net earnings of Pacific Coast steamships, commercial telegraph, and news department, interest on railway and other bonds and dividends on railway and other stocks held by the company, revenue from interest in coal mine properties, etc. The amount announced as being derived from this source for year ended June 30, $9,940,955, was smaller than early estimates, but it is stated that it is arrived at "after making allowances for contingent reserves." The presumption is that the estimates of a larger amount for this fund out of the year's operations may not have been far wrong, but that the management has made some special appropriations from the total for purposes which may be more fully explained in the annual report or at the annual meeting. While the special income is over $1,000,000 under the figures of the preceding year, it is larger than any other previous year. It is considered certain, however, that this department of the company's income is one that will grow.

The general statement of railway earnings shows that the net this year of $49,225,920 creates a new record, although the gross is nearly $10,000,000 under the record created in 1912-13. Working expenses in 1915-16 were nearly $13,000,000 below the 1912-13 record.

The railway surplus of $15,444,156 against the narrow one of $89,915 in the preceding year, together with the special income surplus of $2,140,955 create a total of $17,585,113. This shows that the company earned from all sources 6.76% over and above the 10% distributed during the year to the shareholders from the combined accounts.

Fixed charges are slightly lower; the usual $125,000 is set aside for pension fund; the amount transferred from general railway account to special income account as net earnings of coastal steamers, commercial telegraph and news department is $1,923,289, or nearly $500,000 more than a year ago.

After allowing for the preference dividend, which would take $3,227,277, the balance remaining for the common stock is $33,644,158, equal to 12.93% earned, against the 7% paid in dividends under railway account. The special income account, out of which the additional 3% common stock dividend is paid, yielded $9,940,955, or 3.83% earned. After payment of the 7% dividend out of one account and the 3% out of the other, there was a net surplus of $15,444,158 in the one case and of $2,140,955 in the other, or a total net surplus for the year of $17,585,113, against a corresponding surplus of only $3,186,727 the previous year.

The 239th Railway Construction Battalion, Canadian Expeditionary Force, which is being recruited under Lt. Col. J. W. Stewart, Vancouver, B.C., has opened recruiting offices in Toronto and London, Ont. The battalion is being organized to do railway construction work only at the front; and only men experienced in railway construction are being enlisted. About 500 have already enlisted and are now training at Valcartier Camp, Que. The battalion will, it is said, go direct to the front as soon as it is recruited to strength.

Royal Commission on Canadian Railway Situation. We are officially advised that the work of investigation by the commission has already commenced and is well under way, and that as soon as outside work has advanced sufficiently and office work becomes necessary an office will be opened in Ottawa and a secretary will be appointed.

The Canadian Northern Quebec Ry. applied to the Quebec Courts recently for a writ directing the Montreal Stockyards Co. to accept at its stockyards the care of cattle brought into the city over the company's line. The order asked for was made by Judge Mercier, Aug. 15.

Railway Finance Meetings, Etc.

Algoma Central & Hudson Bay Ry.—A meeting of shareholders will be held at Sault Ste. Marie, Ont., Sept. 20, to elect directors, receive the report of the directors for the year ended June 30, and ratify the acts of the board done since the last meeting of shareholders. The shareholders of the Ontario, Hudson Bay and Western Ry., and of the Algoma Eastern Ry. will also meet on the same day for the same purposes. T. J. Kennedy is President and Alex. Taylor, Secretary of each of the companies.

Canadian Northern Ry.—A lease of rolling stock from the Imperial Rolling Stock Co. to the Canadian Northern Ry., dated Aug. 1, has been deposited with the Secretary of State at Ottawa.

Grand Trunk Pacific Ry.—There has been deposited with the Secretary of State at Ottawa a mortgage dated June 28, made between the company and the Minister of Finance, representing the King, to secure a loan not exceeding $8,000,000. The granting of this loan was authorized at the Dominion Parliaments last session.

Inverness Ry. and Coal Co.—An unconfirmed press report from Nova Scotia states that negotiations are in progress between the Railways Department and the company, which is controlled by Mackenzie, Mann interests, for the sale of the company's railway line to be used as a branch of the Intercolonial Ry. The railway extends from Inverness Jct., 1.5 miles from Point Tupper, to Inverness, N.S., 60.9 miles.

Quebec & Saguenay Ry.—A press report states that the proposal, authorized last session of the Dominion Parliament, for the purchasing of this line was ratified by the Government Aug. 4.

Temiscouata Ry.—The net earnings for May were $4,105, and for 11 months ended May 31, $32,248.

Toronto, Hamilton & Buffalo Ry.—There has been deposited with the Secretary of State at Ottawa duplicate original of consolidated mortgage dated Aug. 1, between the T. H. & B. Ry., and the Guaranty Fund Co. of New York, as trustee, securing the company's bonds to an amount not exceeding $10,000,000.

White Pass & Yukon Ry.—In pursuance of an agreement adopted at a meeting of holders of the 5% consolidated first mortgage debenture stock, and 6% debentures, held in London, Eng., Feb. 16, the interest payable on these securities for the year ended June 30, is being paid by the issue of income debenture stock.

White Pass and Yukon Route.—Gross earnings from Jan. 1 to July 14, $719,353 against $581,307, for same period 1915.

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

	Acres.
Calgary & Edmonton Ry.	656.18
Canadian Northern Ry.	2,709.00
Canadian Pacific Ry.	12.93
Grand Trunk Pacific Ry.	37.81
Grand Trunk Pacific Branch Lines Co.	33.65
Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co.	1,280.00
Total	4,729.57

C.P.R. Experimenting with Pulverized Coal.—A press report states that the C.P.R. is conducting experiments with the view of using Crow's Nest Pass coal in a pulverized state in its locomotives.

Canadian Pacific Railway Union Station at Quebec.

The recently completed union station at Quebec, was formally opened to the public, Aug. 10, the ceremony being performed by the Mayor. After the customary proceedings, a luncheon was provided in the waiting room for about 150 invited guests, among whom were F. L. Wanklyn, General Executive Assistant, C.P.R.; A. D. MacTier, General Manager, Eastern Lines, C.P.R.; Sir Lomer Gouin, Premier of Quebec; Hon. J. D. Reid, acting Minister of Railways and Canals; Hon. T. C. Casgrain, Postmaster General, and a number of others interested in transportation generally.

The building is L shaped, the main block being 142 by 65 ft., and the baggage and express wing is 130 x 44 ft. The main entrance vestibule is 24 ft. wide, and opens into the ticket lobby, 65 by 45 ft., and 60 ft. high. This is composed of grey tapestry brick with marble base, faience cornices, cartouches and balustrades, with sloping mosaic ceiling and leaded glass ceiling lights. On the right of the ticket lobby are the ticket offices, information office, women's rest room and news stand, and on the left are the baggage and parcel checking counters, customs office, telephone booths and telegraph counter, and the transfer company's office opens out of the entrance vestibule. The concourse, entrance to which is gained through seven doors opposite the main entrance, is 125 by 62 ft. and 40 ft. high, similarly finished to the lobby. On the left, three sets of gates open to the midway and track platforms, and on each side of each gateway there is a mechanical indicator which shows the track number, time, and destination of the outgoing trains. On the right hand side of the concourse there is an exit to the street. The men's smoking room, lavatories, etc., are located in the north end of the concourse. The lavatory accommodation includes dressing rooms and toilets equipped with coin locks operated by the insertion in the lock of a 10c piece.

The handling of baggage and express is provided for in a separate wing with covered trucking platform on each side. The upper floor of the main building is reached by a stairway from the main entrance vestibule, and is devoted to the company's offices, and a museum in which are exhibited an interesting and instructive collection of Canada's natural resources. The offices and museum overlook the main ticket lobby through open arches and balustrades. On this floor are also located rooms for the train men, which are reached by a separate stairway direct from the midway.

Accommodation is provided for the Canadian Government Railways, trains of the National Transcontinental Ry. running into and out of the station.

The building rests on 430 concrete piles, and 400 tons of structural steel were used in the construction, as well as 2,000 yards of reinforced concrete, 400,000 common brick, 75,000 face brick, exterior, and 125,000 face brick, interior, and 10,000 cub. ft. of exterior cut stone. In every case possible Canadian materials were used. The building was designed by M. H. E. Prindel, Architect, Montreal, and the construction was supervised by D. H. Mapes, Engineer of Building Construction, C.P.R., under the direction of J. M. R. Fairbairn, Assistant Chief Engineer, C.P.R., and by T. E. Vidette, for the contractors, the Downing-Cook Co., Montreal.

Canadian Pacific Railway Union Station, Quebec.

Grand Trunk Western Ry. Rates.—The Interstate Commerce Commission has decided in the case of Michigan Seating Co. vs. G. T. Western Ry. that rating of fibre furniture in less than carloads as provided in official classification prior to April 15, 1914, is found upon rehearing not to be unreasonable, unjustly discriminatory, or unduly prejudicial when applied to shipments of fibre furniture in less than carloads from Jackson, Mich., to points in other states where rates are governed by official classification. Previous findings are vacated and complaint dismissed.

Railway Rolling Stock Notes.

The Northern Ry. of Spain has ordered 15 locomotives from the American Locomotive Co.

The Eastern Car Co. has completed delivery of 1,000 gondola cars for the French State Railways.

The Duluth, South Shore and Atlantic Ry. is obtaining prices on one Pacific and 2 consolidation locomotives, 2 first class cars, 2 second class cars, and 2 baggage cars.

The Eastern Car Co. has shipped 325 freight cars, being the last of an order for 1,000 for the French State Railways. A description of them was given in a previous issue.

The Canadian Northern Ry., during July and August, received 2 compartment cars, nos. 9950 and 9951, and 3 tourist cars, nos. 9407, 9410 and 9412, from Canadian Car and Foundry Co.

The Russian Government has ordered 9 mogul locomotives from the American Locomotive Co. They will have 11 x 16 in. cylinders, 33½ in. driving wheels and a total weight in working order, of 37,000 lbs.

The Canadian Car and Foundry Co. has delivered 100 bogie wagons for the Nigerian Ry., West Africa; 125 all steel dump cars, for Hart-Otis Car Co.; 25 two compartment tank cars, and 20 three compartment tank cars, for Imperial Oil Co.

It is reported that the Imperial Munitions Board is placing orders on behalf of the Russian Government, for freight cars, and that an order for 7,000 has been divided between the National Steel Car Co., and the Canadian Car and Foundry Co.

A press report from New York states that an announcement has been made there by bankers recently returned from Russia, that a new Russian loan will be issued, and that contracts will be placed by Russia for 40,000 to 50,000 freight cars and 500 to 1,000 locomotives.

Canadian Government Railways, between June 15 and Aug. 12, received the

following additions to rolling stock: 2 steel sleeping cars from the National Steel Car Co.; 97 stock cars from Canadian Car and Foundry Co.; 25 vans from C. G. R. shops at Moncton, N.B., and 11 consolidation locomotives from Canadian Locomotive Co.

Canadian Northern Railway Construction, Betterments, Etc

Canadian Northern Ontario Ry.—A plan, profile and book of reference of the C. N. O. R. location through the township of McGregor, Thunder Bay District, mileage 548.45 to 568.13 has been filed in the Registry office at Port Arthur, Ont., The Board of Railway Commissioners has approved of this location.

Canadian Northern Ry.—A press report states that the company's officials are considering plans for the electrification of the line to Victoria Beach, Man. The suggestion is to make connection with the main line at Elmwood or Kildonan, and run to and from Winnipeg by Elmwood bridge. The present route to Victoria Beach is via Transcona, the total distance being 75 miles. The report states that work is to be started in the spring of 1917, and will necessitate the relaying of the track with 85 lb. rails.

Work is in progress on the alterations of St. Marys Hall, corner of Eighteenth Ave. and First St. Calgary, Alta., necessary to make it suitable for station purposes. An addition 70 ft. long is being built on the south side for freight and express purposes. The line which now terminates on the south side of the Elbow River is to be carried across the river to the hall by the time the alterations are completed. The work of remodelling the hall is estimated to cost $10,000, and is expected to be completed early in October. M. H. MacLeod, General Manager and Chief Engineer, is reported to have advised residents of Red Deer, Alta., that the Red Deer River bridge will be completed at once so as to permit the extension of the Brazeau line into the place this year. The grading has been completed, and it was reported Aug. 4, that men were putting in the culverts along the eight miles of grade. A large quantity of timber for the bridge is also reported to have been delivered on the site.

Work is reported to have been started on the building of a new machine shop and store building in the yards at Edmonton, Alta. The machine shop will be a one story building, 61 x 118 ft., and is estimated to cost $20,000, while the store building will be two stories high, 80 x 48 ft.., and is estimated to cost $5,700. The foundations for both buildings will be of concrete, and the superstructures of brick.

A press report states that the early extension of the line at present terminating at Sangudo—known as the Peace River Branch—to White Court, 40 miles, is being contemplated.

Canadian Northern Pacific Ry.—A press report states that a contract has been let for the building of the projected branch line from Kamloops to Kelowna, B.C.

M. H. MacLeod, General Manager and Chief Engineer, had an interview with the New Westminster City Council Aug. 7, respecting the right of way in the city to the proposed terminal west of the C.P.R. station.

M. H. MacLeod, General Manager and Chief Engineer, met the Vancouver City Council Aug. 2 to discuss matters connected with the station building, on which work is now in progress, and as to the location of a hotel which is to be built on a site other than False Creek. A proposition as to a site on Main St., owned by the city, is to be submitted at an early meeting of the civic bridges and railways committee. While the company, Mr. MacLeod said, was ready to carry out its agreement to put up a 250 room hotel away from False Creek, it would rather put up a larger hotel on its own property at False Creek.

Canadian Pacific Ry. Construction, Betterments, Etc.

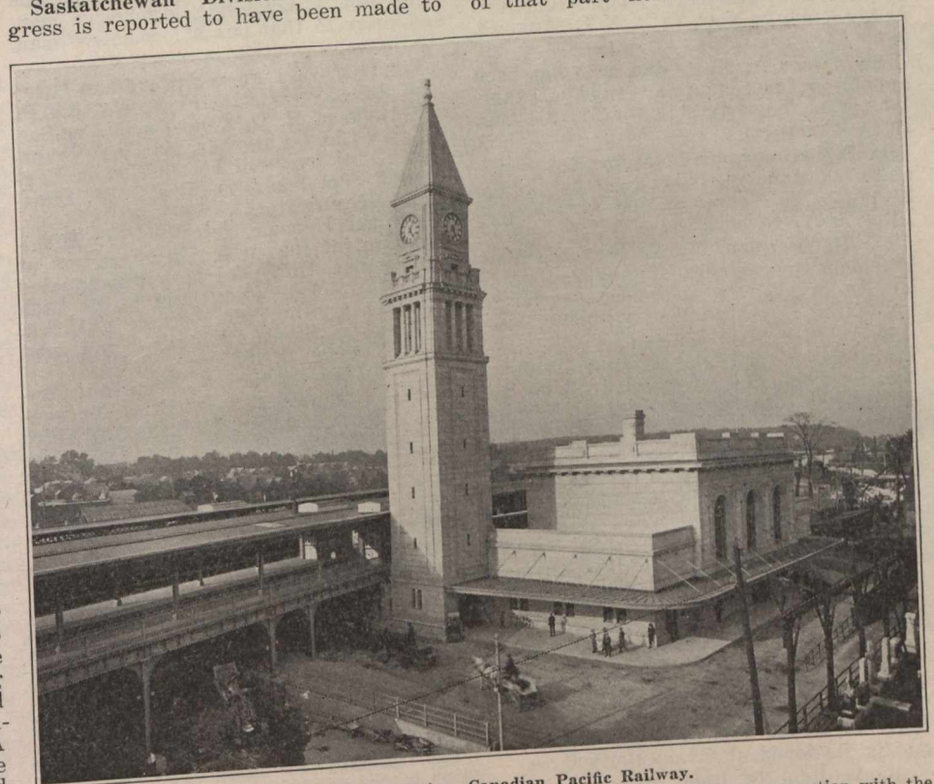
Montreal Terminals.—The Board of Railway Commissioners has amended the plans for the proposed tunnel under the C.P.R. tracks at Melrose Ave., Notre Dame de Grace, so that it will be 6 ft. wide and 8 ft. high instead of 4 ft. wide and 7 ft. high. The estimated cost of the work under the amended plan is $5,200.

Saskatchewan Division.—Rapid progress is reported to have been made to date with the construction of the seven-mile extension from Vantage to Assiniboine. A press report says the line will be ready for operation by Nov. 1.

British Columbia Division.—The company is reported to be utilizing the rock spread over the valley by the slide of Turtle Mountain at Frank, B.C., some years ago, to fill in washouts, and to reduce the gradient on the new line which was built over the slide, and so do away with the necessity of using a further locomotive to take trains over.

A press report from Montreal, Aug. 10, stated that the Duke of Connaught had, at the request of Baron Shaughnessy, authorized the company to name the double track tunnel at Rogers Pass, B.C., which he formally opened July 17 and named the Selkirk, to be called the Connaught tunnel. The permanent tracks are being laid through the tunnel, the approach work is being completed, and everything is being got ready for the regular operation of trains through it.

A Vaucouver press report states that a contract has been let to W. D. Grant for the carrying out of a comprehensive dredging scheme at the waterfront there, between sheds 3 and 7. This area includes the berth in front of the station shed, and the berths immediately east of that part now used by the Pacific Coast Steamship Co.'s steamers. The area will, it is said, be dredged so as to give a depth of 33 ft. and the estimated cost of the work is given as $200,000. It is reported that this work is being undertaken in preparation for the erection of additional docks to which reference was made in our July issue, ug. 285. D. C. Coleman, Assistant General Manager, Western Lines, was reported to have said on Aug. 5 that work would be started almost immediately on building of another pier for trans-Pacific traffic. The pier it is said will be a double decked one, about 850 ft. long, extending out to the harbor line, and is estimated to cost $1,500,000. Up to Aug. 14, no definite official announcement had been made, but it was expected some statement would be made by F. W. Peters, General Superintendent British Columbia Division, on his return from the east . (Aug., pg. 330.)



North Toronto Station, Canadian Pacific Railway.

The illustration published in Canadian Railway and Marine World for July, in connection with the article on the opening of North Toronto station, was made, as stated, from the architect's drawing, and did not show the butterfly roofs over the platforms. The above illustration, made from a photograph, shows the station as completed, together with the butterfly roofs. Under the Yonge St. subway, to the left of the illustration, are shown the tracks which are being built to extend the Toronto Railway from its present terminus on Yonge St., just south of the C.P.R. crossing, to the city's old north limits, between Woodlawn and Farnham Avenues, where the Toronto & York Radial Ry.'s Metropolitan Division's present southerly terminus is. There will, however, be no physical connection, as the city of Toronto would not consent to it and also because the two electric railways have different gauges.

Mainly About Railway People Throughout Canada.

J. Murray Gibbon, General Publicity Agent, C.P.R., Montreal, was visiting in England during August.

W. R. Boucher, Train Master, C.P.R., Assiniboia, Sask., has been undergoing treatment in a Montreal hospital.

J. E. Dalrymple, Vice President, G.T.R. and Grand Trunk Pacific Ry., completed a tour of the G. T. P. R. system recently.

Edward Canfield, General Superintendent, New York, Ontario & Western Rd., died at his home at Middleton, N.Y., Aug. 18.

Mrs. J. A. MacGregor, wife of the Superintendent, C.P.R., Edmonton, Alta., is in British Columbia convalescing after illness.

W. P. Clough, Chairman of the Board of Directors, Northern Pacific Rd., died at his home in New York, N.Y., Aug. 18, aged 71.

Sir James A. M. Aikins, who has been appointed Lieutenant-Governor of Manitoba, was formerly solicitor for the C.P. R. in Winnipeg.

P. D. LeBlanc, car inspector, Intercolonial Ry., Moncton, N.B., died there, July 31, aged 65. Three of his sons are in I.R.C. service.

G. H. Duggan, M.Can.Soc.C.E., Vice President and General Manager, Dominion Bridge Co., has been elected a director of the Royal Bank of Canada.

H. M. Bird, who was for a time acting Trainmaster National Transcontinental Ry., Graham, Ont., has resigned on his enlistment for active military service overseas.

Clarke Gordon, of Sherbrooke, Que., who died at North Hatley, July 31, aged 80, was, some years ago, a railway contractor, and built a section of the Intercolonial Ry.

R. B. Angus, director, C.P.R., Montreal, and **Sir Thomas Tait,** President, Fredericton and Grand Lake Ry. and Coal Co., have been elected Fellows of the Royal Colonial Institute.

C. P. VanNorman, Resident Engineer, Toronto and York Radial Ry., Toronto, is attached to the 127th Battalion (York Rangers), with the rank of lieutenant, and is stationed at Camp Borden.

Sir William D. Reid, President, Reid Newfoundland Co., St. John's, Nfld., is head of a company which is being organized for the establishment of a patent fertilizer plant in Newfoundland.

Lieut. J. K. Kennedy, who is reported as seriously wounded in Flanders, is the only surviving son of Sir John Kennedy, Hon. M. Can.Soc.C.E., Consulting Engineer, Montreal Harbor Commission.

Lt. Col. H. N. Ruttan, M.Can.Soc.C.E., Consulting Engineer for the City of Winnipeg, and formerly City Engineer, who has been for some time District Officer Commanding at Winnipeg, has been promoted to Brigadier General.

Sir George Paish, who was named recently as one of the commission appointed by the Dominion Government to enquire into the general railway situation, is stated to have declined the appointment on account of ill health.

A. A. Bourgeois, J.P., who died at Moncton, N.B., Aug. 6, was father of B. A. Bourgeois, Assistant to the Comptroller and Treasurer, and C. J. Bourgeois, chief clerk, Insurance Department, Canadian Government Railways, Moncton, N.B.

William Phillips, until recently European Traffic Manager, Canadian Northern Ry., London, England, returned to Toronto, Aug. 23, and is taking a holiday, after which he will be appointed to an important position in the Traffic Department.

T. J. Drummond, who died at Castine, Me., Aug. 5, was a partner in Drummond, McCall & Co., Montreal, formerly selling agents for the Algoma Steel Corporation, and was intimately known by many railway men. The funeral took place at Montreal, Aug. 8.

W. N. Ingram, whose appointment as acting Master Mechanic, District 5, National Transcontinental Ry., Edmundston, N.B., as announced in our last issue, was since Jan. 1, travelling locomotive man, and prior to that das a locomotive man. His present position is a new one.

Lieut. H. A. Lumsden, Canadian Overseas Railway Construction Corps, B.E.F., eldest son of H. D. Lumsden, M.Can.Soc. C.E., ex-Chief Engineer, National Transcontinental Ry., will be married in England in September, to Miss G. M. Dunstan, of Brantford.

Michael Heenan, detective for Michigan Central Rd., with headquarters at St. Thomas, Ont., will be superannuated on Oct. 1. He joined the Royal Irish Constabulary in 1866, became a G.T.R. detective at Stratford in 1872 and went to St. Thomas in 1881.

Sir William Mackenzie, President, Canadian Northern Ry., Miss Ethel Mackenzie, Mrs. Scott Griffin, D. B. Hanna, Third Vice President C.N.R., Mrs. and Miss Hanna, left Toronto Aug. 24 and sailed by the s.s. St. Paul from New York for England on Aug. 26, expecting to be away about five weeks.

Lloyd E. Omer, who has been appointed Travelling- Freight and Passenger Agent, Union Pacific System, Calgary, Alta., was formerly Travelling Freight Agent at Spokane, Wash., and prior to that was assistant rate clerk in the Passenger Department at Portland, Ore.

F. E. Dewey, who was appointed General Manager, Wellsville and Buffalo Rd. Corporation, Buffalo, N.Y., recently, on that company assuming separate operation of the road, has, at his own request, been relieved of the position, the duties being assumed by the Vice President.

J. E. Dalrymple, Vice President, Grand Trunk Pacific Ry., arrived in Victoria. B.C., Aug. 12, in the course of his annual tour of the railway and the points reached by its steamships. After visiting Seattle, Wash., Mr. Dalrymple and party sailed for Prince Rupert, and returned east via the G. T. P. R.

H. L. Petrie, who has been promoted from Staff Sergeant to temporary Lieutenant, Army Service Corps, Canadian Expeditionary Force, after being in France and Flanders for 18 months, is son of J. J. Petrie, Traffic Manager, Midland and Great Northern joint railways, King's Lynn, Norfolk, Eng.

W. D. Robb, Superintendent of Motive Power, G.T.R., returned to Montreal, early in August, from England, where he had been visiting his son, J. B. Robb, who was wounded in action. During his stay in London, he was, with **F. C. Salter,** European Traffic Manager, G.T.R., entertained at the Mansion House, by the Lord Mayor.

R. Home Smith, of Toronto, has been elected President, Mexico North Western Ry., with offices at Toronto, and at El Paso, Tex., vice F. S. Pearson, deceased. Its main line runs from El Paso, Texas, to Chihuahua, Mexico, 472 miles, and it also has a 14 mile branch. Walter Gow, barrister, Toronto, is one of the vice presidents.

Hon. Frank Cochrane, Minister of Railways, who is spending some time at St. Andrews, N.B., spent Aug. 18 in making an inspection of the work in progress on the new ocean terminals at Halifax, N.S., previous to which he made an inspection of the Prince Edward Island car ferry terminal work in progress at Cape Tormentine, N.B.

James Farrar Speakman, who has been appointed City Ticket Agent, C.P.R., Winnipeg, was born at Dundee Scotland, Aug. 28, 1878, and entered C.P.R. service, May 1, 1908, since when he has been, to Jan. 1909, report clerk, Winnipeg station; Jan. 1909 to March 1910, ticket clerk, same place, and March 1910 to July 1916, chief clerk, District Passenger Agent's office, Winnipeg.

Baron Shaughnessy, who was at his summer home, St. Andrews, N.B., during August, visited Halifax, Ang. 16, to meet relatives returning from Europe. These were Capt. and Hon. Mrs. Rene Redmond and Mrs. A. F. Shaughnessy and her children. Capt. Redmond is on short leave from the front, and Mrs. Shaughnessy is the widow of the late Capt. Hon. A. F. Shaughnessy, killed in action recently.

John A. McGill, whose appointment as City Passenger Agent, C.P.R., Ottawa, Ont., was announced in our last issue, was born at Acton, Ont., Dec. 23, 1880, and entered railway service in Oct. 1896, since when he has been, to Oct. 1897, assistant agent, G.T.R., at Guelph and Acton, Ont.; Feb. 1900 to April 1913, not in railway service; April 1913 to Sept. 1915 to Jan. 1916, City Passenger Agent, C.P.R., Cleveland, Ohio; Jan. to July 1916, Travelling Passenger Agent, C.P.R. Chicago, Ill.

J. A. Metivier, who has been appointed City Passenger Agent, C.P.R., Sherbrooke, Que., entered Great North Western Telegraph Co.'s service as messenger boy, in 1906. From 1907 to 1909, he was operator and assistant agent, G.T.R.; 1909 to 1910, operator Great North Western Teelgraph Co.; Jan. 3, 1910 to 1911, commercial operator, C.P.R., Calgary, Alta.; 1911, commercial operator, C.P.R., Montreal; 1911 to May 30, 1916, commercial operator and assistant ticket agent, C.P.R., Sherbrooke, Que.

Argee J. Roy, who has been appointed City Ticket Agent, Canadian Government Railways, Montreal, was born at St. Anaclet, Rimouski County, Que., June 5, 1874, and entered Canadian Government Railways service in April 1897, since when he has been, to Oct. 1898, telegraph operator, St. Fabien, Que.; Oct. 1898 to March 1905, ticket clerk, Levis station, Que.; March 1905 to April 1912, ticket agent, Riviere du Loup, Que.; April 1912 to Oct. 1913, train agent on passenger trains, Levis, Que.; Oct. 1913 to July 1, 1916, ticket agent, Levis, Que.

Aage Oscar Wolff, whose appointment as Resident Engineer, District 2, Lake Superior Division, C.P.R., Chapleau, Ont., was announced in our last issue, was born at Copenhagen, Denmark, May 14, 1887, and entered railway service Oct. 1, 1908, since when he has been, to Mar.

15, 1909, rodman, C.P.R., Montreal; Mar. 15 to Sept. 1, 1909, draughtsman, C.P.R., Montreal; Sept. 1, 1909 to April 1, 1913, transitman, C.P.R., Montreal; April 1, 1913, to Oct. 15, 1915, to May 1, 1916, Assistant Sngineer to Consulting Engineer, Public Service Corporation of New Jersey, Newark, N.J.

Joseph Madill, who has been appointed District Passenger Agent, Canadian Northern Ry., Edmonton, Alta., was born at Port Hope, Ont., May 23, 1890, and entered railway service May 23, 1890, since when he has been, to Aug. 1893, assistant agent, C.P.R., Fergus, Ont.; 1893 to 1894, operator at various points, Ontario Division, C.P.R.; 1894 to 1902, ticket clerk, C.P.R., Union Station and City Ticket Office, Toronto; 1902 to 1911, ticket agent, telegraph agent, C.P.R., and agent, Dominion Express Co., Windsor, Ont.; 1911 to Aug. 1916, City Passenger and Ticket Agent, Canadian Northern Ry., Edmonton, Alta.

Donald McDonald, District Passenger Agent, Canadian Government Railways, Montreal, died there, Aug. 18, after a three months illness due to heart affection. He was born at Ste. Hyacinthe, Que., Feb. 28, 1862, and entered railway service in 1880, since when he was, to 1882, night agent and operator, Intercolonial Ry., Ste. Anne, Que.; 1882 to 1885, operator, I.R.C., Ste. Flavie, Que.; 1885 to Jan. 1912, joint ticket agent, I.R.C. and G.T.R., Levis, Que.; Jan. 1912 to July 1913, Superintendent, Montreal and Ste. Flavie District, I.R.C., Levis, Que.; July 1913 to the date of his death, District Passenger Agent, Canadian Government Railways, Montreal.

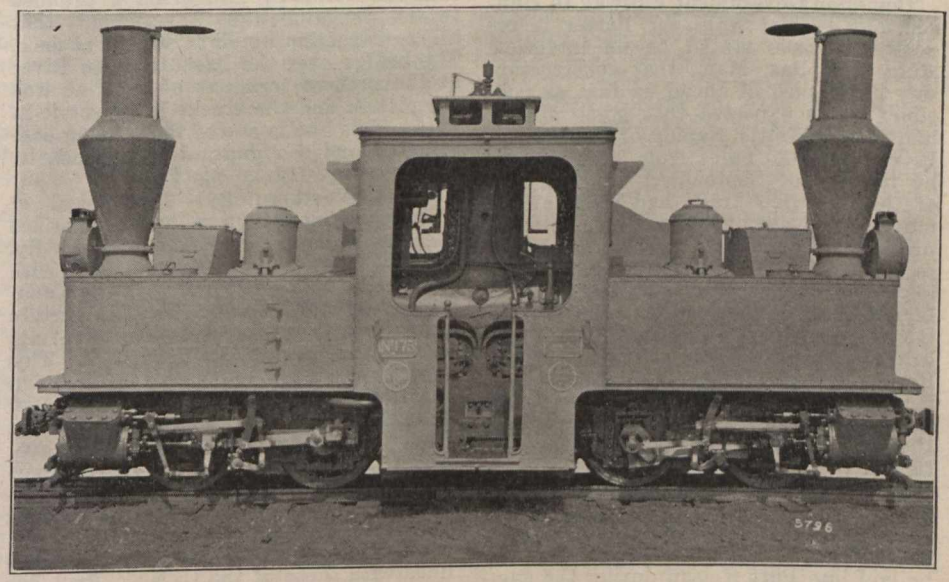
G. W. Groom, whose appointment as Assistant Superintendent, Central Vermont Ry., St. Albans, Vt., was announced in a recent issue, was born at Rossville, Ill., Aug. 26, 1872, and entered railway been, to Nov. 1899, telegraph operator, Chicago and Eastern Illinois Rd., and New York, Chicago and St. Louis Rd.; Nov. 1899 to Dec. 1904, dispatcher, Pensylvania Rd., Buffalo, N.Y.; Dec. 1904 to June 1908, dispatcher, G.T.R., Belleville and St. Thomas, Ont., and Pere Marquette Rd., Detroit, Mich.; June 1908, to July 1912, dispatcher, Central Vermont Ry., St. Albans, Vt.; July 1912 to May 1915, Chief Dispatcher, same road; May 1915 to June 22, 1916, Assistant to Superintendent, same road.

E. D. Toye, who has resigned as Division Storekeeper Canadian Northern Ry., Trenton, Ont., on his appointment as Quartermaster Sergeant, No. 1 Construction Battalion, was born at Dalston, Ont., Apr. 27, 1891, and entered railway service July 1909, since when he has been, to May 1910, storeman, Canadian Northern Ontario Ry., Parry Sound; May 1910 to Nov. 1911, assistant, Stores Department, same road, Toronto; Nov. 1911 to July 1914, chief clerk, same department, Toronto; July to Oct. 23, 1914, Storekeeper, same road, Toronto, at which latter date he was appointed Storekeeper, Ontario Grand Division, Canadian Northern Ry., Toronto, and later removed to Trenton.

E. G. Barrow, who died at Toronto recently, was born at Bristol, Eng., in 1846, and after graduating from Taunton College entered the service of the Bristol and Exeter Ry., now Great Western Ry., as an articled pupil under the Chief Engineer, and was later appointed Assistant Engineer at Bristol. He came to Canada in 1871 and was engineer on the Midland Ry. and the Hamilton and Northwestern Ry., now forming portions of the G.T.R. In 1877 he commenced private practice and later engaged considerably in municipal engineering, and a few years ago was City Engineer of Hamilton, Ont. He was a member of the Canadian Society of Civil Engineers from 1893, and was also an Ontario land surveyor.

Double Bogie Locomotives for French Government.

The accompanying illustration shows a double-bogie locomotive of the Pechot type, of which the Baldwin Locomotive Works has built 180 for the French Government and now has 100 additional on order. They are built throughout to the metric system, from drawings and specifications furnished by the purchaser. They are generally similar in construction to the Fairlie type, being carried



Double Bogie Locomotive for French Government Railways.

on two 4-wheeled steam driven bogies, and having a boiler with 2 barrels and 2 centrally located fireboxes. The fireboxes are placed in a common outside shell, which is surmounted by a large steam dome. The throttle valves and levers are so arranged that seam can be used in the cylinders of both bogies, or in those of one bogie only, as desired. The live steam supply passes through the bogie centre pins. This plan permits a minimum number of flexible joints to be used in the live steam piping. All the cylinders are equipped with balanced slide valves, which are driven by Walschaerts motion. The 4 gears are simultaneously controlled by a hand lever. The illustration shows the fireman's side of the locomotive, and the location of the 2 fire doors. There is a coal bunker at each side of the cab, the water tanks being cut away, as shown by the sloping row of rivets, to provide the necessary room. The general dimensions, etc., are as follows:—

Gauge	0 m 600
Cylinders (4)	0 m 175 x 0 m 240
Valves	Balanced side
Boiler—	
Type	Wagon-top
Diameter	0 m 632
Thickness of sheets	0 m 009
Work press.	12 kg. per cm²
Fuel	Coal
Staying	Crown-bar
Fire Boxes (2)—	
Material	Copper
Length, each	0 m 415
Width	0 m 576
Depth, front	0 m 870
Depth, back	0 m 820
Thick, of sheets, sides	0 m 012
Thick. of sheets, back	0 m 012
Thick. of sheets, crown	0 m 012
Thick. of tube	0 m 020 and 0 m 012
Water space—	
Front	0 m 050
Sides	0 m 050
Middle	0 m 050
Tubes—	
Material	Brass
Thickness	0 m 002
Number	96
Diameter	0 m 045
Length	1 m 740
Heating surface—	
Fire Box	3 m² 762
Tubes	23 m² 225
Total	26 m² 987
Grate area	0 m² 474
Driving wheels—	
Diameter, outside	0 m 650
Diameter, centre	0 m 560
Journals, diam.	0 m 120
Journals, length	0 m 092
Wheel Base—	
Driving	3 m 800
Rigid	0 m 900
Total engine	3 m 800
Weight—	
On driving wheels	12790 kg.
Total engine	12790 kg.
Tank capacity	1,514 litres
Fuel capacity	400 kg.
Service	Freight

CANADIAN GOVERNMENT RAILWAYS.

Tenders.

Sealed Tenders, addressed to J. W. Pugsley, Secretary Department of Railways and Canals, Ottawa, Ont., and marked on the outside "Tender for Elevator Foundations, St. John," will be received up to and including Twelve O'clock Noon, Monday, September 18th, 1916, for the construction of foundations for 500,000 bushel storage capacity Grain Elevator, Working House and Track Shed at St. John, N.B.

Plans, Specifications and blank form of Contract may be seen on and after Monday, August 28th, at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa; at the office of the Chief Engineer, Moncton, N.B.; at the office of the Terminal Agent, St. John, N.B., and at the office of the John S. Metcalf Company, Limited, Engineers, Montreal, P.Q.

All the conditions of the Specifications and Contract form must be complied with.

Tenders must be put in on the blank form of tender, which may be obtained from any of the offices at which plans are on exhibition. Each tender must be accompanied by a certified bank cheque, payable to the Honourable the Minister of Railways and Canals, for the sum of $10,000.00.

The lowest or any tender not necessarily accepted.

F. P. GUTELIUS,
General Manager,
Canadian Government Railways.

Dated at Moncton, N.B.,
August 23rd, 1916.

Railway Development, Projected Lines, Surveys, Construction Betterments, Etc.

Cape Breton Ry.—An unconfirmed press report states that the Railway Department is negotiating with the R. W. Leonard Co., Boston, Mass., for the purchase of the Cape Breton Ry., extending from Point Tupper to St. Peters, N.S., 30 miles, to be used as a branch of the Intercolonial Ry. In the event of this line being acquired, the report adds, it will be extended round the coast as far as Sydney. The surveys for this extension are reported to be completed to East Bay, and it is said they will be finished early in September.

Dominion Atlantic Ry.—Tenders are under consideration for building a new passenger station and freight shed at Middleton, N.S. G. E. Graham, Kentville, N.S., General Manager. (Sept., 1915, pg. 314.)

Dominion Government Railway to Hudson Bay.—Chief Engineer Porter is reported to have stated, in an interview Aug. 7 at Pas, Man., that construction was being pushed ahead as fast as possible. It is expected that steel will be laid to the Kettle Rapids of the Nelson River, about 30 miles from Port Nelson, by the end of September. At the date of the interview track had been laid to mileage 278, leaving about 54 miles of practically completed grading on which to lay steel before reaching Kettle Rapids. The line is being ballasted as track laying is progressed with. The preliminary work for the erection of the steel bridge across the Nelson River at Kettle Rapids is well forward, and supplies are being taken forward so as to be in readiness as soon as track laying has reached the rapids. The contract for the erection of the piers has been let to the Hudson's Bay Construction Co., and R. A. Hazlewood isc engineer in charge of the work. The bridge is expected to be completed next spring, so that the steel can be laid into Port Nelson during the summer of 1917.

According to the statement credited to the Chief Engineer tenders are to be called for during the winter for the construction of the southern terminals of the line at Pas. There are at least a dozen buildings to be erected, the largest being the station and executive offices. Plans for this building are not complete, though draughtsmen are working on them. In addition to this building there will be a locomotive house, with pits, machine shop, round house, freight sheds, ice house and other buildings. At the north front a 90 ft. turntable will be built, to be operated electrically. (July, pg. 281.)

Edmonton, Dunvegan & British Columbia Ry.—The Board of Railway Commissioners has authorized the opening for traffic, at a speed not to exceed 15 miles an hour, of the Grand Prairie branch from Spirit River to Grand Prarie, Alta., 50.19 miles. (Aug., p. 317.)

Grand Trunk Ry.—A press report states that work is to be started upon the new car shops at Port Huron, Mich., at an early date. The estimated cost of the new shops is $750,000. Their erection has been under consideration since 1915, when Port Huron citizens raised $100,000 for the purchase of certain properties necessary to the carrying out of the plan for providing the site for the shops, which adjoins the entrance to the tunnel. (Aug., pg. 317.)

Grand Trunk Pacific Ry.—Sir Collingwood Schreiber, who supervised the building of the G.T.P.R. on behalf of the Dominion Government, returned to Ottawa at the beginning of Aug., accompanied by Lady Shreiber, after making a trip of inspection over the line. In the course of an interview at Vancouver, he is reported to have said the line is ballasted with a full lift of ballast—1 ft. under the tracks—for over half its mileage, and to a depth of 6 in. for the rest of the mileage. Ballasting is still being proceeded with.

A Prince Albert, Sask., press report of Aug. 16 states that officers of the company met the Prince Albert City Council that day and arranged for the immediate starting of construction of the branch line from Young, which now is in operation to St. Louis, 88 miles, into the city. A press report a few days previously said that the company had given a promise to the Saskatchewan Government that this construction would be started at once. The bridge over the Saskatchewan River at the present terminus of the line was completed, and the tracks laid over it in 1915. This line is one of those being constructed under a guarantee of bonds by the province. (July, pg. 281.)

Great Northern Ry.—The Board of Railway Commissioners has authorized the Vancouver, Victoria & Eastern Ry. & Navigation Co. to make connection with the Kettle Valley Ry. and with the Canadian Northern Pacific Ry. at certain points, an to cross and divert certain streets and avenues in Hope, B.C. This work is necessary to connect up the company's lines in the vicinity of Vancouver with the section of the Kettle Valley Ry. from Coquihalla Summit to Hope, over which the V. V. & E. Ry. & N. Co. operates its trains by agreement. The British Columbia Department of Railways has also approved of plans for the connection of the V. V. & E. Ry. & N. Co.'s lines with those of the C. N. P. Ry. The Board of Railway Commissioners has also authorized the company to connect its line with the C. N. P. Ry. at Sumas Landing.

The Vancouver City Council has granted the company a permit for the erection of its station on the False Creek flats. The building is to be erected in close proximity to the Canadian Northern Pacific Ry. station. (Aug., pg. 317.)

Intercolonial Ry.—The new steel bridge over the Bartholomew River was completed Aug. 3, and work is now being gone on with on the concrete arch at Passiac, N.B.

The Sackville, N.B., locomotive house was destroyed by fire Aug. 15, together with a locomotive. (Aug., p. 317.)

See also Cape Breton Ry.

Kettle Valley Lines.—The Board of Railway Commissioners has authorized the opening for traffic of the line from Brodie, 13.2 miles east of Coquihalla Summit, B.C., to its connection with the C.P.R. main transcontinental line at Petain, west of Hope Station, 52.9 miles. (Aug., pg. 317.)

National Transcontinental Ry.—Tenders are under consideration for the erection of the superstructure of a reinforced concrete elevator of 1,000,000 bush. capacity at Transcona, Man. (Aug., pg. 317.)

Pacific Great Eastern Ry.—The company has settled its long standing difference with North Vancouver municipality respecting the location of the line there. The company secures a five-year lease of the Y at Chesterfield Ave., and agrees to operate a car ferry service to connect North Vancouver with the C.P.R. terminals in Vancouver.

With respect to construction from the present end of track at Clinton to Prince George, it is reported that work on the big steel bridge near Clinton is being pushed ahead, and that men are being taken in for grading and track laying. There is, however, a great scarcity of men, and it is difficult to say just what work will be done. (Aug., pg. 317.)

Hon L. Campbell, representing the B.C. Government, accompanied by D'Arcy Tate, Vice President and General Counsel, and P. Welch, the general contractor, went over the line from Squamish to Clinton, Aug. 12, to arrange as to the prosecution of construction to Prince George.

Prince Edward Island Ry.—Tracklaying is reported to have been completed at the car ferry terminals at Cape Tormentine, N.B., and work is reported to have been started on laying track at the ferry terminals at Carleton Point, P.E.I. W. W. Brownell is reported to be in charge of the work. (June, pg. 222.(

Quebec Bridge.—It is expected that the central span of the bridge across the St. Lawrence River near Quebec will be placed in position between Sept. 14 and 16. This span which will connect the ends of the north and south cantilever arms is 640 ft. long, 88 ft. wide, and 110 ft. high at the centre, weighs about 8,000 tons. It will be towed into position on 6 pontoons on scows, each 160 ft. long and 32 ft. wide. When towed into position it will be attached to long hangers from the ends of the cantilever arms and jacked into place by means of heavy jacks. The operation, it is expected, will not take more than 24 hours. (Aug., pg. 217.)

Regal Collieries, Taber, Alta.—A contract is reported to have been let to H. Thacker for building a spur line from Taber to the Regal Collieries, the White Ash Mine and other collieries north of the town. (July, pg. 282.)

St. John and Quebec Ry.—There has been deposited with the Minister of Public Works at Ottawa plans and descriptions of the site of the proposed bridges on the extension of the line, now under construction, between Gagetown and Westfield, N.B.; the location of the bridges being as follows: Mileage 41.2, Otnabog Lake outlet, Hampstead, Queen's County; and mileage 64.49, Devil's Back Creek, Greenwich, King's County. (Aug., pg. 318.)

We are officially advised with reference to construction work on the extension from Georgetown to Westfield, N.B., 40 miles, that the general contract has been let to the Nova Scotia Construction Co. The route is along the westerly bank of the St. John River, passing through or near Central Hampstead, Hampstead to Upper Greenwich, thence along the banks of the Long Reach to a junction with the C.P.R. at Westfield. The point at which this route deviates from the original survey is near Upper Greenwich. The original route crosses the river near here at the Mistake, and a little further on crossed the Kennebecasis River and ran along the easterly bank of that stream into St. John. The change was made owing to the cost of the construction of the bridges and the desire to give accommodation as speedily as possible to the residents of the district through which the completed line from Centreville to Gage-

town, 130 miles, runs. The contract is for gradinfi bridging, track laying, etc., the company reserving the right to supply rails, spikes, etc. Directors of the company, who represent the New Brunswick Government, together with Dominion Government Engineer Taylor and the Company's officers made an inspection trip over the route from Gagetown to Hampstead, Aug. 16, to see the work being done.

The extension of the line northerly from Centreville to Grand Falls, 50 miles, has been located. Nothing is settled as to when construction on this section will be undertaken.

The Selection and Education of Section Forces.

By J. W. McManama, Supervisor B. & M. Rd.

Section foremen are the most important noncommissioned officers in the maintenance of way organization of any railway. The proper upkeep of good track and right of way absolutely depends on their efforts. For their best interests and for the good of the road, they should be trained and selected men who are given the greatest help in the shape of tools, forces, and instruction, that their superiors can procure.

The type of man who is to be a section foreman is the first important consideration. On our road, we are very fortunate in having excellent men; and undoubtedly many other roads are equally fortunate. But it is usually pure luck or chance, because very few systematic methods are employed to get good men.

I don't expect a man whom I pick as section foreman to be a good foreman the day he assumes the job. I am usually careful to tell him so. But I do expect him to become a good one after the first year; and that means that some mistakes are possible on his part—and even probable—but the same one not more than twice. It has occurred to me that some plan could be devised to present the outline of the section foreman's work, responsibilities and rewards to such men as would be considered likely.

When a man becomes a section foreman after his apprenticeship on track, and in rare cases does not make good, I am tempted to blame his training, or rather lack of training, rather than the man himself, in nine cases out of ten. As I have said, I don't expect to have a good section foreman the minute a man becomes one. But it is certainly essential that he be educated and trained in the best possible fashion. And I would recommend, wherever it is possible, that this training be continuous and co-operative.

Staff meetings of executive officers are a big success on railways. The same idea is carried out in our safety first meetings and results are apparent there. A certain number of foreman could be called together once every two months and exchange views in regard to the work, also receive instructions and have them get familiar with one another in regard to handling work and explain to them how important it is to look closely after the work and material. State to them the cost of the material and show them the expense and layout of their sections so as to make them familiar with the cost of running their part of the road—showing them that each day there is a large layout for labor besides the material which is used.

You often see a large express train going over the road, representing quite a large amount of money. The enginemen feel that they are responsible for pulling this train over the line in safety. The section foreman should likewise feel that he is responsible to a certain extent for having his track in a safe and good condition so as to allow this traffic to pass over in safety. Therefore, I think it is well to impress it on their minds by calling their attention to these facts thereby illustrating the position they hold and the responsibility which goes with it.

A thing which should be explained to to each one, is the cost of all material, washers, spikes, bolts, nuts, joints, etc., each part to be specified so that they will know when they see the stuff scattered or lying around, how much can be wasted if left without being looked after properly. Take the labor. The expense of the section crew should be figured out and the foreman's attention called to it now and then, showing him the amount that is paid each day by the company to maintain his crew.

I feel that section foremen are sensitive in this matter and all they want is to be recognized for work; but if let go when their work is performed in good shape and no notice taken of it, it is apt to cause a lack of feeling. However, we should take notice of and encourage them if they are right and if wrong show them their error and they are willing at all times to try and do their best for the improvement of the road, as I know there is no class of men who try harder to keep their work up and look after the value of a dollar which is expended to see that it is put to good advantage to keep their track up, than the section foremen; and, I am sorry to say, in a great many cases they do not get the credit due them, thereby making it harder to keep foremen. On our road, foremen are recognized for the work they perform and encouraged in every way from the highest officer down. All recognize their value and try to encourage them and this policy is giving great results.

There is one thing which I would strongly recommend in dealing with foremen. A foreman should receive his orders from his roadmaster, supervisor or division engineer. To allow station agents or men from other departments to call on the foreman for certain jobs, unless of course in emergency, is a practice which should be stopped; for where a foreman receives an order from someone other than his division engineer, supervisor, or roadmaster he gets somewhat careless, feeling that he is to be ordered by everybody and that his department does not demand the respect it should. This causes a lack of interest. Where work is called for it should be understood that it is to be put through its proper channel. That will place responsibility on the supervisor and the section foreman, so that it cannot be shifted, saying that they are called off on other work by other parties. It will make each one hold himself responsible for his part of the work. It will also, I think, give the section foreman more confidence and a feeling that he has equal rights with other men holding positions on the road. In my opinion, all reports from foremen should go to the supervisor whom they should report to.

With some such means of instruction and thereafter such intercourse of ideas as would be valuable, team work on the track is easily secured. And good team work will deliver more goods than any other single force. If we can have the opportunity of telling a man exactly how we want a certain piece of work done, and the best way of doing it, together with such explanation as will convince him that this is the best way, he will approach his work with twice as much enthusiasm as he would if it were being done mechanically on his part. His interest and intelligent co-operation with us will be a big help in track maintenance.

My most important thought is the establishment of a means of instruction for section foremen by seeing them often and walking over their section with them, presenting to them at frequent intervals the best methods of doing their work and the reasons therefor. The results, I am sure, will far outweigh the effort and time this plan would call for.—Maintenance of Way Bulletin.

Canadian Society of Civil Engineers Reorganization.—E. W. Oliver, Assistant Engineer, Canadian Northern Ry., Toronto, has been elected secretary of the committee appointed to enquire into and report on a policy for increasing the society's prestige and influence. H. E. T. Haultain, Professor, University of Toronto, is chairman of the committee and R. W. Leonard, St. Catharines, Ont., is vice chairman. Among the other members of the committee are Phelps Johnson, President, Dominion Bridge Co., Montreal; H. H. Vaughan, Consulting Engineer, C.P.R., Montreal; W. F. Tye, Consulting Engineer, Montreal; D. H. McDougall, General Manager, Dominion Coal Co., Sydney, N.S.; L. H. Wheaton, Railways and Canals Department, Dartmouth, N.S.; A. E. Doucet, ex-District Engineer, National Transcontinental Railway, Quebec; John Murphy, Electrical Engineer, Board of Railway Commissioners; H. B. Muckleston, C.P.R. Engineering Department, Brooks, Alta.; W. L. Mackenzie, Engineering Department, Canadian Northern Ry., Winnipeg; D. O. Lewis, District Engineer, Canadian Northern Pacific Railway, Victoria, B.C.

Saskatoon Stockyards.—An agreement has been reached under which the railway companies entering Saskatoon, Sask., will operate the stockyards to be laid out by the city council, until the city is in a position to do the work itself. The Saskatchewan Provincial Government has appropriated $30,000 in aid of the laying out of the yards. It is expected that they will be ready for operation during September.

C.P.R. British Columbia Medical Association.—Following are the officers elected for the current year:—President, F. W. Peters; Vice President, G. R. Thompson; Secretary-Treasurer, A. M. Innes; Executive Committee:—A. S. Munro, Vancouver; R. H. Urquhart, Revelstoke; F. R. McCharles, Nelson. Dr. J. A. Macdonald has been appointed Medical Health Officer of the association.

The Togoland Military Ry., West Africa, is reported to have ordered 2 Mikado locomotives, 15 x 20 in. cylinders, 38 in. driving wheels, 96,000 lbs. total weight in working order, from the American Locomotive Co. Togoland is on the west coast of Africa, in the Gulf of Guinea, between the British Crown colonies of Gold Coast and Nigeria, and until recently was a German colony, but is now under British military rule.

Canadian Pacific Ry. Officials' Meeting at Winnipeg.

Canadian Railway and Marine World's last issue contained a brief mention of the meeting of C.P.R. officials held in Winnipeg July 17 to 20, at the instance of George Bury, Vice President, to discuss various topics relating to operation, etc. The committee of arrangements consisted of C. E. E. Ussher, Passenger Traffic Manager, as general chairman; A. Price, Assistant General Manager, A. C. MacKenzie, Engineer, Maintenance of Way, and H. J. Humphrey, Superintendent of Car Service, representing the Eastern Lines; D. C. Coleman, Assistant General Manager, F. Lee, Principal Assistant Engineer, and C. E. Stockdill, Assistant to Vice President and General Manager, representing the Western Lines. C. E. E. Ussher presided and C. E. Stockdill and H. J. Humphrey acted as joint secretaries. The following officials were present: J. D. Altimas, Car Accountant, Montreal; J. O. Apps, General Baggage Agent, Montreal; R. Armstrong, Superintendent, Souris; T. G. Armstrong, Master Car Builder, Winnipeg; R. Barnwell, Asst. Purchasing Agent, Winnipeg; J. M. Barrett, Superintendent of Terminals, Montreal; T. M. Barrett, Chief Commissary Agent, Montreal; J. E. Beatty, Division Engineer, Montreal; D. H. Bowen, Superintendent, of Telegraphs, Sudbury; H. H. Boyd, Superintendent, Vancouver; F. M. Breen, Superintendent, Montreal; T. Britt, General Fuel Agent, Montreal; H. W. Brodie, General Passenger Agent, Vancouver; M. H. Brown, Division Freight Agent, Toronto; J. M. Cameron, General Superintendent, Calgary; E. Choyce, Publicity Department, Montreal; D. C. Coleman, Asst. General Manager, Winnipeg; G. T. Coleman, Car Service Agent, Toronto; T. Collins, Superintendent, London; D. Coons, Superintendent Telegraphs, Moose Jaw; F. W. Cooper, Superintendent, Schreiber; W. A. Cooper, Manager S. D. & P. C. Dept., Montreal; C. A. Cotterell, Superintendent, Lethbridge; E. D. Cotterell, Actg. Supt. of Car Service, Winnipeg; E. A. Cunningham, Asst. to Gen. Storekeeper, Montreal. W. H. D'Arcy, General Claims Agent, Winnipeg; J. G. Davis, Telegraph Department, Montreal; C. T. Delamere, Engineer of Construction, Montreal; S. G. Denman, Asst. Purchasing Agent, Vancouver; A. C. Douglas, Asst. Gen. Purchasing Agent, Montreal; J. A. Douglas, Electrical Engineer, Winnipeg; R. W. Drew, Division Freight Agent, Regina; N. S. Dunlop, Tax and Insurance Commissioner, Montreal; E. W. Duval, Superintendent, Saskatoon; E. Eley, Master Car Builder, Montreal; W. S. Elliot, Division Freight Agent, North Bay; T. Fawcett, Assistant General Storekeeper, Winnipeg; J. T. H. Ferguson, Purchasing Agent, Calgary; T. R. Flett, Superintendent, Winnipeg; M. A. Fullington, Superintendent, Smiths Falls; F. E. Gautier, Purchasing Agent, Winnipeg; L. O. Genest, General Storekeeper, Winnipeg; A. A. Goodchild, General Storekeeper, Montreal; E. H. Goodfellow, Telegraph Inspector, Medicine Hat; H. C. Grout, General Superintendent, St. John, N.B.; W. C. Guthrie, Superintendent, Chapleau; John Halstead, Division Freight Agent, Calgary; W. B. Harris, Car Service Agent, Vancouver; A. C. Harshaw, Superintendent, Cranbrook; W. J. Hatch, Gen. Air Brake Inspector, Montreal; A. Hatton, Gen. Supt, of Car Service, Montreal; J. C. Holden, Division Engineer, Winnipeg; F. O. Hopkins, Asst. General Passenger Agent, Montreal; H. J. Humphrey, Supt. of Car Service, Montreal; E. Humphreys, Storekeeper, Winnipeg; J. W. Hughes, Electrical Engineer, Montreal; G. C. Jackson, Freight Claims Auditor, Montreal; C. Kyle, Master Mechanic, St. John, N.B.; W. B. Lanigan, Asst. Freight and Traffic Manager, Winnipeg; Frank Lee, Principal Asst. Engineer, Winnipeg; C. L. Leighty, Inspector of Transportation, Winnipeg; C. S. Maharg, Superintendent, Brandon; J. M. Macarthur, Superintendent, Kenora; A. C. MacKenzie, Engineer Maintenance of Way, Montreal; C. D. MacKintosh, Superintendent, Medicine Hat; W. Marshall, Asst. Manager of Telegraphs, Winnipeg; W. A. Mather, Asst. General Superintendent, Vancouver; H. F. Matthews, Gen. Supt., S. D. & P. C. Dept., Winnipeg; J. H. Mills, Master Mechanic, North Bay; R. C. Morgan, Superintendent of Terminals, Fort William; C. Murphy, General Superintendent, Winnipeg; C. W. McBain, Real Estate Department, Winnipeg; S. B. McConnell, Division Engineer, North Bay; D. C. McDonald, Asst. Gen. Claims Agent, Winnipeg; Jas. McGowan, Supt. Engineer, B.C.C.S., Vancouver; A. T. McKean, Division Freight Agent, Winnipeg; R. McKillop, Superintendent, Montreal; J. McMillan, Manager of Telegraphs, Montreal; T. C. McNabb, Division Engineer, Moose Jaw; R. G. McNeillie, Asst. General Passenger Agent, Winnipeg; C. E. McPherson, Asst. Passenger Traffic Manager, Winnipeg; P. McPherson, Right of Way and Lease Agent, Winnipeg; W. D. Neil, Superintendent Telegraphs, Montreal; F. Palin, Insurance Inspector, Winnipeg; E. M. Payne, Superintendent Telegraphs, Winnipeg; P. R. Pennefather, Master Mechanic, Winnipeg; H. A. Plow, Division Freight Agent, Vancouver; R. Preston, Asst. Supt of Motive Power, Winnipeg; A. Price, Asst. General Manager, Montreal; G. Priestman, Storekeeper, Vancouver; A. W. Porter, Supt. S. D. &. P. C. Dept., Winnipeg; R. A. Pyne, Superintendent of Shops, Winnipeg; H. Rindal, Division Engineer, Vancouver; F. S. Rosseter, Resident Engineer, London; J. K. Savage, Superintendent, Regina; A. Sherwood, Manager, N. B. Ry., Fredericton; S. A. Simpson, Supt. S. D. & P. C. Dept., Moose Jaw; A. Bromley Smith, Engineering Dept., Montreal; A. L. Smith, Superintendent, Sudbury; G. H. Smith, Asst. Gen. Freight Agent, Winnipeg; W. H. Snell, General Passenger Agent, Montreal; J. Sparks, Asst. Gen. Baggage Agent, Winnipeg; H. B. Spencer, Superintendent, Ottawa; W. G. Stenason, Air Brake Inspector, Winnipeg; A. E. Stevens, General Superintendent, Moose Jaw; C. E. Stockdill, Asst. to Vice Pres. and Gen. Manager, Winnipeg; A. Sturrock, Master Mechanic, Vancouver; J. G. Sutherland, Car Service Agent, Calgary; F. Taylor, Right of Way and Lease Agent, Montreal; C. H. Temple, Superintendent of Motive Power, Winnipeg; W. M. Thompson, Supt. Traffic, Telegraph Dept., Montreal; H. P. Timmerman, Industrial Agent, Montreal; E. N. Todd, General Freight Agent, Montreal; I. G. Trudel, Storekeeper, Moose Jaw; C. E. E. Ussher, Passenger Traffic Manager, Montreal; O. C. Walker, Refrigerator Inspector, Winnipeg; Geo. A. Walton, General Passenger Agent, Winnipeg; S. Wertheim, Supt., S. D. & P. C. Dept., Toronto; Geo. Whiteley, Asst. Supt. of Motive Power, Montreal; A. Williams, Superintendent, Brownville; W. H. Winterrowd, Asst. to Chief Mechanical Engineer, Montreal; J. M. Woodman, Superintendent of Terminals, Winnipeg.

The morning of July 17 was devoted to organizing the meeting and to committee meetings, after which the officials were entertained at luncheon at the Royal Alexandra Hotel, by A. M. Nanton, of Winnipeg, one of the company's directors. The afternoon of July 17 and the whole of July 18 were devoted to discussing the subjects on the agenda. At night the officials left by special train for Camp Hughes which was gone over, partly in automobiles, on July 19. The afternoon and evening of that day were spent at the Brandon Exhibition. July 19 and 20 were devoted to further discussions at Winnipeg, an intermission being taken on the afternoon of July 20 to go over the company's Winnipeg terminals, in charge of J. Woodman, Superintendent of Terminals. While the party was at Transcona a train of 57 cars was switched over the hump in 11½ minutes, 23 cuts being made. The meeting closed on July 20 at 10.30 p.m. after which the officials enjoyed a couple of hours in social intercourse.

The agenda contained 26 subjects for discussion, as follows:—

Criticism various standards, types, etc. Maintenance of way standards. Equipment standards in relation to patrons of the road and regulating bodies. Equipment standards in relation to economical operation.

Distribution of power and cars: Between Eastern and Western Lines. Between General Superintendent's Divisions. Between Superintendent's Districts.

Freight Handling.—Terminal delays, rip track. Time elapsing between arrival in terminal and delivery to consignee. Loading of freight, carload and less than carload with view to maximum loading. Practice of advising consignees and shippers regarding movement of carload freight. Slow time made by freight trains. Continuous home route card. Overcoming errors and omissions in agents' interchange report form no. 65 and conductors' train journal form no. 125. Advisability of refusing to accept perishable shipments account frost during Dec., Jan., Feb., and March.

Locomotives.—System of numbering. Assignment of various types to territory for which they are best adapted. Type of freight locomotive to be constructed in future. Type of passenger locomotive to be constructed in future. Analysis our methods arriving at economical loads for freight locomotive engines.

Efficiency tests.

Regulation speed freight and mixed trains.

Stores.—Handling, Requisitions. Surplus and obsolete material.

Unnecessary duplication of work and correspondence. Under this head the district and divisional office organization system was considered.

Relations with the public.

Relations with employes, organized and unorganized, handling discipline and welfare of the staff.

Mental tests and examination for promotion.

Passenger train service. — Passenger service next winter. Smooth handling of trains. Instructions to new passenger conductors. Observation cars on special and regular trains. Uniformed trainmen on special passenger trains. Reduction of damage to passenger equipment account scraping and rubbing by station trucks. Time lost at way stations. Collection of tickets and fares. Locomotive and car defects and failures.

Time and time tables.—Twenty-four hour system, vs. a.m. and p.m. Information to the public re late trains. Permanent time at Fort William for transcontinental trains. Furnishing proofs of working time tables sufficiently ahead to admit of proper advertising.

Relations between railway lines and steamship lines.

Fuel.Handling and consumption at stations, at stationary boilers, on locomotives, and on steamships. Utilizing old ties for fuel. Fuel tickets furnished fuel department, not giving correct information.

Types of snow fighting equipment.

Necessity alterations in certain series of 40 ton steel frame box cars.

Discussion of sleeping and dining car service in relation to public and operation of road.

Freight claims.

Stations and staff.—General appearance, station gardens, etc. Providing fences and gates to control public. Inspection of tickets prior to passengers entraining. Prizes to stations for increased receipts.

Relations between traffic department and operating officers.

Economy in use Pintsch gas and electric light on cars.

Telegraph service.—Shortening of telegrams. Handling of important business in telegraph offices.

Economical handling of passenger cars. —Discussion as to allotment of this work to one department.

Handling of insurance survey reports.

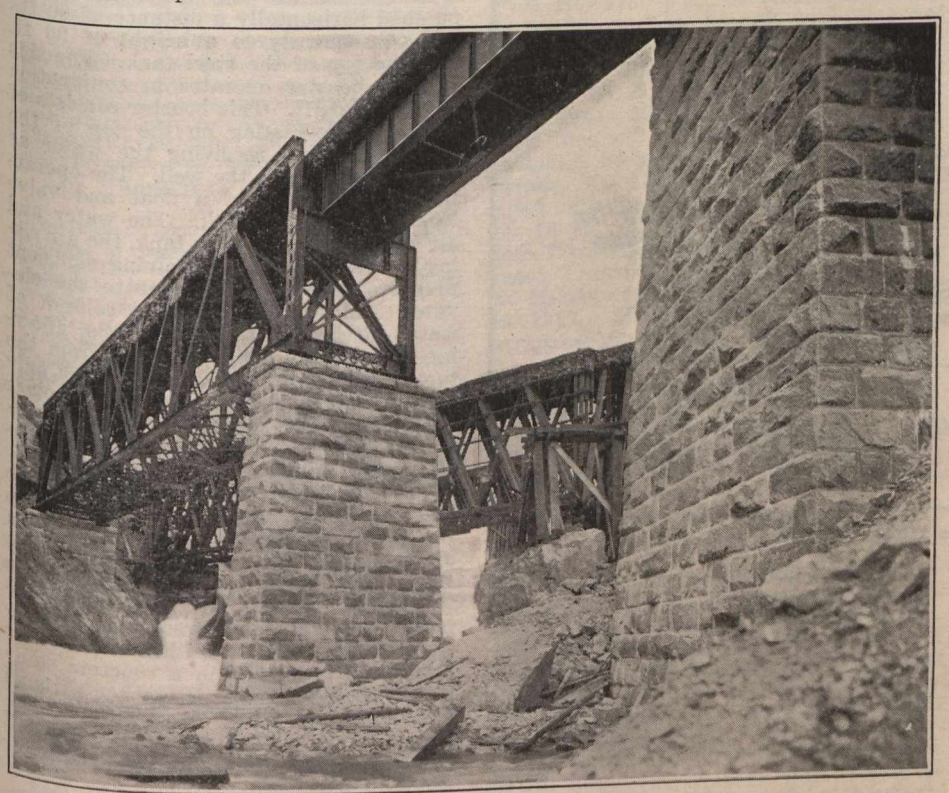
Handling cinders and ice in terminals.

Uniform system of reporting accidents, slides and washouts. Industrial sites.

Unique Engineering Features of C.P.R. Bridge in British Columbia.

By E. B. Skeels, Resident Engineer, C.P.R., Lethbridge, Alta.

The C.P.R.'s Granby Subdivision is a spur from the Boundary Subdivision to Granby smelter, over which ore and coke are hauled to the smelter. The old crossing of the Kettle River at Bude, mileage 1.3, consisted of a 160 ft. dock Howe truss, with a 20 degree curve approaching one end and a 22 degree curve on the other end. The new structure (bridge 1.3) consists of one 30 ft. deck plate girder, one 120 deck lattice span, 2 skew deck plate girds spans of a total length of 150 ft., on a change of line eliminating the heavy curves and permitting erection without interruption to traffic.



Bridge 1.3, Granby Division, C.P.R., over Kettle River.

When laying out the work for building the granite masonry piers and abutments it was necessary to triangulate to determine the idstance across the canyon, the walls being too precipitous to permit of chainage. Triangulation hubs consisted of 1 in. holes drilled in the solid rock and plugged with wooden plugs, finishing nails of 1 in. length being used as points, and small, round hardwood toothpicks being held on these points for back and foresights.

The distance between hubs on the centre line of bridge was approximately 341 ft. When the first triangulation work was done, two base lines were laid out, one on each bank, so that one would be used as a check on the other in assuring accuracy. The result of the first triangulation gave a check of half a tenth of a foot. This was not considered accurate enough, but as there was other urgent work to be done, the rechecking was postponed. It was a month before the opportunity was presented to recheck the work, and again a check of half a tenth was made on the day's work, but the result was practically one tenth longer than the previous month's results. The angles were added four times in reading them, so that the average angles were reduced to seconds. When the result was found to be one tenth longer than the previous work the work was rechecked, but the result was the same.

Again, a month elapsed before a check was made, and this time two more base lines were laid out, one on each bank, thus having four triangulations for checking purposes. The excavation for the piers was proceeding during this past month. When the results of the four triangulations were compared the check showed the greatest difference to be twenty-five thousandths, but the length between hubs on this date was found to be one tenth longer than the previous month and two tenths longer than two months previous. The work was gone over carefully the following day, but the distance was practically the same. It was then arranged to have another instrument man check the work with other chain men, although chain men had been changed around on the work previously, and various methods of chaining the base lines were carried out, distance and elevation between points being taken and true distance computed. Chains were also checked and different chains used in measurements of base lines. When piers 2 and 3 were built two base lines were checked separately.

It was again a month after that when the work was all gone over by the second instrument man, angles being added six times to give accuracy. The results showed the nearest checks to be one half thousandths and the greatest difference to be twenty-eight thousandths.

It was after this last check had been made that it was decided that the contraction of the rock of the canyon walls was responsible for the differences, due to cold weather, there having been a period when the thermometer registered from 20 to 35 degrees below zero daily. The matter was then referred to the Division Engineer and to the Chief Engineer, J. G. Sullivan, who arranged to have larger rollers placed under one end of the 120 ft. deck lattice span, which rested on a pier built on the south side of the river.

Checks were made of the distances monthly, covering a period of 15 months, which showed an expansion and contraction difference of approximately six tenths of a foot, or about 7¼ in. in the year. The temperature varies from 35 degrees below zero to 102 above in the shade. The figures given are approximate, and are as close as can be remembered.

The old Howe truss span had always given considerable trouble, it being necessary to line it, as it shifted on its end bearings. No reason could be given, as there were wooden trestle approaches to the span which received the thrust of trains on the curves, until the facts above recorded were found. The rock is of a very hard formation, being of a flinty granite, the hardest encountered in the Boundary district.

The writer is indebted to John R. Grant, M. Can. Soc. C.E., of Cartwright, Matheson & Co., Vancouver, for the suggestion as to the solution of the cause of the canyon apparently widening, and for searching for information showing that a similar case had been found in Mexico, where

there is a wide range in temperature.

[EDITOR'S NOTE—We are indebted to D. C. Fraser, Bridge and Building Master, C.P.R., Nelson, who brought the interesting facts above mentioned to our notice, as a result of which we obtained the interesting article which Mr. Skeels has kindly contributed.]

High Level Air Pump on National Transcontinental Railway at Quebec.

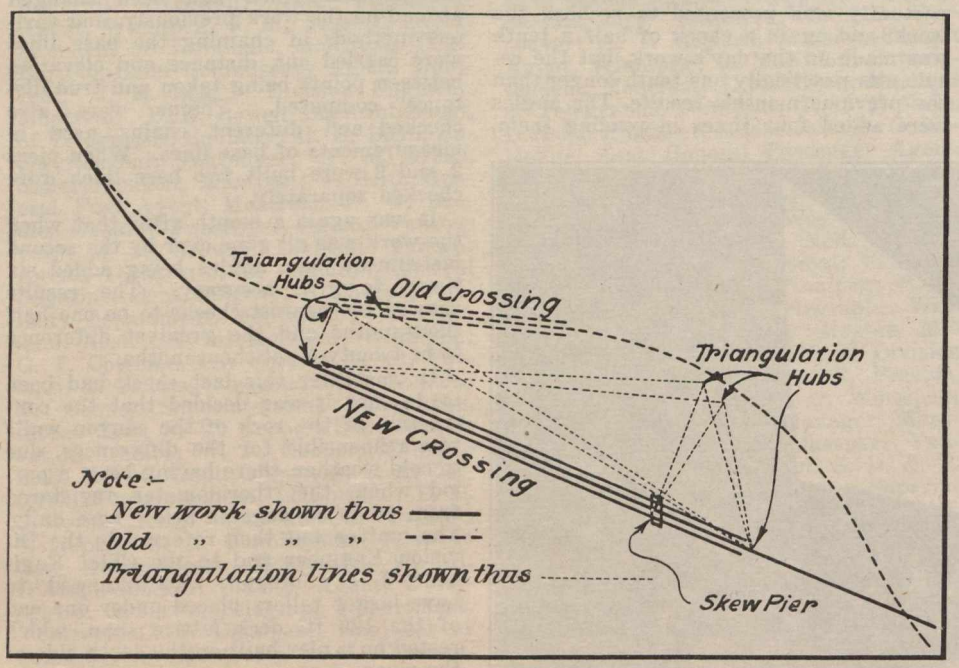
An interesting air lift plant has been installed for supplying the National Transcontinental Ry. locomotive house, power house and yards at the Quebec bridge. The neighborhood of the St. Lawrence River would seem to be an anomalous location, but several considerations operated to determine the installation. The rise and fall of the tide, the height of the embankment and the unsuitability of the river water, were important points, and besides this the use of the river water would have necessitated the construction of a pumping plant at a distance from the power house, and would have increased the cost of attendance.

Work was started in Sept. 1912. Forty-three feet of 8 in. wrought iron pipe was driven from the surface to the rock, and from that point a 5-in. bore hole was started. The well was drilled entirely in shale, red and grey alternating. On Sept. 30 a depth of 400 ft. had been reached, and a rough pumping test yielded 200 imp. gal. per hour. At 280, 520, and 700 ft. respectively, dry crevices were encountered, while at 775 ft. water was struck in considerable quantity. The hole was then reamed to a diameter of 8 in., and a subsequent test yielded 3,200 imp. gal. per hour. At a depth of 980 ft. and at a depth of 1,012 ft. drilling was discontinued. The whole well was then reamed out to 8 in. diameter. A large plunger pump was used for a 24-hour test, and with 400 ft. of rods in the well a yield of 5,400 imp. gal. per hour was maintained. The pump was afterwards operated for eight days to clean out the well, and a sample of water was analyzed and reported satisfactory for both boiler and domestic purposes. When the well is not being pumped water rises to the surface; when being pumped to capacity it drops, however, to a depth of 400 ft. from the surface.

The air-lift system was adopted owing to its numerous advantages over other systems of deep well pumping, as with this system there are no moving or wearing parts in the water, and the air compressor may be located at any distance from the well. In lowering the pipes and footpiece, which were extra heavy, great care was required because of the weight; but there was no mishap of any kind.

The air-compressor is a Canadian Ingersoll-Rand tandem compound steam driven machine, designed for a terminal pressure of 250 lb. and the air cylinders are fitted with the circo-leaf valve, which is noiseless in operation. The frame is fully enclosed, and the moving parts work in a constant flood of oil. A combined speed and pressure governor controls the compressor. The volume of water is carried by an air jet situated below a choker, which arrangement eliminates slippage and causes the air to be distributed through the water in small bubbles. Water is discharged into a steel tank 24 ft. in diameter, and the total capacity, including the leg, is 61,170 imp. gal. The level of the water in feet is indicated by a marker on the outside of the tank, and by this means it is possible to accurately gauge the capacity of the plant. The tank is supported by a steel frame resting on a concrete base, in which are located the valves and connections to the service mains and to the main drain. Steam is furnished to the compressor at 130 lb. pressure.

Owing to the depth to which the water drops in the well, air lines are used, 2 being tapped into the water discharge line at different depths, and the third entering the foot-piece. Each of these three air lines is controlled by a globe valve in the power house, and the engineer operates the system without going near the well, which is 250 ft. from the power house. A gauge over each line shows the pressure and indicates the fall of the water in the well.



Bridge 1.3, Granby Division C.P.R., over Kettle River.

Air discharges from the compressor into a high pressure air receiver and from there to the well. The first air line starts the water flowing and continues to pump until the well lowers as far as this line is capable of lowering it. Then the first air line is gradually turned off until the second line begins to act. When this line has lowered the water as far as it is capable of lowering it, the work is taken up by the third line and the second line is closed. The third line, which is the main pump line, then continues to furnish air as long as the system is in operation. The object of the first two lines is to enable the accumulation of water in the well to be pumped away without resorting to an abnormally high air pressure. These lines are only used in starting the system.

The yield of the well is 5,400 imp. gal. per hour delivered into the tank, and under continuous operation the air pressure at the receiver is about 160 lb. When the system is first started the yield reaches a total of about 6,000 imp. gal. per hour, this being due to the accumulation of water filling the well to the surface. The yield gradually decreases under continuous operation until the normal capacity and pumping head are reached.

At the surface the water has to be pumped horizontally a distance of 60 ft., and subsequently to a height of 90 ft. into the top of the steel tank. For this work a booster operates in conjunction with the airlift. This booster consists of a steel tank resting on the top of the well casing and receiving the water as it discharges from the well. The operating parts consist of a float and valve located inside the tank. The water and air are separated in this tank, the air rising to the top and maintaining sufficient pressure to force the water to the elevated tank. As the solid column of water discharges the float drops, allowing the surplus air to exhaust from the tank. This whole operation requires only a few seconds, as a discharge takes place every time the booster is about two-thirds full. In fact, practically a constant flow is maintained.

The surplus air may be piped back to the compressor intake or discharged into the vertical riser to lighten the column of water and reduce the operating pressure. This latter plan was followed for the Quebec plant. The booster is automatic in operation and requires no attention. It also operates without noise. This apparatus is located in a concrete sump below the ground and is reached through a door in the roof. A by-pass is connected to the main drain so that the well can be pumped directly into the sewer for cleaning purposes.

The plant was operated by the contractors for several days under the supervision of Alex. D. Porter, who was then Assistant Engineer of the National Transcontinental Ry., and who at the completion of the test said the plant was entirely satisfactory, and one of the most reliable of the various railway divisional pumping units.

The high lift in this case is a noticeable feature, amounting to about 500 ft. vertical and 60 ft. horizontal. It demonstrates as far as it goes that there is practically no limit to the height to which the air lift will raise water if a fair amount of submergence is obtainable. On a test recently the plant pumped nearly 6,000 gal. per hour, but this

Canadian Railway AND Marine World
ESTABLISHED 1898.

Devoted to Steam and Electric Railway, Marine, Express, Telegraph, and Railway and Canal Contractors' Interests.

Official Organ of various Canadian Transportation Associations.

Published on the first of each month.

ACTON BURROWS, LIMITED - Proprietors, 70 Bond Street, Toronto, Canada.

ACTON BURROWS, A.Can.Soc.C.E. Managing Director and Editor-in Chief.

AUBREY ACTON BURROWS - Secretary and Business ana ager.

Associate Editors
JOHN KEIR AND DONALD F. KEIR

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United States Business Representative, A. FENTON WALKER, 143 Liberty St., New York

European Business Representative, J. MEREDITH MCKIM, 16 Regent St., London, Eng.

Authorized by the Postmaster General for Canada, for transmission as second class matter.

Entered as second class matter, July 25, 1913, at the Postoffice at Buffalo, N.Y., under the Act of Congress of March 3, 1879.

SUBSCRIPTION PRICE, including postage anywhere, $2 a year.

SINGLE COPIES, 20 cents each, including postage.

The best and safest way to remit is by express money order. Where one cannot be obtained, a post office money order, or bank draft, payable at par in Toronto, may be sent. Cheques or drafts not payable at par in Toronto cannot be accepted. Remittances should be made payable to Canadian Railway and Marine World.

NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of publication.

TORONTO, CANADA, SEPTEMBER, 1916.

PRINCIPAL CONTENTS.

The Canadian Northern Quebec Ry. accounting office is being removed to Toronto, in connection with the work of centralizing the C. N. R.'s entire office system in Toronto.

capacity was due to accumulated water near the well. The normal capacity (5,000 gal. per hour) was developed continuously after the level dropped to 400 ft. At this point the running pressure was 160 lb. per sq. in. The highest pressure required for starting was 225 lb.

Canadian Import Co's Vessels.

The names of the steamships Collinge, John Duncan, and Pueblo, registered under nos. 138,096, 133,821 and 133,822, respectively, by L. C. Webster, Montreal, have been changed to Stuart W., Howard W., and Richard W. Companies have been incorporated in connection with each vessel, and the vessels are being operated in the interests of the Canadian Import Co., of which L. C. Webster is President. The s.s. Collinge was formerly owned by F. Peterson, Oswego, N.Y., and was built at Cleveland, Ohio, in 1881. She is of oak with diagonal strapping on framing, bow sheathed for ice, and with steel boiler house; dimensions,—length 251 ft., breadth 38 ft., depth 21¼ ft.; tonnage, 1,601 gross, 1,280 register. She is equipped with fore and aft compound engine with cylinders 21 and 44 ins. diam. by 48 ins. stroke, 700 i.h.p. at 70 r.p.m., and supplied with steam by a Scotch boiler, 12½ by 11½ ft., at 140 lbs. pressure. The s.s. John Duncan was formerly owned by the Canada Cement Transportation Co., Montreal, and was built at Fort Howard, Wis., in 1891, and rebuilt in 1913. She is of oak with diagonal strapping on framing and iron lined boiler house; dimensions,—length 225 ft., breadth 38 ft., depth 20¼ ft.; tonnage, 1,517 gross, 924 register. She is equipped with fore and aft compound engine with cylinders 24 and 48 ins. diam., by 40 ins. stroke, 600 i.h.p. at 92 r.p.m., and supplied with steam by a firebox boiler 10½ by 16 ft., at 130 lbs. The s.s. Pueblo was formerly owned by the Canada Cement Transportation Co., and was built at Milwaukee, Wis., in 1891 and rebuilt in 1913. She is of oak with diagonal strapping on framing, bow sheathed for ice, steel boiler house, two non-watertight bulkheads, and steam pump wells; dimensions,—length 228 ft., breadth 36¼ ft., depth 16 ft.; tonnage, 1,493 gross, 905 register. She is equipped with fore and aft compound engine with cylinders 23 and 46 ins. diam. by 42 ins. stroke, 500 i.h.p. at 75 r.p.m., and supplied with steam by a Scotch boiler 12 by 12½ ft., at 127 lbs.

Railway Laborers "Jumping" Jobs.—During the present season the C.P.R. has suffered considerable loss at Western points owing to men engaged on summer gangs "jumping their jobs," after they had been provided with transportation. The contract called for the men remaining during the season, or paying the cost of transportation if they left before its expiry. Ten men have been fined—in two cases the fines were $20 each—for

The Dominion Contracting Co., Vancouver, B.C., is being voluntarily liquidated, W. S. Lane, having been appointed liquidator by the shareholders.

Boston & Maine Rd. Receivership. Application has been made at Boston, Mass., for the appointment of a receiver for the Boston & Maine Rd.

The Quebec Ry. Light & Power Co. is building 3 double truck p.a.y.e. cars, at its own shops. They will be similar to one completed recently and numbered 650, the new ones being numbered 651 to 653.

Grounding of the s.s. English Monarch.

An investigation into the grounding of the British s.s. English Monarch at or near Bird Rock, N.S., July 24, was held at Sydney, N.S., Aug. 1, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. A. J. Morrison and R. Macdonald, as nautical assessors. The court, after considering the evidence, which was slightly contradictory on some points, most of which had no material bearing on the case, found that the master, from the time he left Father Point until he reached Fame Point, navigated his vessel in a very careful manner, that he obtained his proper position off Fame Point, and that the weather became thick shortly after and he steered a course which would have brought him some 10 miles from Bird Rock on the north side. Being a stranger on the coast he received advice and counsel from experienced navigators, who are acquainted with this neighborhood, and was warned to be careful of a possible current which might throw him off to the north of his course leading to Bird Rock. He followed this advice to a certain extent, but had he been left to his own devices and read the Sailing Directions, he would have found that there is a current from Cape Race flowing into Cabot Strait, which has a tendency to bring vessels to the south instead of the north, to the shores of Newfoundland. A good lookout was kept and soundings were taken. Immediately before the whistle at Bird Rock was heard a sounding of 19 fathoms was obtained and the helm was put hard astarboard, the vessel going about 5 to 6 knots an hour. After proceeding in this manner for a short time, she struck. The vessel was kept going at full speed for three minutes, when he succeeded in releasing it from the point where it struck, and finding that the vessel was not making too much water, a course was shaped for St. Pauls, and he got into wireless communication with the shore, being subsequently met by a patrol boat and convoyed into Sydney. The court expressed the opinion that the master, R. H. Potter, did not take enough soundings, as he was a stranger in those waters. When he obtained a sounding of 60 fathoms, if he had continued taking frequent casts, he would have found out that he was in the bank of shallow water lying northerly from Bird Rock, and therefore in a dangerous position. The main point, however, to which the court directed its criticism was that the master, when he got the sounding of 19 fathoms, did not go full speed astern until he deepened his soundings, and then navigated cautiously until he ascertained his position exactly. The court took into consideration his excellent career and his methodical manner of navigating his vessel previously, and in making entries in his log, even showing every figure entering into his calculations which he had made to obtain the position of his vessel for days and months before the accident, which the court stated it had not the good fortune to see frequently. In view of these facts and his clean record, the court would not deal with his certificate but severely reprimanded and censured him for his error of judgment, and cautioned him to be more careful in the future. Prior to taking command of the s.s. English Monarch, the master, Capt. R. H. Potter, was master of the s.s. Scottish Monarch, which was torpedoed by a German submarine after a fight, 12 of the crew being killed.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely 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 Government Railways.—A. J. ROY, heretofore ticket agent, Levis station, Quebec, has been appointed City Ticket Agent, Montreal, vice G. Strubbe, deceased. (See also Intercolonial Ry. and National Transcontinental Ry.)

Canadian Northern Ry.—A. FORD, heretofore chief clerk to Storekeeper, Quebec Division, Limoilou, Que., has been appointed Storekeeper, Joilette, Que., vice H. B. Akin, transferred.

A. J. HILLS, heretofore General Superintendent, Eastern Lines, having been assigned to other duties, the matters heretofore handled by the General Superintendent have been assumed by the General Manager. Mr. Hills is now attached to the Third Vice President's office, performing such duties as are assigned to him from time to time.

GEORGE COLLINS, heretofore Superintendent of Branch Lines, Trenton, Ont., has been appointed Special Representative, reporting to the General Manager, Eastern Lines Office, Toronto.

G. A. HOAG. heretofore Assistant Superintendent, Rosedale, Toronto, has been appointed Assistant Superintendent of the Picton, Maynooth, Tweed, Irondale and Brockville Subdivisions, and Trenton yard, Toronto District, reporting to the Superintendent. Office, Trenton, Ont.

H. B. AKIN, heretofore Storekeeper, Joliette, Que., has been appointed Storekeeper, Ontario Division, vice E. D. Toye resigned on enlistment for active service overseas. Office, Trenton, Ont.

C. L. HARRIS has been appointed Assistant Superintendent, Muskoka, Trenton and Rideau Subdivisions, Toronto District, reporting to the Superintendent. Office, Rosedale, Toronto.

J. E. BERRY, heretofore Yardmaster, Regina, Sask., is reported to have been appointed Yardmaster, Saskatoon, Sask.

J. MADILL, heretofore City Passenger Agent, Edmonton, Alta., has been appointed District Passenger Agent, with territory covering Alberta. Office, Edmonton.

W. F. BARRY, heretofore City Freight Agent, Montreal, has been appointed Commercial Agent, San Francisco, Cal. Office, 561 Santa Marina Bldg.

Owing to the sale of the vessels heretofore operated by Canadian Northern Steamships Ltd., to the Cunard Steamship Co., the offices at Birmingham, Bristol, England, and Cardiff, Wales, have, with the staffs there, been transferred to the Cunard Steamship Co., as have also the C. N. S. Ltd. staffs at London and Avonmouth. The office at Leadenhall St., London, E.C., has been closed and removed to 9 Bishopsgate, London, E.C.

The Canadian Northern Ry. Freight and passenger staff, as reorganized, is as follows:—

General Freight Agent, G. E. COWIE, office, 9 Bishopsgate, London, E.C.

General Passenger Agent, W. J. CARTMEL, office, 21 Charing Cross, London, S.W.

Travelling Freight Agent, A. T. SHAW, office, 9 Bishopsgate, London, E.C.

Travelling Passenger Agent, F. E. BIRCH, office, 21 Charing Cross, London, S.W.

District Freight and Passenger Agent, E. L. ROPER, office, Cunard Building, Liverpool.

District Freight and Passenger Agent, R. J. McEWAN, office, 125 Hope Street, Glasgow, Scotland.

J. DEED, heretofore District Agent, Canadian Northern Steamships, Ltd., Birmingham, has been appointed chief clerk to General Freight Agent, London.

Canadian Pacific Ry.—W. B. BROWN, heretofore Assistant Superintendent, District 2, Eastern Division, Montreal, has been appointed Car Service Agent, Atlantic Division, vice E. J. Worth transferred. Office, St. John, N.B.

W. H. McGAAN has been appointed Roadmaster, District 2, Atlantic Division, vice J. H. Guthrie transferred. Office, Aroostook Jct., N.B.

W. J. CRAIG has been appointed acting Roadmaster, Edmundston, Aroostook and Tobique Subdivisions, Atlantic Division, vice W. H. McGaan, transferred. Office, Aroostook, N.B.

J. H. GUTHRIE, heretofore Roadmaster, Aroostook Jct., N.B., has been appointed Roadmaster, Brownville Jct., Me., vice L. Berger, transferred.

J. A. METIVIER, heretofore assistant ticket agent, and commercial telegraph operator, Sherbrooke, Que., has been appointed City Passenger Agent there, vice E. H. Sewell, deceased.

H. R. MILES, heretofore Resident Engineer, District 1, Lake Superior Division, Sudbury, Ont., has been appointed Assistant Engineer, Montreal.

C. J. KAVANAGH, heretofore Superintendent, District 4, Ontario Division, Toronto, has been appointed Superintendent, District 2 (Montreal Terminals), Eastern Division, vice J. M. Barrett. Office, Montreal.

J. S. BYROM, heretofore Superintendent, Great Lakes Steamers, C.P.R., Port McNicoll, Ont., has been appointed General Parlor Cars and News Service, Eastern Lines, vice A. Rutledge, transferred. Office, Montreal.

E. J. WORTH, heretofore Car Service Agent, Atlantic Division, St. John, N.B., has been appointed Chief Dispatcher, Ottawa, Ont.

L. BERGER, heretofore Roadmaster, Brownville Jct., Me., has been appointed Roadmaster, Smiths Falls Subdivision, Eastern Division. Office, Smiths Falls, Ont. N. BERGER is Roadmaster at Smiths Falls, Ont., in charge of construction work in connection with the enlargement of the yard there, as announced in our last issue.

J. MILES, heretofore General Yardmaster, West Toronto, has been appointed acting Superintendent, District 4, Ontario Division, vice C. J. Kavanagh transferred. Office, Toronto.

G. W. JACKSON, heretofore Night Yardmaster, West Toronto, has been appointed General Yardmaster, there, vice J. Miles, promoted.

H. A. AMY, heretofore Locomotive Foreman, Schreiber, Ont., has been appointed Locomotive Foreman, Cartier, Ont.

R. S. DICKSON has been appointed Locomotive Foreman, Schreiber, Ont., vice H. A. Amy.

R. BARNWELL, heretofore General Tie Agent, Western Lines, Winnipeg, has been appointed Assistant Purchasing Agent, Western Lines, there, and his former position has been abolished.

clerk to District Passenger Agent, Winnipeg, has been appointed City Ticket Agent there.

G. BEESTON, heretofore in the station ticket office, Winnipeg, is reported to have been appointed chief clerk to District Passenger Agent, Winnipeg, vice J. F. Speakman promoted.

W. G. McGUINNESS, ticket agent, Brandon, Man., is reported to have been appointed ticket agent, Winnipeg, vice C. R. Hayward, assigned to other duties.

A. WEST, heretofore District Master Mechanic, District 4, Alberta Division, Edmonton, has been appointed District Master Mechanic, District 3, Manitoba Division, vice A. E. Dales, transferred. Office, Brandon.

P. J. SIVERTON, heretofore repair track foreman, Ogden, Alta., has been appointed Car Foreman, Swift Current, Sask.

A. E. DALES, heretofore District Master Mechanic, District 3, Manitoba Division, Brandon, has been appointed District Master Mechanic, District 4, Alberta Division, vice A. West, transferred. Office, Edmonton.

W. H. ORMAN, has been appointed repair track foreman, Ogden, Alta., vice P. J. Siverton, transferred.

The Sirdar, Waldo, Kingsgate, Kimberley, Kootenay Central and Cranbrook Subdivisions, heretofore operated as District 5, Alberta Division, have been transferred to the British Columbia Division, and are being operated as District 4, British Columbia Division.

Canadian Pacific Ocean Services Ltd.—KENNETH McKENZIE has been appointed Superintendent Engineer in England.

T. G. TURNBULL, Passenger Agent, Shanghai, China, has, since the appointment of J. R. Shaw as General Agent, Passenger Department there, as announced in our last issue, been granted leave of absence.

J. H. WALLACE has been appointed General Agent, Freight Department, for China, Straits Settlement, India, etc. Office, Hong Kong, China.

L. E. N. RYAN has been appointed Freight Agent, Shanghai, China.

Duluth, Winnipeg & Pacific Ry.—W. F. BARRY, heretofore City Freight Agent, Canadian Northern Ry., Montreal, has been appointed Commercial Agent, D. W. & P. R., San Francisco, Cal. (See also Canadian Northern Ry.)

Grand Trunk Ry.—The following station agents have been appointed: South Durham, Que., F. A. Leclerc; Britannia Mills, Que., E. Raboin; Levis, Que., J. L. Mignault; Dominion, Que., R. Young; Aubrey, Que., K. J. Mills; Brockville, Ont., A. E. Parker; Findley, Ont., C. F. Earle; Shannonville, Ont., R. L. Gilligan; Sarnia Tunnel, Ont., J. Simpson; Chatham, Ont., E. W. Bancroft; Vars, Ont., E. Needham; Joe Lake, Ont., F. A. Hawkshaw; Cornwall Jct., Ont., G. E. Macdonald; Sutton, Ont., A. M. Paton; Collingwood, Ont., and Collingwood Wharf, A. M. Durnford; Glencairn, Ont., J. Orr; Avening, Ont., M. Stacey; Bright, Ont., W. A. Blyberg; Kippen, Ont., W. Fasken; Camp Borden, Ont., R. W. Thom; outside agencies, St. John's, Que., C. G. Wilkinson; Brighton, Out., G. A. L. Thorne; Oshawa, Ont., A. J. Adams; Parry Sound, Ont., G. Moore; Port Hope, Ont., A. Mark.

Grand Trunk Pacific Ry.—W. COOK, heretofore Foreman Boilermaker, National Transcontinental Ry., Transcona, Man., has been appointed Foreman Boilermaker, Grand Trunk Pacific Ry., Edmonton, Alta.

The following station agents have been appointed: Justice, Man., E. A. Theriault; Battleford, Sask., D. McCuish; Ituna, Sask., J. Charron; Bradwell, Sask., R. Fair; Juniata, Sask., E. C. White; Edenwold, Sask., J. J. Burnes; Smiley, Sask., J. A. Pidgeon; Waldron, Sask., W. Thresher; Asquith, Sask., O. E. Hofferd; Landis, Sask., M. J. Flynn; Unity, Sask., W. Willis; Mawer, Sask., H. L. Cole; Junkins, Alta., W. R. Goodwin; Camrose, Alta., F. J. Burns; Swalwell, Alta., J. S. McInnes; Edgerton, Alta,. G. S. Bass; Viking, Alta., T. W. McKenzie; Mirror, Alta., G. R. Maxfield; Trochu, Alta., C. Altvater; Mount Park, Alta., R. L. Jones; Burns Lake, B.C., W. J. Nuckles; New Hazelton, B.C., H. E. Carroll.

Grand Trunk Pacific Coast Steamship Co.—W. H. FOGG, heretofore secretary to Manager, has been appointed chief clerk, Manager's office, with duties as hitherto. Office, Vancouver, B.C.

Intercolonial Ry.—R. H. MARTIN, heretofore chief clerk, Superintendent's office, New Glasgow, N.S., has been appointed Assistant Superintendent there, vice C. W. Price, transferred.

C. W. PRICE, heretofore Assistant Superintendent, New Glasgow, N.S., has been appointed station agent at Moncton, N.B.

National Transcontinental Ry. — G. DUFF, heretofore Roadmaster, Hearst Subdivision, Grant, Ont., has been appointed Roadmaster, Cochrane Subdivision, vice M. J. Sheridan, transferred. Office, Cochrane, Ont.

M. J. SHERIDAN, formerly Roadmaster, Cochrane Subdivision, Cochrane, Ont., has been appointed Roadmaster, Hearst Subdivision, vice G. Duff, transferred. Office, Grant, Ont.

R. SUMMERVILLE has been appointed Foreman Boilermaker, Transcona, Man., vice W. Cook, resigned to enter other service. (See also Canadian Government Railways.)

Union Pacific Rd.—LLOYD E. OMER, heretofore Travelling Freight Agent, Spokane, Wash., has been appointed Travelling Freight and Passenger Agent, Calgary, Alta. Office, 809 Centre St.

New Books, Etc.

THE MANUAL OF STATISTICS; Stock Exchange Handbook for 1916. 1,100 pages, 8 by 5½ in., cloth. The Manual of Statistics Co., 56 Pine Street, New York.

This issue for the current year of this valuable handbook of information for investors and others, maintains the standard for completeness and for containing the most recent information available, set by the volumes of preceding years. The index, covering 24 pages, double column, gives the titles of the principal railways of the United States, Canada, and Mexico, electric railways, steamship companies, and a great variety of industrial companies more or less intimately connected with transportation interests; of which, historical, descriptive, and statistical information is given. The information respecting the various companies is tabulated under different heads, which a thumb index renders easily available. The latter pages of the volume contain a large amount of statistical information respecting business on stock exchanges, and general business statistics.

Grain in Store at Terminal Elevators, Interior Terminal Elevators and at Public Elevators in the East.

Week ending Aug. 11, 1916.	Wheat. bushels.	Oats. bushels.	Barley. bushels.	Flax bushels.	Totals. bushels.
Fort William—					
C.P.R.	972,927	777,027	159,094	.....	1,909,048
Consolidated Elevator Co.	666,126	250,159	21,690	99,358	1,037,333
Empire Elevator Co.	933,541	416,861	64,830	282,111	1,697,203
Ogilvie Flour Mills Co.	1,071,558	159,482	19,034	.....	1,250,074
Western Terminal Elevator Co.	947,411	464,253	35,538	223,479	1,670,681
G. T. Pacific	945,204	684,418	55,943	97,551	1,783,116
Grain Growers' Grain Co.	754,612	741,958	62,229	.....	1,558,799
Fort William Elevator Co.	436,029	519,773	28,492	54,876	1,039,170
Eastern Terminal Elevator Co.	483,468	181,523	15,938	.....	680,929
Port Arthur—					
Port Arthur Elevator Co.	2,744,611	1,889,362	122,748	148,876	4,905,597
D. Horn & Co.	211,822	114,763	34,580	115,017	476,182
Dominion Government elevator	1,057,897	792,850	57,790	48,047	2,026,590
Grain afloat	.....	.....	.....	.....	.....
Total terminal elevators	11,225,176	6,992,419	668,163	1,149,064	20,034,822
Calgary Dom. Govt. Elev.	122,840	23,372	121	.....	146,333
Saskatoon Dom. Govt. Elev.	93,562	33,216	1,861	13,504	142,143
Moose Jaw Dom. Govt. Elev.	294,532	25,804	9,933	6,580	336,849
Total interior terminal elevators	510,934	82,392	11,915	20,084	625,325
Depot Harbor	512,470	.....	.....	.....	512,470
Midland—					
Aberdeen Elevator Co.	103,950	213,190	.....	.....	317,140
Midland Elevator Co.	104,808	.....	.....	.....	317,140
Tiffin, G.T.P.	902,006	959,079	.....	.....	1,861,585
Port McNicol	2,044,677	984,489	.....	.....	3,032,864
Collingwood	.....	.....	.....	.....	.....
Goderich Elevator and Transit Co.	432,535	71,817	9,215	21,860	535,237
Kingston—					
Montreal Transportation Co.	.....	.....	.....	.....	.....
Commercial Elevator Co.	6,502	.....	.....	.....	113,280
Port Colborne	833,841	1,131,891	.....	8,000	1,191,697
Prescott	.....	.....	.....	.....	.....
Montreal—					
Harbor Commissioners no. 1	229,280	320,816	166,946	.....	717,042
Harbor Commissioners no. 2	1,035,033	506,736	215,260	.....	1,757,029
Montreal Warehousing Co.	311,370	284,793	.....	19,113	615,276
Quebec Harbor Commissioners	480,270	326,744	12,519	.....	729,533
West St. John, N.B.	50,829	.....	3,341	.....	54,170
Halifax, N.S.	.....	.....	.....	.....	.....
Total public elevators	7,217,110	4,034,798	410,979	48,793	11,711,680
Total quantity in store	18,953,220	11,109,609	1,091,057	1,217,941	32,371,827

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1914-15, from July 1, 1915:

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	$1,206,100	$921,000	$285,100	x$145,400
Aug.	1,192,800	954,000	238,800	x5,900
Sept.	2,014,500	1,358,000	661,600	1,900
	$4,413,600	$3,227,000	$1,186,600	x$79,300
Decr.	$658,300	$579,000	$79,300	.....

x Decrease.

Mileage in operation at Sept. 30, 1915, 4,965, against 4,670 at Sept. 30, 1914.

Commencing with October, the figures show the earnings of the entire system, both eastern and western lines.

	Gross Earnings	Expenses	Net Earnings	Increase
Oct.	$3,678,500	$2,421,500	$1,257,000	$537,800
Nov.	3,535,200	2,323,800	1,211,400	618,400
Dec.	3,435,600	2,233,500	1,202,100	768,900
Jan.	2,086,800	1,831,400	255,400	88,100
Feb.	2,089,200	1,959,800	129,400	x193,500
Mar.	2,607,000	2,240,600	366,400	x134,800
Apr.	2,824,300	2,274,400	549,900	5,500
May	3,088,900	2,361,700	727,200	368,600
June	3,377,200	2,392,200	985,000	591,700
	$33,425,000	$24,887,200	$8,537,800	$2,808,000
Inc.	$8,871,300	$6,063,300	$2,808,000	.....

Average mileage operated for year ended June 30, 8,048, against 7,064 for year ended June 30, 1915.

Approximate earnings for July, $3,834,200, against $1,961,700 for July, 1915, and for two weeks ended Aug. 14, $1,709,500, against $866,100 for same period 1915.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1914-15, from July 1, 1915:

	Gross Earnings	Expenses	Net Earnings	Increase
July	$7,895,375.47	$5,094,972.35	$2,800,403.12	x$978,042.71
Aug.	8,801,451.52	5,359,136.80	3,442,314.72	79,157.02
Sept.	10,273,165.45	5,527,864.81	4,745,300.64	378,252.25
Oct.	13,443,214.44	6,863,780.29	6,579,434.15	3,258,105.79
Nov.	13,351,283.51	6,996,870.48	6,354,413.03	3,710,340.86
Dec.	12,705,673.45	7,003,351.97	5,702,321.48	3,502,797.67
Jan.	8,588,826.04	6,498,417.81	2,090,408.23	950,174.93
Feb.	8,795,830.30	6,501,487.56	2,294,342.74	315,328.12
Mar.	10,380,981.98	6,959,651.62	3,421,330.36	448,315.63
Apr.	10,881,306.37	7,147,570.40	3,733,735.97	1,045,980.76
May	12,472,167.46	8,099,884.55	4,372,282.91	1,929,280.72
June	11,892,609.75	8,202,976.64	3,689,633.11	1,011,602.13
	$129,481,885.74	$80,255,965.28	$49,225,920.46	$15,651,293.17
Inc.	$30,616,675.96	$14,965,382.79	$15,651,293.17	.....

x Decrease.

Approximate earnings for July, $11,795,000, against $7,447,000 for July, 1915, and for two weeks ended Aug. 14, $5,928,000, against $3,602,000 for same period 1915.

During August, the mileage operated was increased to 12,993.

Grand Trunk Railway Earnings.

Following are the earnings and expenses for the G.T.R., including the Canada Atlantic Ry., the G.T.W.R. and D.G.H. and M.R., for May, compared with those for May, 1915:—

Grand Trunk Railway.

	1916.	1915.
Earnings	$3,548,400	$3,234,900
Expenses	2,465,600	2,183,900
Net earnings	$1,082,800	$1,051,000

Grand Trunk Western Railway.

	1916.	1915.
Earnings	$ 822,100	$ 576,400
Expenses	581,500	570,400
Net earnings	$ 240,600	$ 6,000

Detroit, Grand Haven and Milwaukee Ry.

	1916.	1915.
Earnings	$ 307,400	$ 204,000
Expenses	264,100	239,700
Net earnings	$ 43,300	Def. $35,000

Approximate net earnings for June, $5,109,033, against $4,403,613 for June, 1915, and for two weeks ended July 14, $2,366,422, against $1,979,907 for same period 1915.

Traffic Orders by the Board of Railway Commisioners.

Interchange at Battleford.

25076. June 14. Re application of Board of Trade of North Battleford, Sask., for a transfer accommodation at Battleford (old town) between the Canadian Northern Ry. and the Grand Trunk Pacific Ry. It is ordered that the Grand Trunk Pacific Branch Lines Co. be directed to construct a transfer and storage track at Battleford, between the G. T. P. Ry. and the C. N. R., as shown on plan on file with the Board, that the said construction be completed by July 15, 1916; that the G. T. P. B. L. Co. bear four-fifths and the C. N. R. Co. one-fifth of the cost of construction, the said companies to furnish without charge the necessary land on their respective rights of way for the said transfer and storage track and that the cost of maintenance of the transfer and storage track be borne equally by the said railway companies.

The Chief Commissioner gave the following judgment at the sittings held at Saskatoon, on July 22, after the parties interested had been heard, an order was made giving effect to the application, and requiring the construction of a transfer and storage track between the G. T. P. Ry. and the C. N. R. at Battleford. The order calls for the completion of the transfer and storage track by July 15. This date was fixed at the hearing, without objection by the G. T. P. Ry. as allowing insufficient time in which the work might be done. Mr. Hansard, Solicitor for the G. T. P. R., now writes the Board stating that his company's Operating Department will not be able to get the track work completed until from August 10 to 15, and presumes that this will be satisfactory to the Board, so long as the work is being prosecuted in good faith, without the necessity of securing a further order extending the time for construction. It is important that the district affected should obtain the benefit of this transfer track for the autumn business. On the other hand, the Board is aware of the difficulties that at present prevail in obtaining material and men. Under the circumstances, an order may go extending the time for completion until Aug. 10. This does not mean that the work in the meantime is to be allowed to stand. On the contrary, it must be pressed forward as much as possible by the G. T. P. R. One of the Board's inspectors will check up the work and report progress.

Order 25191. was passed July 25, extending the time for the completion of the work to Aug. 10.

Minimum Weight of B.C. Lumber.

25205. July 26. Re complaint of British Columbia Lumber & Shingle Co., Vancouver, Riverside Lumber Co., Calgary, Alta., A. B. Cushing Lumber Co., Calgary, and Mountain Lumber Manufacturers' Association, Nelson, B.C., against proposed increase by C.P.R. in minimum weight of fir, spruce, hemlock, and common cedar lumber loaded in cars under 36 ft. long, from 30,000 to 35,000 lbs. It is ordered that the railway companies which on May 15, 1916, increased the minimum carload weight applicable to lumber and articles taking lumber rates from points of shipment in British Columbia and Alberta, when loaded in cars under 36 ft. long from 30,000 lb. to 35,000 lb, modify the said increased minimum by providing the minimum weight of 30,000 lb. for cars of the capacity of 2,050 cu. ft. or less; the said modification to be published and filed immediately upon the receipt of this order, and to destinations in Canada, to be made effective forthwith.

Rates on Ores and Concentrates.

25211. July 27. Re complaint of British Columbia Mining Association against increased rates on ores and concentrates published in C.P.R. Tariff, C.R.C. no. W-2168, to take effect Aug. 1, 1916, from points of shipment in B.C.: It is ordered that the said increased rates be suspended until further order.

Pig Iron, Welland to Montreal.

25250. Aug. 3. Re complaint of F. L. Getzler of Montreal, against the 10th class rate of 16c charged on pig iron, in carloads, Welland to Montreal, in May, 1912, instead of the combination of 10th class 6c per 100 lb. to Hamilton, plus the commodity rate of $1.75 a gross ton, Hamilton to Montreal. It is ordered that the complaint be dismissed.

Commissioner McLean gave the following judgment: Application was made by F. L. Getzler, a representative of a rate adjusting bureau known as The Canadian Transportation Rates. The applicant desired to be advised whether it was permissible to use a class and commodity rate in order to "defeat the through rate." It was stated that certain shipments of pig iron moved from Welland to Montreal through the period when there were no commodity rates on pig iron. Shipments were charged at the 10th class rate of 16c. The contention of the applicant is that the class rate of 6c from Welland to Hamilton, plus a commodity rate of $1.75 a gross ton published through the season of navigation, during which period the shipments moved, should have applied. It was stated that there were three shipments concerned as follows: May 22, 1912, weighing 109,100 lb.; May 14, 1912, weighing 108,340 lb.; May 9, 1912, weighing 97,260 lb. The shipments in question took place some four years ago, and as was stated by the applicant at the hearing the matter involved was simply a question of refund. There is no evidence that any application was made to the railway for a commodity rate from Welland, nor is the question of a commodity rate basis from Welland before the Board in the present application. It was pointed out in the pudgment of the Board in the matter of through rates vs. combination of locals that "it is a fundamental proposition under the policy outlined by the Railway Act that when a rate, whether joint or whether limited to points situated on one line of railway alone, has come into force in conformity with the provisions of the Railway Act, it is the only legal rate in respect of the traffic mentioned and between the points mentioned." There is no question as to the rate from Welland having been the rate legally in force. The Board has no power to direct a refund, but it may by a declaratory order state what is the proper tariff of tolls applicable to a certain class of goods, although no consequential relief is granted the applicant. Grand Trunk and Canadian Pacific Ry. Cos., vs. Canadian & British American Oil Cos., 13 Can. Ry. Case, 201. The Board has thus power to declare what is the legal rate; and if the rate charged is in excess of what is declared to be the legal rate, it is open to the parties to obtain a return of the excess through appropriate legal process. In the present application, there is no question as to what was the rate legally in force when the shipments moved, and so there is no justification for a declaratory order. The Board's power in the present application is limited to declaring what is a reasonable rate for the future; but no application for this is before it. The application should be dismissed. Reference may be made to memorandum re through rates on lumber exceeding the sum of the locals, file 24647, Oct. 20, 1914.

New York Central Rd., and Ottawa and New York Ry. Tariffs.

25257. Aug. 11. Re order 23831, Feb. 2, 1915, suspending certain tariffs published and filed by the New York Central Rd. and the Ottawa & New York Ry., in so far as they increase the rates charged from stations in Canada to stations in Canada. Upon its appearing that the said railway companies now desire to publish rates between points in Canada in accordance with the judgment in the Eastern Rates Case, it is ordered that order 23231 be rescinded; and that said railway companies be granted leave to publish tariffs as permitted by the judgment in the Eastern Rates Case.

Rates on Wood Pulp to Mechanicville.

25262. Aug. 16. Re application of West Virginia Pulp & Paper Co., for an order disallowing rates on pulp wood to Mechanicville published in C.P.R. Tariff, C.R.C. no. E-2847; also for the suspension on behalf of West Virginia Pulp & Paper Co. and New York & Pennsylvania Co. for suspension of Supplement 15, to C.P.R. Tariff, C.R.C. no. E-2847, issued to take effect Sept. 1. Upon reading what has been submitted on behalf of the applicants and upon it appearing that the applicants and the railways have been unable to arrange a settlement, it is ordered that the said Supplement be suspended pending hearing on a date to be fixed by the Board.

Rate on Dessicated Vegetables to Montreal.

General order 168. July 11. Re complaint of the Graham Co., Ltd., of Belleville, Ont., against the rates on dessicated vegetables: Upon reading what is filed in support of the complaint and on behalf of the Canadian Freight Association; and upon the report of the Chief Traffic Officer of the Board, it is ordered that the railway companies west of Montreal carry desiccated vegetables, in carloads, to Montreal for export, at the domestic rates to Montreal, with the additional of a terminal charge at Montreal not to exceed six-tenths of 1c per 100, whenever the said combination is less than the rate of the published tariff.

Grain and Lumber Stopped at Cartier and Sarnia Tunnel for Orders.

The Assistant Chief Commissioner, D'Arcy Scott, gave the following judgments Aug. 2:—I think the C.P.R. had the right to file supplement 11 to C.P.R. Tariff C.R.C. no. W. 2061, naming extra charges at Cartier, and the G.T.R. to file C.R.C. Tariff E. 3300 naming extra charges at Sarnia Tunnel. No previous order of the Board prevented them from filing these tariffs. From the action the Board has already taken with regard to stop-over charges on grain and lumber at Cartier and Sarnia Tunnel, I think the tariffs now in question should not be interfered with. I would advise Mr. Tilston and the two railway companies accordingly. Deputy Chief Commissioner Nantel agree with that judgment.

Commissioner McLean gave the following judgment Aug. 4:—Notwithstanding the powers possessed by the railways to put into force increased tolls, on statutory notice, the Board dealt with the Cartier situation as one where the increase had to be justified before being allowed to become effective. The charge sanctioned under order 24436 was concerned with an extra charge for detention of grain and grain products and was concerned with the conditions at Cartier alone. (XIX Can. Ry. Cas. 263.) Whether the same charges are justifiable or necessary in respect of lumber and because of the detention of that traffic does not appear. Nothing has been adduced to establish either the similarity or identity of conditions in point of detention of the two forms of traffic. There has been no investigation to show either the necessity or the reasonableness of the same charges on lumber at the other points concerned, and the burden of establishing this necessity or reasonableness seems to me, in view of the action in the Cartier case, to be on the railways.

Proposed New Freight Classification.

The Chief Commissioner gave the following judgment July 26: Proof copies of the proposed new Canadian Freight Classification 17 have been received by the Board. Not only do the changes in the classification ratings appear to be radical, but substantial changes are also made in the rules. Owing to the fact that the new classification contemplates a uniform classification for the whole country, and that different classifications have in the past obtained, the effect of the changes, both in the classification and rules, differs in the different districts, with the result that what would be a restriction of the mixing privileges in one means a more extended right to mix carload lots in the other. It is extremely difficult as the matter now stands for the Board; and it would seem to be impossible for the shippers to properly consider the effect of the new rules and the new classification without definite information as to all the changes sought, the injustice or difficulty suffered under the former regulations, and, speaking generally, the effect of the changes. This information the railways either have or should have. An order should go directing the railway companies to file with the Board and serve on the parties a statement showing, in the first instance, all changes made in the rules and the grounds on which the changes are sought to be justified, and showing the results the changes would make on traffic in Eastern and Western Canada respectively.

General order 169 was passed accordingly, July 27.

The Canadian Northern Ry. is building 2 car floats at Port Mann, B.C., for conveying freight cars across Patricia Bay, until the large car ferry which it has decided to build, is ready for service. They were designed by A. Angstrom, Naval Architect, C.N.R., Toronto, and will be 158 ft. long over all, 46 ft. beam over plating, and 48 ft. over wales, and 11½ ft. deep. They will each take 8 large size freight cars. The first one was launched in July. The C.N.R. has bought two whaling steamships, the s.s. Germania and a sister vessel, formerly owned by Canadian Northern Pacific Fisheries, Ltd., which are being changed to make them suitable for towing purposes, and which are to be renamed Chilliwack and Sumas.

Increase of Wages for C.P.R. Western Shop Employes.

It was announced in Winnipeg, Aug. 10, that a new schedule of wages for employes of C.P.R. shops on the western lines had been signed. Negotiations had been in progress for a couple of months between the company's representatives and representatives of the federated trades. The new agreement is to run to April 30, 1917, when it may be renewed.

The average increase in wages runs between 2 and 2½c an hour for all trades, the largest being a 3c increase for tubers in the boiler shops. This increase applies all along the line from Fort William to the coast, which comprises three divisions, one from Fort William to Broadview; the second from Broadview to Kamloops, and the third from Kamloops to Vancouver.

The rates in the first division in which the Weston (Winnipeg) shops are included, and third division are practically identical, while in the second division they are 2c higher, which is accounted for by the higher cost of living in that territory.

	Old Rate	New Rate	Increase
Machinists—			
Eastern	45½c	48c	2½c
Central	48	50	2
Western	46½	49	2½
Boilermakers—			
1st Class—			
Eastern	46½	48	1½
Central	48½	48	1½
Western	47½	49	1½
2nd Class—			
Eastern	43	45	2
Central	43	45	2
Western	44	46	2
Tubers, Ashpanmen, Gratemen, etc.—			
Eastern	35c	38c	3c
Central	37	40	3
Western	34	37	3
Blacksmiths—			
Eastern	45	47½	2½
Central	47	49½	2½
Western	46	48½	2½
Specialists— Nine different trades increase 2½c per hour. Balance increase 2c per hour.			
Helpers— Increase 2c per hour.			
Sheet Metal Workers—	Old Rate	New Rate	Increase
Winnipeg	39c	41½c	2½c
Ggden	(New Rate)	43½	
Tinsmiths—			
Eastern	37c	39c	2c
Central	39	41	2
Western	38	40	2
Moulders—			
Eastern	42	42½	2½
Central	44	46½	2½
Patternmakers—			
Eastern	44	46½	2½
Central	46	48½	2½
Pipefitters (coach and local)—	Old Rate	New Rate	Increase
Eastern	37½ to 40½	39 to 42	1½
Central	39½ to 42½	41 to 44	1½
Western	38½ to 41½	40 to 43	1½
Steel Car Repairers—			
Eastern	29½	32½	3
Central	31½	34½	3
Western	30½	33½	3
All other car men— Increase 2c an hour.			
Electricians—			
Eastern	40	42	2
Central	42	44	2
Western	41	43	2
Rivet Boys	11	12	1
Apprentices—			
1st year	13	14	1
2nd year	17	18	1
3rd year	20	21	1
4th year	23	24	1
5th year	26	27	1

Several concessions that the men asked for have been granted to govern working conditions, the principal ones being as follows: All hours over those bulletined as working hours in which the men are required to work shall be paid for as overtime, time and a half being granted until midnight and double time after that. This is to cover occasions when the shops are put on short time and a few men are called in for special jobs. In changing from night to day shift or vice versa, the first day shall be paid for at overtime rates. When working hours are to be reduced the company will give 24 hours notice of such intention and 48 hours notice shall be given to all men to be laid off. This is to give men receiving notice time to make inquiries as to the reason for such notice.

In all the agreement covers 13 articles, including craft rules, which are set out in great detail so as to avoid friction as far as possible between the men and officials in departmental work.

The Late A. B. Stickney.

Alpheus Beede Stickney, who was the first General Superintendent of the C.P.R. at Winnipeg, appointed on the organization of the company in 1881, died at his home in St. Paul, Minn., Aug. 9, after an illness of four weeks. He had been in declining health for several years. He was born at Wilton, Me., June 27, 1840, lived on a farm in Vermont with his parents, attending a village school until he was 18 years old, and then took up the study of law in Dexter, Me. He was compelled to give up for lack of money and became a country school teacher until he had saved enough money to return to study law. He was admitted to the bar in 1862. He moved to Minnesota, practising law there until 1869, when he took up his residence in St. Paul.

This was at a time when railway building was in its early beginnings in the Northwest, and his law practice turned in the direction of railway matters. He soon gave up his practice and engaged in organizing, first, construction companies, and later railways. His first large undertaking was the St. Paul, Stillwater & Taylor Fall Ry., which he served for several years as Vice President, General Manager, and Chief Counsel. He later superintended the construction of a portion of the St. Paul, Minneapolis & Manitoba Railroad. On the organization of the C.P.R. in 1881 he was appointed its first General Superintendent at Winnipeg, arriving there Feb. 28 and continuing until the end of 1881 when he was succeeded by W. C. Van Horne, who was given the title of General Manager.

In 1882 he became Vice President of the Minneapolis & St. Louis Rd. In 1884 he began the construction of the Minnesota & Northwestern Rd., which afterwards developed into the Great Western. He was President of this road until its consolidation with the Chicago, St. Paul & Kansas City, and then became President of the latter road. He held that office until 1892 when he became Chairman of the Board of Directors. In that capacity he reorganized the company as the Chicago Great Western Railway and continued to serve as Chairman until 1900. His next connection with the road was in 1908 and 1909, when he became its receiver.

During his railway career he acquired extensive outside interests, one of the chief of which was the St. Paul Union Stockyards and packing houses, which he built in 1882.

In 1909 he charged that the practice of rebating had been resumed by many railways under such subterfuges as that of allowing large claims for overcharges and damages presented by favorite shippers. His charges resulted in an investigation by the Interstate Commerce Commission, before which he laid a plan for revising the late laws to make such practices impossible. Since 1909 he has been living in retirtment.

Electric Railway Department

Detroit's Interurban Electric Railway Service.

By A. D. B. Van Zandt, Publicity Agent, Detroit United Lines.

Appreciative of the many benefits that come to them by reason of the operation of interurban cars for passenger and freight purposes, the people of Detroit and the other territory served by the Detroit United Lines cannot understand the philosophy of opposition to such an undertaking in any progressive community. It is equally certain that any serious suggestion to put an end to such service into and out of Michigan's metropolis would meet with the vigorous protests of our patrons, both freight and passenger. I had, some few years ago, the pleasure of discussing in the American Academy of Political and Social Science Annals the presentation of interurban problems to the public, in which I pointed out as follows: "While the interurban railway builder and operator has been learning his lesson of cost, the benefits to the public served have grown apace. In the great interurban railway centres like Indianapolis, Toledo, Cleveland, and Detroit, the people, through the constant use of the country trolley for business and pleasure, have gained a better understanding of farm life. These men of the city do not look upon the farmer as the joke 'Hey, Rube,' but as the man who feeds us all. They do not look with pitying glances on the man with the hoe, but, rather, are envious of the man who with the modern machinery at his command has, as it were, but to press the button and watch the land come to life with the fruits of the soil. The farm is not the thing the city man wants to shun; it is the reverse, for deep in his heart is the hope that some day he, too, will be able to retire to his own acre of peace and plenty.

"Similarly those of the farm and village have been brought into close and kindly touch with the city. They know the stores, they know the parks, they are even not unacquainted with the latest play. The farmer is no longer obliged to spend two or three days of his own time and that of his team in the task of marketing his produce at a price unknown until delivery is made, but today, through the agency of the interurban trolley, that makes possible an extensive system of rural delivery of mail, he gets his daily newspaper, knows early the price he can get for his product, places it on an interurban express car, follows by passenger car, and in as many hours as formerly took days he makes his sales and his purchases.

"Much of the opposition to the interurban railway has come from the village under the belief that a frequent service would spell mercantile ruin and here and there this opposition still exists. I quote from a recent edition of the Birmingham, Mich., Eccentric to show the change: 'When the trolley was first established it was claimed it would ruin the smaller towns; the reverse is true. Look over the following census figures and you will note that every town in Oakland not reached by an electric road has been steadily on the toboggan for the past 20 years. On the other hand towns having an hourly service or less have held their own or shown only a slight increase, while the section served by the Pontiac line, with its 30 and 20 minute service, has absorbed more than the actual net increase in the country.'

The truth is, the interurban line is not a deterrent, but an aid to the small town. It does not of necessity cause all towns to become manufacturing centres, but it does give them better facilities to become such. The interurban line modernizes the trading post, giving the country merchant the same ease in making his purchases as has the corner store keeper in the city, and the same privilege of making these purchases as he wants them and in the quantity he wants. There is no longer the necessity of stocking up for the winter because of impassable road conditions. Today the interurban grocery delivers to its customers strawberries just as early in the season as does the city grocery."

That tells the story in brief. To know that last year our interurban cars, inclusive of city service travel in some of the smaller cities, carried practically 30,000,000 day passengers is to know that the service is filling a great need. Growing from a humble and hazardous beginning we are today operating into and out of Detroit more than 600 interurban cars daily, and this is being done with a constantly increasing city service over the same tracks within the corporate limits.

The freight and express end of our interurban business also had its humble start. Historically it is known that the interurban companies did not desire to carry freight. It was forced upon them by the public. Like Topsy, it "just grew." The beginning was with merchants sending out into the country some package to the roadside farmer or to a small village dealer, while a few pounds of butter or some dozens of eggs found their way into the city. All this was through the kindness of the car crews of the passenger cars, a cheery word, a cigar, or occasionally a little farm produce being their remuneration for acting as messenger boys, with the companies not concerned in any way with the transactions.

The custom grew apace, and from time to time parcels became lost, and not infrequently the companies were blamed for this, and asked to make good for the result of their complimentary service. So burdensome did this free, handy, but often unsatisfactory method of delivery become that in defence combination cars were experimentally tried and for a charge packages were picked up en route and delivered direct to house or store adjacent to the tracks.

As I have said, all this was experimental; neither the public nor the operators knew how much of this form of trading was in sight, but as the business continued to grow it became a nuisance to both city and interurban riders—to the city car passengers by reason of holding back the city cars while the interurbans were loading and unloading their packages, while the interurban passenger desired to reach his destination in as short a time as possible and freight operation lengthened instead of shortened the running time.

The city did not wish to stop the transportation of freight, because of the benefits to the people, but neither did it want the streets used as a shipping yard, so the companies were told to get a freight depot, where the work could be done without discommoding the public. This was done, and the council adopted the necessary resolution to make the track connections. At approximately the same time the council adopted a freight regulatory ordinance beginning with this language: "Under and by virtue of the provisions of sec. 6456 of the compiled laws of 1897, consent, permission, and authority is hereby granted street railway companies lawfully operating street railways within the City of Detroit . . to carry packages, merchandise and other light freight, milk, farm produce and garden truck. . . ."

This was in 1901 and since that time the freight business has developed wonderfully. The central freight depot has been outgrown, and plans are being rapidly completed for a new freight terminal necessitating an investment of a million dollars. In addition to the central depot there are also convenient unloading places in several parts of the city.

Handling express and light freight the equipment at the present time consists of 43 motor cars, 31 trailer box cars, a locomotive and 2 cabooses. There are daily 34 scheduled round trip runs and from 5 to 7 extras almost every day. The receipts last year from this traffic exceeded $800,000.

Interurban passenger cars are recognized as such, and they operate within the city under the rules and regulations that apply to strictly city cars, though in some of the street railway settlement plans before the people distinction in operation has been made. None of these plans having been adopted, the interurbans continue to operate under the same rates of fare and the same transfer regulations as do the city cars, yet to a very marked degree the purely city riders refrain from using the interurbans, recognizing the real purpose of such cars is to get the people into and out of the city as comfortably and speedily as possible. While operating within the city the fares are collected for the company owning the city lines, and in return the interurban lines receive pay on the car mileage basis for the use of the cars. No money is paid by the interurban cars for the use of the tracks, nor are interurban cars charged with any portion of the maintenance of these city tracks.

In the matter of freight the state law permits of the operation of such cars during the night time into and through cities, towns and villages without local consent, while for day time operation this consent is necessary and has always been gladly given in recognition of the vital importance of the work.

There is no question that the interurban cars have played, and are playing, a highly important part in the development of Detroit. Many miles of track now within the city were constructed under interurban grants and with which the city had to deal only as it extened its corporate limits. These lines, on practically

all the main arteries, made it possible for the community to expand much more rapidly than would otherwise have been possible.

Naturally the interurban lines have had and have today the favorable support of our daily newspapers, which are themselves large users of these cars for the shipment of their editions out to the country and to the cities and towns served by us. So serviceable are these cars that on some of the lines they are used by newspapers for distributing their large Sunday editions. From the beginning of the interurban system our newspapers have seen the benefits of such service into and out of the metropolis. Two quotations of many years ago from one of our leading newspapers will suffice:

The Evening News of Sept. 20, 1895, said: "With the immense amount of street railway construction now going on in Detroit, and numerous trolley lines either finished or projected between Detroit and neighboring towns and villages, it would seem that the wants of the public for rural and suburban transportation were being largely discounted in advance, but the results thus far have gone to show that business increases with the facilities provided for it. . . But the end is not yet—in fact there seems to be no end to electrical possibilities of affecting the welfare of Detroit and neighboring cities which will be brought into closer connection with the metropolis by means of rapid trolley lines."

On April 5, 1896, reviewing some 15 interurban roads built, building, or projected, the same newspaper said: "The future trade which shows through electric railway lines in and around Detroit marks in the most significant manner the progress of the city towards increasing size and importance. . . The benefit of these lines, which, in a majority of cases, will run along established highways, cannot be over estimated. They will establish new social and commercial ties between town and country. . . This work of laying out lots, obtaining franchises and negotiating with many men demands a high order of skill and diplomacy and is entitled to a fair reward and whoever institutes and builds a suburban railroad is entitled to the thanks of Detroit and its citizens. . ."

Regina Municipal Ry. Earnings, Etc.

Following are statistics for July, compared with July 1915, and the total for seven months ended July 31:—

	July 1914.	1915. July 1915.	1916. Jan. 1 to July 31, 1916.
Total revenue	$19,070.44	$15,887.44	$122,548.43
Expenses	14,319.35	15,018.87	114,235.74
Capital charges	8,022.96	9,137.53	56,160.73
Operating surplus	4,751.09	868.57	8,312.69
Total deficit	3,271.87	8,268.96	47,848.04
Expenses per car power	13.34c	14.19c	16.24c
Expenses per car mile without with with power	17.49c	18.37c	21.55c
Platform wages per car hour	72.69c	75.97c	72.76c
Passengerscarried	403,286	338.540	2,716,855
Expenses less capital charges, percentage	75.01		
Expenses with capital charges, percentage	117.15		

The Winnipeg City Engineer has been asked by the city council to report on the best means of lessening the noise caused by the operation of the Winnipeg Electric Ry. cars.

Montreal Tramways Company Annual Report.

Following is the report for the year ended June 30, submitted at the annual meeting, Aug. 1:—

Gross earnings		$6,609,765.15
Operating expenses		3,707,053.04
Net earnings		$2,902,712.11
From which deduct:—		
City percentage on earnings	$418,083.90	
Interest on bonds and loans	806,721.44	
Interest on debenture stock	800,000.00	
Taxes	93,600.00	
		$2,118,405.34
Net income		$ 784,306.77
Dividends		323,871.25
Surplus		$ 460,435.52
Less:—		
Transferred to contingent renewal account	$275,000.00	
War tax (2 years), 1915-16	74,013.17	
		349,013.17
Transferred to general surplus		$ 111,422.35

The gross earnings increased during the year $84,533.48 or 1.30%, the operating expenses decreased $6,943.40 or 0.19%, and the net earnings increased $91,476.88 or 3.25%. The ratio of operating expenses to earnings is 56.08%, compared with 56.92% in 1914-15.

$313,575.99 has been charged to contingent and renewal account during the year, representing expenditures made for special renewals. $583,894.20 has been expended in maintenance of properties, plant and equipment, and charged to operating expenses. This amount, together with $313,575.99 charged to renewal account, makes a total expenditure during the year on the upkeep of the properties of $897,470.19. During the year there was expended on capital account $320,872.17. The company under its trust indenture is entitled to issue bonds on its capital expenditure, equal to 75% thereof, and under this provision it is now entitled, when it shall so desire, to have bonds certified to an amount of $963,485.55. During the year there have been redeemed and cancelled $163,233.32 of underlying bonds. The amount redeemed to date is $1,146,746.56.

The gross earnings increased during the latter part of the year, indicating a tendency to an improvement in the business conditions of the city. In connection with the underlying bonds purchased during the year, $3,387.80, representing the difference between par value and the purchase price, has been credited to the general surplus account. Your directors, acting on the authority of the shareholders, issued 10,000 shares of common stock, which have been allotted to shareholders at par. During the year the company has, at great expense, completed the work of placing its overhead feeder wires in the municipal conduit (where provided) on St. Catherine Street, and is now proceeding with the same work on Bleury St. and Park Ave. The work in connection with the re-arrangement of the system of power distribution is being proceeded with and satisfactory progress has been made during the year. The company has accepted a contract for machining shells, and work in connection therewith is progressing satisfactorily. The property has been maintained in a high state of efficiency and is in excellent condition. Your directors desire to place on record their appreciation of the valuable and faithful services rendered by the officers and employes.

Statistics.

Gross earnings	$6,609,765.15
Operating expenses	3,707,053.04
Net earnings	$2,902,712.11
Expenses % earnings	56.08
Passengers carried	156,408,303
Car earnings per passenger	4.12c.
Transfers	55,542,897
Total passengers carried	211,951,200
Car earnings per passenger, total carried	3.04c.

Assets.

Cost of road and equipment to June 30, 1915		$37,222,513.92
New construction for the year		320,872.17
		$37,543,386.09
Accounts receivable	$459,592.66	
Stores	436,684.26	
Cash in bank and on hand	247,564.25	
Underlying securities redemption fund	3,643.24	
		1,147,484.41
Investments		318,887.50
		$39,009,758.00

Liabilities.

Capital stock	$4,000,000.00	
Less unpaid and subject to call	656,400.00	
		$*3,343,600.00
Debenture stock		*16,000,000.00
First and refunding mortgage 5% gold bonds		13,335,000.00
Underlying bonds		3,273,253.44
Mortgages		16,863.00
		$35,968,716.44
Accounts and wages payable		$461,238.91
Accrued interest		230,872.00
Accrued tax on earnings		315,628.85
Employes' securities		20,965.58
Unclaimed dividends		1,956.57
Unredeemed tickets		237,214.71
Suspense		95,262.75
War tax (2 years)		74,013.17
Dividend payable Aug. 1		83,590.00
		1,520,742.54
Capital reserve		$600,000.00
Contingent renewal reserve		141,323.22
Surplus		$775,588.00
Discount on underlying bonds	3,387.80	
		778,975.80
		1,520,299.02
		$39,009,758.00

*This includes amount due on shares not yet exchanged.

The directors were re-elected for the current year, as follows:—E. A. Robert, President; J. W. McConnel, Vice President; F. H. Wilson, Hon. J. M. Wilson, W. C. Finley, J. M. McIntyre, G. G. Foster, K.C., W. G. Ross, Montreal, and P. J. McIntosh, New York.

A Hamilton, Ont., coroner's jury returned the following verdict, recently:—"We find that Clarence Wilson came to his death on July 8 while riding on a street car on Burlington St. E., which was taking a crossover switch at an excessive rate of speed. The motorman had not been informed of the crossover, and we find that the company was negligent in that he was not so informed. We recommend that in future flagmen be located at all crossover switches." The evidence showed that the order as to the crossover switches was posted in the company's office where the motorman should have seen it.

The Calgary, Alta., Municipal Ry.'s extension to the Sarcee military camp, according to a statement reported to have been made by Superintendent McCauley, has practically been paid for out of earnings. The receipts for freight alone during July are reported to have been $1,700. Ten freight cars a day are operated, and about 50 passenger cars a day are run to and from the camp. The cost of labor on construction was about $4,000, and the whole cost of the line did not exceed $15,000. When the camp is abandoned the track and overhead material can be used elsewhere.

The Toronto Suburban Railway's Change of Gauge and Grade in Toronto.

The Ontario Railway and Municipal Board has given judgment on the Toronto Suburban Ry. Co.'s application for approval of its proposed change of gauge, change of grade where necessary, and renewal or tracks where necessary, within Toronto city limits, the following being a summary,—This is an application for approval of two plans, A and B respectively, A showing the company's tracks along Dundas St. from Lambton Mills through York Tp. and the City of Toronto to Keele St., with a spur southerly along Gilmour and Fairview Aves., also from Dundas St. northerly along Keele St. and the Weston Road south to the city limits, also extending easterly from Keele St. along St. Clair Ave. and Davenport Road to Bathurst St. and southerly along Bathurst St. to the C.P.R. It is proposed to change the gauge of the tracks from 4 ft. 10¾ ins. to standard, 4 ft. 8½ ins. Plan B shows the tracks easterly along Dundas St. from the city limits at Runymede Road to Keele St. and northerly along Keele St. to the C.P.R. It is proposed to substitute girder rail for the T rail at present in use. While this is being done, permission is asked to lay and operate along portions of Keele St. and Dundas St. a temporary track. It is also asked that the City of Toronto contemporaneously repair and reconstruct the railway portion of the roadways covered by the agreement of Nov. 11, 1899, made with the town of Toronto Junction, now part of Toronto, which roadways include Dundas St. from the city limits easterly to Keele St., and northerly on Keele St. to the C.P.R.

The Board was advised that the City Engineer had no objection to the proposed change of rail and implied that the council's consent would be forthcoming. He also consented to the laying down of the proposed temporary track. York Tp. does not object, and the City of Toronto does not press its objection to the proposed change of gauge, and indeed objection from either quarter would be purely vexatious in view of the plain provisions of the agreement before mentioned. So far as York Tp. is concerned, there is complete concurrence with the company's proposals, but at this point the concurrence of the city ceases, and differences arise as to its rights and obligations under the agreement. The company alleges that the pavement along Dundas and Keele Sts., which will be torn up in making the changes, is worn out, and should under the agreement be replaced at the city's expense, as the city agreed to "construct, reconstruct and maintain in repair the street railway portion of the roadways traversed by the railway system." The city replies that the work must be done at the company's expense under a clause in the agreement providing that "in the event of the company desiring to make any repairs or alterations in the ties, stringers, rails, turnouts or curves in paved streets, the portion of the roadway torn up in so doing shall be repaved by the corporation but at the expense of the company."

Another question arises on the construction of the agreement, as to the incidence of the cost of the concrete base under the tracks, the company claiming that its cost, as coming under the description of substructure, is not properly chargeable to the company, or in the alternative, only the cost of the increased depth of concrete (6 ins. additional to the normal 9 ins.) necessitated by the tracks should be charged to the company. The agreement places upon the corporation the burden of construction and repair of the street railway portion of the railway, and expressly excludes the tracks, substructure and superstructure required for the railway; it also places upon the company the duty of constructing the tracks and substructure from time to time, and the Board takes this to mean, both the initial construction and the maintenance in repair of the tracks and substructure. The agreement also declares that in the event of a paved street being torn up by the company for any of the purposes mentioned, the cost of repaving shall be paid by the company.

Dealing with the question of the incidence of cost of constructing the concrete base, it was found on examination by the Board's engineer, that the concrete base was in good, or fairly good condition, so that it follows, that if the company in tearing up the roadway injures or destroys the existing concrete base, it may be made good as a detail of the repairing by the corporation, but at the company's expense. As to portions of the streets in question which are now paved with tarvia, without concrete base, the corporation stated that it was the intention to lay a permanent pavement the width of he track allowance, which will require a concrete base. The plans submitted show a concrete base laid on the sub-base, 15 ins. thick, in which the wooden ties are embedded in such a way that the tops of the ties are flush with the upper surface of the concrete base, thus offering an even bearing on which the steel rails are laid. The pavement is then completed by laying blocks of granite or other suitable material, bringing the travelled surface flush with the top of the rail. A difference has arisen as to which of the parties shall bear the expense of laying the concrete base. The Board reached the opinion that the word substructure as used in the agreement includes the entire body of concrete which carries the rails. The company may take the ground, after conceding that the entire concrete base is substructure, that a different rule is applicable in the present case, holding that the company's obligation at the most is the replacement of the pavement destroyed by one of the same kind now used. The agreement, however, provides that work of this nature is to be done under the supervision of the City Engineer and to his reasonable satisfaction, and the city has sufficiently indicated that only a concrete base as shown in the plans will secure that reasonable satisfaction.

On the question of the corporation's maintenance of the pavement in repair, the city offered to pay the whole cost of paving that portion of Dundas St. now laid with tarvia, and of paving the remaining portion of Dundas St. and the portion of Keele St. in question, less such a sum as the Board might fix on the advice of its engineer, as representing the life of the pavement on those streets, which sum should be paid by the company, this pavement, as proposed by the city, to include the body of the roadway from the base to the top of the rails within the track allowance as already defined. This proposal was made on the understanding that any order based on it should not be made the subject of an appeal by the company, and in case of such appeal, the corporation would be free from any assumption of liability on its account. The Board accepted the proposal with the reservation, and as in the absence of such a proposal, the Board would have felt constrained to hold the company liable for the whole expense of renewing the pavement torn up by it, there is no injustice to the company in adopting the proposal and making it a term of the Board's order.

Some discussion arose as to the change of site of the tracks on Dundas St., which is at present in the centre of the street, and the corporation desires that in the reconstruction proposed, the track should be laid a little off the centre of the street, so as to permit of the laying of another and parallel track when it becomes necessary to operate a double track railway. The city held that it could, under the agreement, require a relocation of the track in connection with the proposed reconstruction, but the Board could not adopt that view, as the location of the track on these streets referred to is the location when the undertaking was iniated, and the company has acquired a vested right in the site, which cannot be disturbed during the continuance of the charter, unless by forfeiture under some applicable provision of the agreement. Any change in location must be the subject of negotiation and agreement by the parties concerned.

The plans submitted will be approved and an order issued in accordance with the foregoing opinions. No question has been raised that the installation of the diamond and safety device at the intersection of the company's line with the Toronto Civic Ry. at the corner of Davenport Road and Lansdowne Ave., already ordered by the Board, should be done contemporaneously with the foregoing works, but as the interests of the parties will be best served thereby, the Board will so order. There will be no costs to either party but the company will pay $30 for law stamps on the order.

Jitney Traffic Notes.

The Vancouver, B.C., City Council has put on a special motor cycle constable to look after jitney traffic.

A jitney service is being operated in Brantford, Ont., to the Terrace Hill district and residents are quoting its success as a reason why the municipal electric railway should be extended.

The Intermunicipal Industries Committee, representing South Vancouver and adjacent B.C. municipalities, is discussing the jitney question in detail, with a view to united action by suburban municipalities.

The Vancouver City Council has decided to examine all bonds offered by jitney owners, which have been rejected, and to investigate the standing of the companies offering them, and then to accept such as are satisfactory. The license inspector will be directed to thereafter prosecute all jitney men who have not registered bonds.

The Winnipeg Jitney Owners' and Drivers' Association has elected the following officers: J. Wilson, president; J. R. Wilding, vice president; J. Lamarre, secretary-treasurer. The members passed a resolution promising to make the jitney service in Winnipeg the best in Canada, and inviting the public to make suggestions which would tend to its improvement.

Lavatory Accomodation on Hamilton, Grimsby and Beamsville Electric Railway.

The Judicial Committee of the Privy Council has dismissed the Hamilton, Grimsby & Beamsville Electric Ry. Co.'s appeal against the decision of Appellate Division of the Ontario High Court of Judicature, confirming the Ontario Railway and Municipal Board's order whereby the company was directed to file complete plans and specifications for sanitary conveniences on its passenger cars and in its passenger station at Grimsby.

On Dec. 11, 1914, the Board dealt with a complaint by four residents of Grimsby relating to the lack of the accommodation mentioned, and after hearing evidence ordered that the plans and specifications named be filed within 30 days. The company appealed against this decision on the ground that the Ontario Railway and Municipal Board had no jurisdiction in the matter as the company's railway was, according to the Railway Act of 1888, sec. 306, under Dominion jurisdiction.

The appeal was heard Nov. 9, and unanimously dismissed with costs, the Board's order being confirmed, that is, the company's contention as to being under Dominion jurisdiction was not upheld. The appeal to the Privy Council followed, and the present judgment confirms the Ontario Court's judgment and the Board's original order.

This decision is of considerable importance, as it settles the question of jurisdiction which, owing to ambiguity in the Act, has caused considerable friction for many years. The reasons for the Privy Council's judgment have not reached us at the time of writing, but the Ontario Railway and Municipal Board's full judgment was given in Canadian Railway and Marine World for June, 1915. The issue for August, 1915, published the report of the Board of Railway Commissioners' expert in connection with the provision of lavatory accommodation on interurban and suburban cars, and comments of several companies thereon.

The Hamilton, Grimsby & Beamsville Electric Ry., which is a constituent of the Dominion Power & Transmission Co., has an extreme distance between terminals of 22.6 miles, practically all on. or along, the public highway and for a large portion of the way in front of residences and over city and village streets. Many objections to the use of car lavatories have been made by residents along the line. The company provides lavatory accommodation at Hamilton, Bartonville, Grimsby and Beamsville stations.

Sandwich, Windsor & Amherstburg Ry's Difficulties in Walkerville.

For a considerable time past there has been much friction between the town of Walkerville, Ont., and the Sandwich, Windsor & Amherstburg Ry., with respect to the service given. One of the matters in dispute has been the paving of the streets between the tracks, on such of the streets as are now unpaved. and it appears that the council has called upon the company to have this work done, but no steps have apparently been taken to comply with the direction. A second matter has arisen, viz., a direction by the council that the cars should stop at the near side of the street instead of the far side, as at present, and as is the case in Windsor.

There are other matters about which there is a difference, which has resulted in an endeavor being made to start a motor bus service in the town as a municipal enterprise. In reference to the latter, the council has prepared a bylaw to provide $15,000 to equip a motor bus service, which is to be voted on by the ratepayers Sept. 2. In order to demonstrate what could be accomplished by such a service two cars of different makes were operated in the town from July 27 to 31, inclusive. The cars ran on a 15 minute schedule, cutting a figure eight through the town, running in opposite directions over a total distance of 5¾ miles. No fares were charged during the demonstrations. They operated from 11 a.m. to 11 p.m. The two cars averaged about 80 passengers per round trip. The bylaw provides for the expenditure of $15,000 to equip the service, and the municipal authorities claim that the revenue from the service will pay operating expenses, and provide a fund for extending the service.

The matter as to the stopping of the cars on the near side of the streets has reached the courts. On July 30, orders were given to the company by the council to have its cars stop at the near instead of the far side of street crossings in the town, and the Mayor is reported to have stated that unless the order was complied with, as well as the previous order respecting the paving between tracks on unpaved streets, steps would be taken to have the company ordered off the streets entirely. As the cars did not make the stop as required, but continued to stop at the far side of the crossings, the Mayor and officers of the council proceeded Aug. 1 to stop the cars running, and succeeded in holding up the traffic for some hours. On Aug. 2 the company obtained an interim injunction restraining the Mayor and Town Council from interfering in any way with the operation of the cars in the town, the allegation being that the Mayor "without color of right did impede the traffic to the annoyance and discomfort of passengers." The case was set down for argument in Toronto Aug. 10, but was adjourned, the interim injunction being continued.

Jas. Anderson, General Manager, is reported to have said Aug. 2: "We are quite willing to have the cars stop at the near side on paved streets, but changes like that cannot be put into effect abruptly. We have the comfort of the passengers to consider and if cars are stopped on the near side in Walkerville. in some places passengers would be forced to wade through mud on rainy days, as no crossing provision has as yet been made for them on that side of the street. The stopping of the street cars on Tuesday was a high-handed piece of work and the passengers on the cars held up and those who waited for hours for a car were the principal sufferers."

A circular was issued by the company Aug. 3, stating that the stops would be made on the near side of the streets on and after Aug. 5.

The Winnipeg Electric Ry., during August entertained several thousands of the children of the city under 12 years of age. The first of the excursions took place Aug. 1, when 10 carloads of children were collected in the north end of the city, taken to Assiniboine Park, and there given an afternoon's enjoyment, finishing up with refreshments and the return ride home. It was estimated that about 10,000 children would be thus entertained by the end of the month.

The Sudbury-Copper Cliff Suburban Electric Railway.

The construction of this railway was commenced July 12, 1915, and it was partly opened for traffic Nov. 11, 1915. The line extends from Sudbury, Ont., at Ramsay Lake, following John, Station, Durham, Cedar, Lisgar and Elm Streets, the last mentioned being the main street, to the outskirts of the town, and thence along the highway by the C.P.R., Sault Ste. Marie Branch, and the Canadian Copper Co.'s property, to Copper Cliff, 6.27 miles. In Sudbury, 0.73 mile of the line has been laid in a 6 in. cement base with vitrified brick on the bitulithic pavement built by the town. The line is laid with 80 lb. T rail on cedar ties at 20 in. centres. Three inch gravel ballast is used and the rails are electrically bonded. The maximum grade is 3½% with practically no curvature outside the towns. There are no bridges and only three timber pile culverts of 15 ft. span. The line crosses the C.P.R. main line on Elm St., on the level, where two solid manganese steel diamonds have been inserted in the track, and gates and interlocking plant installed. The overhead construction in the towns is carried on tubular steel poles with cross spans, and in the country, on wooden poles with brackets. The trolley wire is 4-0 copper, and 600 volt d.c. power is used, being obtained from the Wanapitei Power Co. at 2,300 volt, 3 phase, 60 cycle a.c. The motor generator set at Ramsay Lake consists of one m.p.c. 6 300 k-720 r.p.m. 550/600 volt compound wound d.c. generator, 3 panel switchboard. The company operates three double truck cars, each with seating capacity for 50 persons. The cars are equipped with 4-80 G. E. motors, K6 controllers and Westinghouse air brakes, and are 42 ft. long, weighing about 22 tons.

A half hour service between Sudbury and Copper Cliff is given from 6 a.m. to 12.30 a.m., and a local car runs from Elm St. crossing to Ramsay Lake every 20 minutes. The Ramsay Lake & Copper Cliff fare is 15c. and tickets are sold at 8 for $1. Workmen's tickets are sold in books of 60 for $4.50, good on all cars at all times. The buildings on the line comprise the Copper Cliff station, 18 x 30 ft., and the car barn, with 2 tracks, 40 x 120 ft.

The directors of the company are, President, J. J. Mackey; Vice President, J. H. Morin; Secretary, M. J. Powell; Treasurer and Managing Director, L. O'Connor; and L. Laforest, C. McCrea, M.L.A., and T. E. Smith.

The Buzzer is the name selected for the bulletin being issued by the British Columbia Electric Ry., as a means of communication between the company and the public. Prizes were offered for suggestions and the winning name was sent in by 11 persons, who each received $2. Nine persons each received $1.50 for the suggestion Current Comments, and four persons each received $1.25 for Between the Lines. W. G. Murrin, General Superintendent, selected the name, from 5,041 sent in.

British Columbia Electric Ry. Employes and the War.—Since the commencement of the war in Aug. 1914, 368 employes of the B. C. Electric Ry., and 80 employes of the Western Canada Power Co., have enlisted. Those who return from the front are reinstated as fas as possible, and their applications for reemployment receive preference over all others.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford Municipal Ry.—The residents of the Terrace Hill district have applied to the Brantford City Council to authorize the extension of the electric railway into that district. This extension was promised some years ago by the old company, but was postponed to permit of the building of the Holmedale extension. (May, pg. 200.)

British Columbia Electric Ry.—The New Westminster, B.C., City Council is regrading certain streets one of which is Sixth St., but has not come to an agreement with the B. C. E. Ry. respecting the cost of lowering that company's tracks at the street intersections at the corner of Sixth St. and Fourth Ave. The company claims the line is being operated at a loss, and that it should not be called upon to lower its tracks seeing that the work is to be done purely for the city's benefit.

The first part of the company's freight sheds at the New Westminster water front has been completed and the staff have moved into it. The old shed is to be torn down. It has not yet been decided when the second and final unit of the shed will be built. (June, pg. 242.)

Calgary Municipal Ry.—A proposition to extend the Sarcee military camp line for half a mile has not been approved by the Board of Commissioners. The following letter from T. H. McCauley, Superintendent, was subsequently received by the Commissioners: "As the city does not feel disposed to construct the half-mile loop to the guardhouse at Sarcee, the feeling being that it is too late in the season, I beg to submit to you the following proposition, as a guarantee of my confidence in the proposition, which was recommended for the convenience of the soldiers: I will construct the line immediately at my own expense, turn the operation over to the Returned Veterans' association, accepting 75% of the net profit over all operating expenses, they to receive as a contribution to the fund 25% until the 75% repays me for the cost of the line. After I have received the cost of the line I will then accept 50%, donating 50% to the Returned Veterans' association or club, all subject to the city having the right to take over the line at any time at cost, provided the city loans the extension 2 motors, 2 pairs of wheels and fittings from surplus stock on hand, and supplies power free, representing $2 a day. There would be one fare charged on this and it would have no connection with the present system. This offer is made on behalf of the returned veterans and the soldiers at Sarcee, and considering the liability I am assuming I believe the city should grant the concessions asked, as it would be a feeder to the present line by permitting the soldiers transportation between these points, which they now have to walk, regardless of weather conditions."

Edmonton Radial Ry.—The Board of Railway Commissioners has authorized the Edmonton, Alta., City Council to built its electric railway across the Grand Trunk Pacific Ry. at the intersection of 27th St., between Armstrong and Cochrane Avenues, under the supervision of the G.T.P.R. engineer; and to insert a drawout there, the same to be protected by a half interlocking plant. The question of the maintenance of this plant is reserved for further consideration. (Jan., pg. 30.)

Hamilton, Grimsby and Beamsville Electric Ry.—At a special meeting of the Lincoln County Council, Aug. 11, F. H. Keefer, K.C., Thorold, Ont., was appointed as arbitrator between the county and company in connection with the request for the use of the Queenston and Grimsby shore road, the company's franchise over which expired in February. The county demands $100 a mile through the townships of Clinton and North Grimsby, and $400 a mile through the villages of Grimsby and Beamsville, on a 10-year franchise, but the company does not wish to pay this amount. The Ontario Railway and Municipal Board was unable to act as arbitrators in the dispute.

Lake Erie & Northern Ry.—The Brantford, Ont., City Council granted a permit, Aug. 11, for the erection of the new Union station, an illustrated description of which appeared in our June issue, pg. 240. The estimated cost of the building is $25,000, the contractors being Schultz Bros., Limited. The work of putting in the foundations has been in progress for some time. The permit was issued subject to the company carrying out the Board of Railway Commissioners' award in reference to the transfer of certain lands to the city by the company. The station is to be used by the Hamilton and Brantford Ry. as well as by the L. E. & N. R.

The regular operation of trains on the line into Port Dover by electric power was started Aug. 1. At a meeting of the Port Dover Council, July 31, plans were approved for the bringing of the railway into the town by St. Patrick St. down to a point opposite the park, instead of the proposal of having a Union Station with the G.T.R.. The proposition is being discussed with the company. (Aug., pg. 338.)

London & Port Stanley Ry.—A press report states that plans are under consideration for making the line a double track one. This work and the necessary additional equipment is estimated to cost $500,000. (Aug., pg. 338.)

London & Lake Erie Ry. and Transportation Co.—A press report of Aug. 16 stated that Canadian Northern Ry. officials were inspecting the company's terminals at London and Port Stanley, in connection with a proposal to take over the line. Another report says that while there are negotiations with the C.N.R., both the London St. Ry. Co. and the London Railway Commission operating the London & Port Stanley Ry. are considering the possibility of acquiring the line.

London St. Ry.—A bylaw approving of the arrangement between the city council and the company has been passed. The bylaw grants the company the privilege of operating its cars on Sundays, for one year, and the company agrees to double track the Dundas St. line, to extend the Hamilton Road line to West St., and to make other improvements. The double tracking and the extension are to be counted as new lines within the meaning of the agreement between the parties on the population requirements of the city. The additional works to be done include some pavements, but no other new pavement work is to be asked for this year. (July, pg. 299.)

Montreal Tramways Co.—A dividend of 2½% for the quarter ended June 30 was passed Aug. 1.

Ontario Hydro Electric Railways.—At an executive meeting of the Ontario Toronto, July 25, Sir Adam Beck, Chairman of the Hydro Electric Power Commission of Ontario, is reported to have said that Sir Robert Borden and three other Dominion Cabinet Ministers had assured him that the Dominion would subsidize at the rate of $3,500 a mile, radial electric railways to be built in Ontario under the Commission's direction, provided that the province would give a similar subsidy.

The Ontario Government has passed an order in council authorizing the Hydro Electric Power Commission of Ontario to buy a right of way for a power transmission line from Toronto to Dundas. It will be 100 ft. wide, so as to be available for an electric railway also.

Saskatoon Municipal Ry.—Tenders are under consideration by the Saskatoon, Sask., City Council for the laying of 1,200 ft. of new double track on the provincial bridge at 25th St., the work to be done in conjunction with the paving of the bridge by the Saskatchewan Government, for which tenders are also under consideration. (Aug., pg. 338.)

The Sudbury-Copper Cliff Electric Ry. is considering the question of building two extensions, one from the Sudbury flour mill, which is the present eastern terminus of the line, to the Murray nickel mine, about 4 miles; the other to also start from the Sudbury flour mill and run to the Mond Nickel Co.'s plant at Coniston, about 19 miles. These proposed extensions are said to be principally for the purpose of facilitating accommodation for the employes of different mines so as to make it possible for them to live in Sudbury.

Winnipeg Electric Ry.—It was expected that the double track line from the northern terminus of the city lines to Kildonan Park would be completed and in operation by Aug. 31. The transfer point at the terminus of the city lines will still be maintained for Kildonan Park cars after the double tracking has been finished. Under an order of the Public Utilities Commissioner made about a year ago strip tickets of 4 are now sold on street cars to Kildonan Park for 25c. (Aug., pg. 338.)

Mainly About Electric Railway People.

R. F. Rankine, formerly Treasurer, International Ry., Buffalo, N.Y., died at Niagara Falls, N.Y., recently, aged 54.

Patrick Dubee, Secretary - Treasurer, Montreal Tramways Co., has completed 26 years service with this company and its predecessors.

E. R. Wood, President, Dominion Securities Corporation, Toronto, and a director, Canadian Northern Ry., has been elected President, Buffalo, Lockport & Rochester Ry.

L. McCutcheon, chief clerk to General Freight and Passenger Agent, British Columbia Electric Ry., has resigned to enter Canadian Northern Ry. service.

W. J. Carrique, General Manager Canadian Street Car Advertising Co., died at his summer home at Strathmore, Que., very suddenly, Aug. 14. He was engaged at business in the company's offices at Montreal all day, but had a hemorrhage

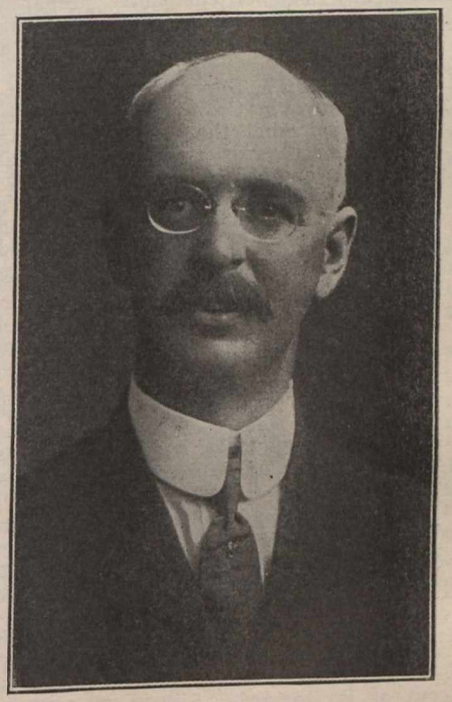
of the stomach after returning home and died in the course of the night. He was born in Halton County, Ont., Aug. 19, 1872, and entered the advertising business, serving as advertising manager of the Hamilton Herald and subsequently of the Ottawa Citizen. He subsequently started the Canadian Street Car Advertising Co., which now controls nearly all the street car advertising in Canada.

E. P. Coleman, whose election as President, Canadian Electric Railway Association, was announced in our last issue, was born at Taunton, Mass., June 14, 1867, and educated at the public schools there. He was from Feb. 9, 1885, to Feb. 9, 1896, in the Hubec Printing Press draughting room at the shops of the Taunton Locomotive Manufacturing Co., with which his father and grandfather had been associated for many years; Jan. 1, 1896, to Sept. 1, 1900, Treasurer and General Manager, Attleboro Steam and Electric Co., Attleboro, Mass.; May 5, 1898, to Mar. 31, 1899, in U. S. service during the Spanish War as Second Lieutenant and Battalion Adjutant, 5th Massachusetts Infantry; July 1, 1899, to Sept. 1, 1900, General Manager, Plymouth Electric Light Co., Plymouth, Mass.; Sept. 1, 1900, to June 1, 1905, Vice President and General Manager, Consolidated Lighting Co., Montpelier, Vt.; June 1, 1905, to Mar. 1, 1907, in practice as consulting engineer, general, electric light, power, railway and quarry work, and Treasurer and Manager, Wetmore and Morse Granite Co., Montpelier, Vt.; Mar. 1, 1907, to Jan. 1, 1909, General Manager, Great Northern Power Co., Duluth, Minn.; Mar. 1, 1909, to Oct. 1912, Manager of Railways, and since Oct,. 1912, General Manager, Dominion Power and Transmission Co., Hamilton, Ont. He has been a member of the executive committee of the association for several years, and was Vice President for 1915-16.

The Ontario Government and Hydro Railway Construction.

Some dissatisfaction is apparent among the member municipalities of the Hydro Electric Radial Railway Association, regarding the delay in preparation for the construction of radial electric railways, for which municipalities have already voted and entered into agreements with the Hydro Electric Commission of Ontario, to build. The executive committee of the association communicated with the Ontario Premier on the subject recently as follows:

"Railway Bill 167, of 1916, has one commendable feature in clause 4, in which the municipal corporations are prohibited from selling publicly owned railways, but outside of this and the legalization of agreements as between the municipalities and the Commission, the act seems to have been entirely uncalled for. While we agree with you that under the present conditions of labor and prices of materials it would be impossible actually to construct railways at this time, we believe, from personal investigation, that there could be no better time to purchase rights of way and complete surveys. It would appear to us that the general effect of the above bill and of other legislation enacted at the last session has been completely to paralyze, for the time being, the hydro electric railway programme, thus not only holding up the project temporarily, but completely defeating the wishes of the Ontario municipalities as evidenced by the tremendous numbers representing these municipalities on the deputation, the enormous majorities piled up in favor of the agreements with the Commission, and the widespread interest and enthusiasm shown on every platform throughout the Province. We would especially call your attention at this time to the many resolutions, memorials and petitions presented to your honorable council during the last two or three years, asking for immediate action in regard to this project. We believe that, while nothing should interfere with the bending of every energy to the successful conclusion of the present war, we should still, at this time, have an eye to the future needs of the Province and prepare for the time when peace is finally concluded. We feel that this can be accomplished in no better way than by the passing of railway bydaws for such lines as the Commission assures us would be profitable, complete the surveys and purchase the rights of way for same so as to be ready to commence construction as soon after the close of the war and the return of our soldiers as may be deemed expedient."



E. P. Coleman
General Manager, Dominion Power and Transmission Co. Ltd., and President, Canadian Electric Railway Association.

It is held that though the Commission has full power to deal with the matter of right of way purchase, it is necessary for an order in Council to be issued before such matters can be financed, and that the Government has indicated that nothing of this kind will be done until the conclusion of the war. The Attorney General stated Aug. 16, that in his judgment, a section of the act permits the Government to authorize the Commission to purchase right of way and do the necessary financing, but if there is a technical defect regarding the issue of bonds by the Commission, to cover the purchase, it would be easy to remedy it by the issue of a special warrant.

London & Port Stanley Ry. Operating Results, Etc.

Sir Adam Beck, speaking at the Irish Benevolent Society's dinner at Port Stanley on Aug. 16, gave the following comparative figures of the operation of the London & Port Stanley Ry. for July 1915 and 1916 respectively:

Passenger revenue	$12,365.95	$24,000.00
Freight and miscellaneous revenue	11,076.00	17,000.00
Incline railway earnings		7,000.00
	$23,441.95	$42,700.00
Operating expenses	$14,659.27	$18,000.00
Fixed charges	5,340.00	7,000.00
	$19,999.27	$25,000.00
Net earnings	$3,442.68	$17,700.00
Passengers carried	63,739	165,074

Sir Adam also made the following statements:—The rates of fare in July, 1916, were 22% lower than in July, 1915, and the rate of wages has been increased 12%. The Pere Marquette Rd., during its last year's lease of the L. & P. S. R., carried 132,699 passengers, while the London Railway Commission for the 12 months just closed carried 548,316. At the January elections the people will have to decide whether they will proceed with the recently evolved plan to double track 12 miles of the road, in order that the greater traffic that is constantly coming to it may be accommodated. More equipment, including motor cars and trailers, are also required. The commissioners propose to erect before next summer a large modern bath house at Port Stanley, out of surplus earnings. Further lavatory accommodation will be provided on the hill, and refreshment booths, under the road's management, will provide for the people at prices that will protect pleasure seekers from being fleeced. Sir Adam is in favor of building a large grain elevator at Port Stanley.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry., and allied companies:—

	June 1916	June 1915	July 1, 1915 to June 30, 1916	July 1, 1914 to June 30, 1915
Gross	$ 529,078	$498,093	$6,602,624	$7,306,563
Expenses	472,679	494,315	5,748,842	5,994,212
Net	56,399	3,778	853,782	1,312,351

The percentage paid to the City of Vancouver, on the gross earnings there during July, was $3,473.68, a decrease of $645.42 as compared with July 1915. The number of passengers carried was 2,242,-448X against 2,325,686 in July 1915.

London Street Ry.—

	June 1916	June 1915
Gross	$40,164.22	$33,301.11
Expenses	28,335.93	23,473.71
Net	11,828.29	9,827.40

Toronto Ry., Toronto and York Radial Ry., and allied companies.—

	June 1916	June 1915	July 1, 1915 to June 30, 1916	July 1, 1914 to June 30, 1915
Gross	$884,491	$787,558	$5,335,199	$4,810,063
Expenses	436,635	388,013	2,735,760	2,540,137
Net	447,856	399,545	2,599,439	2,269,746

Toronto Ry.—

	1916	City percentage	1915	City percentage
Jan.	$473,784	$68,847	$471,226	$70,486
Feb.	470,764	70,614	440,313	66,047
Mar.	518,555	97,237	488,468	93,141
Apr.	496,172	99,234	467,701	93,540
May	500,314	100,063	468,953	93,790
June	467,086	93,417	450,582	90,116
July	469,845	93,969	449,108	89,821
	$3,396,521	$623,381	$3,236,351	$596,941

In accordance with the terms of the trust deed, 79 currency bonds of $1,000 each, issued under the first mortgage, Sept. 1, 1892, were recently drawn for redemption at par with interest to Aug. 31.

Winnipeg Electric Ry.—

	June 1916	June 1915	Jan. 1 to June 30, 1916	Jan. 1 to June 30, 1915
Gross	$254,686	$255,549	$1,701,474	$1,852,256
Expenses	167,115	170,904	1,070,966	1,130,612
Net	87,571	84,645	630,508	621,644

Answers to Questions on Electric Railway Topics.

Following are some questions sent to the American Electric Railway Association's question box, with replies thereto, contributed by Canadian electric railway officials.

Snow Plough Operations.—An unusually heavy fall of snow during the past winter along our lines (interurban) has brought out forcibly certain defects in our snow fighting methods and apparatus. We are anxious to discover how other companies meet similar situations. (a) How should the mould boards of ploughs be designed so as to lift the snow high enough to throw it over the banks that form on the sides of the track? (b) Should not the frames of trucks on snow ploughs be above the journals instead of below? (c) What is the proper clearance for motors on snow ploughs and how is it possible to give such clearance as will avoid impeding the progress of the plough? (d) Has any substitute been found for the rattan, commonly used in sweepers? (e) How can the bottom of the scoop, surrounding the fan in a rotary plough, be prevented from riding on packed snow and so almost lifting the trucks from the rails and stalling the plough. (f) Can a rotary plough be used with thawing snow? We found under these conditions that the fan was not able to throw out the damp snow and consequently stalled until the snow was shovelled away. (g) Have any member companies used apparatus equivalent to the flangers used by steam railways? If so please describe and give details.

M. W. KIRKWOOD, Superintendent, Galt, Preston & Hespeler St. Ry.—(a) Our experience has been that the nose of a plough should have a long gradual slope so as to lift the snow well up before attempting to throw it, otherwise the snow is merely pushed out. (b) We believe the frame of the truck should be above journal boxes rather than below. (c) The motor should be at least 3 to 4 ins. above the top of rail and we allow the bit of snow plough to go within 1 in. of top of rail. This height is governed by 1 in. renewable wearing shoe attached to the under side of the plough bit and allowed to slide on the rail except at frogs and switches. (d) Our experience has been with rattan only, and we are not familiar with any substitute. (e) Do not allow snow to pack above top of rails. (f) Have not had experience with rotary snow ploughs. (g) We have used a flanger similar to the Ray snow flanger, manufactured by Railway Appliance Co., Chicago, with very satisfactory results.

(Considerable information previously sent in response to these questions, by W. G. Murrin, General Superintendent, British Columbia Electric Ry., Vancouver, was reproduced in our August issue, pg. 334.—EDITOR.)

Designation of "One Man" Cars.—It seems desirable that some other term than "one man cars" be used to designate this class of rolling stock. Have members any suggestions?

A. GABOURY, Superintendent, Montreal Tramways Co.—Would suggest "front end" car, signifying that entrance, exit, payment and employe are at that end. Another suggestion may be "pay front" for one man car, the regular car being known as near side car.

Classification Lamps.—Have any member companies used electrically lighted classification or marker lamps? If so, are the lamps lighted from the trolley circuit or a storage battery or a combination of both? When electrically lighted markers are used, is it necessary or desirable to carry an oil lamp in addition?

A. GABOURY, Superintendent, Montreal Thamways Co. Have not used electrically lighted lamps, but would consider oil lamps an essential addition for use in emergency.

Car Mileage Registration.—Have any member companies considered the use of a mechanical device, similar to automobile odometers, for the registration of car mileage? Is such a device desirable?

A. GABOURY, Superintendent, Montreal Tramways Co. Have not used elecsiderable instruction of car men so as to ensure cutting out of the car barn or yard mileage, or pull-in mileage. Clerical labor compiling totals would be as great as in present method, or possibly greater.

Code of Conduct for Platform Men.—Have any member companies prepared anything of this kind to supplement the book of rules, or do they think such a book feasible?

A. GABOURY, Superintendent, Montreal Tramways Co.—We issue a little telling them what the company expects of them as regards discipline, personal appearance and courtesy. This is followed up by personal letters to our men's homes, and periodical talks to them in their stations on the same subjects and on their relations to the public as representatives and salesmen of company.

Electric Railway Notes.

The Guelph Radial Railway, which is owned by the City of Guelph, Ont., has advanced conductors' and motormen's wages 1c an hour, making the minimum wage 23c.

The Sandwich, Windsor and Amherstburg Ry. has recently received 2 single end, single truck city cars, each 21 ft. long, similar to those already in service, from the Preston Car and Coach Co.

The Quebec Ry. Light, Heat & Power Co., during the exceedingly warm weather, gave free rides round the city and out of it towards Sillery, to mothers and children from the congested districts of the city.

The Dominion Power and Transmission Co. has recently received 10 single end, double truck city cars, similar to those already in operation on the company's lines in and about Hamilton, from the Preston Car and Coach Co.

Winnipeg, Man., Electric Ry. employes who have been in the service for 10 years and over, held a "special car" picnic to Selkirk, July 27. There are said to be over 300 of these veteran employes.

The Winnipeg Electric Ry. has agreed with the St. Vital Council that for the future one fare only will be collected from any point in the city to the terminus at St. Vital Road, instead of the double fare heretofore charged.

The Port Arthur Electric Ry. is experimenting with a one-man operated car on its Arthur St. run, with a view to its permanent adoption. The problem is to find out how to get the best service, consequently several different plans for routing the car are being tried.

The London and Port Stanley Ry.'s freight traffic is reported to be steadily increasing. An average of 30 cars a day is being handled from the Marquette and Bessemer car ferry landing at Port Stanley, Ont., and an increasing traffic is being handled from the Michigan Central, Pere Marquette, and Wabash railroads.

Montreal and Toronto people have acquired the controlling interest in the Algiers Ry. and Lighting Co., a subsidiary of the New Orleans, Southern and Grand Isle Ry., Louisiana, U.S. The company's franchise and property was sold under an order of court, the concern being in the hands of a receiver.

The Sarnia, Ont., St. Ry. is arranging a new contract for hydro electric power with the city. It is said that under the new contract, which will be for an increased quantity, the company will pay a higher rate, but there will be a reduction in the amount to be paid for changing plant. Under the existing contract the company was to provide $20,000 for changing machinery.

Montreal Tramways Mutual Benefit Association.

Following are extracts from the report for the year ended April 30:

SUMMARY OF RELIEF WORK.

Members disabled through sickness or injury	1,306
Visits made by physicians to disabled members	639
Consultations given by physicians to disabled members	8,301
Prescriptions issued	6,096
Paid for sickness and injury	$12,548.10
Paid for medicine	1,973.33
Paid for pensions	1,350.00
Paid for withdrawals	668.95
Paid for death and burial insurance	9,233.35

Twenty members died, 1 Mechanical Superintendent, 2 clerks, 1 inspector, 6 conductors, 7 motormen, 1 storage battery attendant, 1 foreman and 1 hillman.

The committee reports the expression of gratitude from the beneficiaries of deceased members for the prompt payment of the death and burial benefits.

During the year 3 members requested to have their benefits commuted, which, was agreed to by the committee.

The committee gratefully acknowledges having received from the Montreal Tramways Co. $14,255.73, which added to the fees and dues received from the members, viz., $16,849.50, and the interest received on investments and bank deposits, amounting to $9,258.37, made a total revenue for the year of $40,363.60, the expenses being $35,210.71, leaving a surplus of $5,152.89.

Montreal Tramways Co's Franchise.

A report upon the recent proposal submitted to the Montreal City Council by E. A. Robert, President Montreal Tramways Co., prepared by city officials was said to be ready for presentation to the Board of Control at the regular meeting, Aug. 21. A bare quorum was present at the meeting, and the report was not brought up. It was decided to ask the company to send representatives to the Board meeting on the following day. On Aug. 22, E. A. Robert, President, and J. L. Perron, Solicitor for the company, were present. When the matter came up it was decided to begin the discussion Aug. 29, and to carry it on every Tuesday and Thursday until completed. $1,000 was voted for a stenographic report of it. The city's traffic engineer was instructed to produce all plans and reports on the tramway situation made in 1914 and 1915; and all public bodies and private individuals interested in the matter were invited to send in suggestions which might help in reaching a solution.

Marine Department

Dominion Government Dredge for St. Lawrence Ship Channel.

The Marine and Fisheries Department is having constructed a twin screw, self propelling centre ladder, combined hopper and barge loading dredger for service on the St. Lawrence ship channel below Quebec. The principal dimensions are as follows:

Length between perpendiculars	284 ft.
Length overall	292 ft.
Depth moulded	20½ ft.
Mean draft with hoppers full	16½ ft.
Dredging depth	57 ft.
Angle of bucket ladder	45 degrees
Angle of discharge chute	25 degrees
Capacity of hoppers	30,000 cu. ft.
Dredging capacity per hour	1,500 tons
Speed per hour	10 knots

The vessel, which will be the largest of its kind in Canada, will be capable of dredging and discharging into steam hopper barges on either side, or into its own hopper, 1,500 tons of material an hour when working at a depth of 57 ft.

The propelling and dredging machinery will consist of 2 sets of triple expansion, inverted, direct acting, surface condensing engines, each with one high pressure and one low pressure cylinder, working on three cranks and each driving a line of propelling shafting or dredging gear as required, fitted with steam reversing gear and all necessary accessories. The dimensions are as follows:

H. p. cylinders	17 in. dia.
I. p. cylinders	27 in. dia.
L. p. cylinders	43 in. dia.
Stroke	27 in.
Two independent air pumps	18 in. dia. x 10 in. stroke
Two vertical single direct acting feed pumps, 9½ in. steam cylinder 7 in. water cylinder, 18 in stroke.	
Two independent centrifugal circulating pumps	7 in. bore
One duplex bilge pump	6 in. steam cylinder, 6 in. water cylinder, 6 in. stroke
Two duplex general service pumps	7 in. steam cylinder, 4½ in. water cylinder, 8 in. stroke

Two marine cylindrical horizontal single ended boilers will be installed, working at a pressure of 180 lbs. a sq. in., each having 4 furnaces and of the following dimensions:

Diameter inside	15 ft. 6 in.
Length of ends at top	11 ft. 6 in.
Furnaces inside dia.	3 ft. 6 in.
Tubes outside dia.	3¼ in.

The furnaces will be of the Morison suspension type.

Each boiler will be fitted with a patent temperature balance. All doors on manholes will be of patent design. The usual water gauges, steam gauges, salinometer cocks, scum pans, safety valves and zinc slabs are fitted in each boiler. An ash ejector of the latest type will be fitted and worked in connection with the general service pump.

The dredging machinery will be of the most improved design and construction, the gear in the engine room being fitted with 2 speeds working from either propelling engine. All wheels will be of cast steel with double helical teeth machined on points and edges. All gearing shafts will be of the best forged steel with large bearing surfaces and collars to prevent lateral motion. The tumblers will be of cast steel, the top one having 5 sides and the bottom one 6. Patent protection boxes will be fitted to the bottom tumbler shaft and special oil connections installed. The rollers will be of cast iron, chilled on the outside having forged steel spindles covered by manganese steel sleeves. The bucket backs will be of cast steel specially designed and constructed. The capacities of the 2 sets will be 30 cu. ft. and 54 cu. ft. for clay and soft material respectively. The shells will be of mild steel and the lips for the smaller bucket will have four teeth. The links will be of forged steel made reversible, and hunting links will be supplied of similar design. The bucket pins will be of forged manganese steel, the heads being square and recessed into side of back. The hoisting gear for the bucket ladder will consist of 2 blocks, each having 5 sheaves 5 ft. in diameter and steel wire rope. Two sets of triple purchase blocks and 6-inch manilla rope falls with all necessary shackles, etc., will be supplied for emergency use. The hoisting engines will be of the vertical double cylinder high pressure type, having cylinders 13 ins. in diameter by 13 ins. dia. by 15 in. stroke geared, to allow for hoisting the ladder at a speed of 10 ft. a minute with steam at 90 lb. pressure. Two powerful mooring winches will be fitted on board, one forward and one aft. These winches will have plain drums for the head and stern wires, and whelped drums for the port and starboard chains arranged to work independently by friction clutches. The hopper space will be divided into 10 divisions each being fitted with a door constructed of white oak, and protected by steel plates, and operated by a heavy winch of the usual hopper door winch design. The lifting gear will consist of chain of heavy scantlings, working over pulleys, fitted on hopper beam and connected to door by eye plates. The hoppers will be fed by two chutes, one forward and one aft, on both sides, each division being filled by the shutting of its directing door which will be of heavy design.

A complete system of electric light will be provided, each room being supplied with the usual fittings and all deck clusters navigating and dredging lights being of the usual requirements. The generating set will be in duplicate, coupled to high speed enclosed forced lubrication compound engines, developing 43 b.h.p. at 50 r.p.m. There will be 2 dynamos, each capable of generating an output of 25 k.w. at 110 volts. The steam steering gear will be in the engine casing and connected to steering column on bridge by chains and controlling rods. The engine will be of the combined hand and steam type. The navigating and dredge masters' bridges will be on main and fore framing respectively, each being fitted out complete with steering column, compass, engine room dredging and winch telegraphs.

The accommodation for officers and men will be very complete, the former being located on the bridge deck, the latter on the lower deck. Each officer will have his own room with the usual fittings in a vessel of this class. The bathrooms, galleys, messrooms, and pantries will be on the bridge deck and all fitted out with due regard to the service intended. The crew will be divided into separate rooms for seamen, firemen, oilers, etc., each room being fitted up with the usual beds, seats, lockers, etc.

A large crane capable of lifting the lower tumbler, or one of the buckets, will be fitted on the forecastle deck so as to be available for overhauling purposes. A large cold storage room will be fitted up with all necessary fittings for the preservation of supplies.

The hull structure will be in excess of Lloyd's requirements for the 100 A.1 class in which the vessel will be registered, and nothing is being spared to add strength and rigidity to the vessel, to resist the heavy stresses which will be brought to bear on the various members during dredging operations. The vessel will be divided into 14 watertight compartments, each being pumped by a separate steam suction. Protection to the shell will be by 2 large fenders extending round the vessel and having vertical fenders between and chafing posts in way of barge moorings. The sanitary, steam heating and water systems will be complete in all details, each room being supplied with all necessary accommodation. The life saving appliances will be in accordance with the latest rules of the Canadian Steamship Inspection Act, and will include 2 life boats, an anchor boat and a dinghy. The fire service will be complete in all details, with full amounts of hose, buckets, hatches, fire extinguishers, etc.

The dredge, the completion of which has been delayed owing to war conditions was designed by Charles Duguid, naval architect, Marine and Fisheries Department is in an advanced stage of construction at the Canadian Vickers works, Montreal, and is expected to be launched during the autumn so that dredging operations can be commenced in the early spring of 1917.

Shipping Documents and Censorship Delays.

Owing to complaints which have been made as to the delay caused by postal censors in dealing with shipping documents passing through the mails, the Port and Transit Committe, Admiralty House, London, Eng., has issued a notice as follows:—"Difficulties are being caused in arranging the removal of goods from docks, wharves and warehouses, by the late delivery of shipping documents, necesssary for customs clearance, sent through the post and therefore passing through the Postal Censors' department. This committee has been in communication with the authorities of the Postal Censors' department, and has arranged, in consultation with them, that if such documents are posted in envelopes distinctly marked as containing shipping documents only, the staff of the Postal Censors' department will endeavor to deal with them with special expedition. Envelopes containing these documents should be clearly marked 'Shipping Documents' by means of a rubber stamp and not by handwriting. Shipping documents are defined to be,—bills of lading with or without drafts, invoices, manifests, parcel receipts and certificates of origin or destination. The enclosure of other correspondence in an envelope so marked is forbidden, and it is essential that this restriction be strictly observed. Any departure from this rule will assuredly cause greater delay."

The Panama Canal Act and Steamboats with Canadian Connections.

The Interstate Commerce Commission has dealt with a number of applications under the Panama Canal Act, covering the operation of certain steamboat lines controlled by railway companies, for extensions of time under which the railway companies can continue to operate or control the steamboat lines, and for declarations that such operations are not in contravention of the Panama Canal Act. Among these companies, are the following, which have connections, directly or indirectly, with Canadian points.

Delaware and Hudson Boat Lines.—The Delaware & Hudson Co. operates a railway between Rouses Point, N.Y., and Wilkes-Barre, Pa., with branch lines into the Adirondacks and elsewhere. It controls the Champlain Transportation Co., through the ownership of practically the whole of the capital stock, and indirectly controls the Lake George Steamboat Co., the former maintaining a service on Lake Champlain, and the latter on Lake George. The Champlain Transportation Co. operates three steamboats, Chateaugay, Ticonderoga and Vermont, all being too large to permit of passage out of the lake by canal, and are primarily engaged in passenger transportation, of which a large proportion consists of tourists, a full service being given during June, July and August. By means of these vessels, the D. & H. Co. competes to some extent with the Rutland Rd. and the Central Vermont Ry. on the east side of the lake, and neither of these companies has asked for through rates and joint rates, and the transportation company has intimated that should either of them ask for such routes and rates, it would be the policy of the company to grant them on a reasonable basis. The freight handled by the vessels may be regarded as negligible. Considered by itself, the operation of the steamboats is not financially successful, and last year they were run at a loss. The facts show that the company's operations are purely incidental to its real relation to the D. & H. Co., which is to provide an alternate route for summer tourists travelling over its rail lines, and are simply a means by which the company is enabled to enlarge its passenger traffic between New York and Montreal and intermediate points. The Lake George Steamboat Co. has three steamboats, Horicon, Mohican and Sagamore, and the passenger traffic there is purely of the summer tourist variety. In the course of the hearing some reference was made to some apparent irregularities in a local rate tariff, involving preference to four individual shippers, and the company undertakes to correct this. The company had doubts as to the Commission's jurisdiction over the Lake George Steamboat Co., on the ground that Lake George is wholly within New York State, but it appeared to be obvious that the company was engaged in interstate business, and apart from that the wording of the Panama Canal Act left no room for controversy on that point. The extension was granted.

Central Vermont Transportation Co.—The Central Vermont Ry. owns the entire stock issue of this company, and over 70% of the C.V.R. stock is owned by the G.T.R. The C.V.R. operates railway lines from St. John's, Que., and Rouses Point, N.Y., through Vermont, Massachusetts and Connecticut to New London, where connection is made with the C. V. T. Co.'s boats for New York City. Some years ago the C.V.R. desiring to build a line from Palmer, Mass., organized the Southern New England Rd. Corporation and the Southern New England Ry. Co., and holds the entire stock of these two corporations. It also caused the C. V. T. Co. to increase its capital stock from $200,000 to $1,000,000, and to have built two combination passenger and freight steamships for operation between New York and Providence. It further guaranteed the principal and interest of $1,000,000 5% gold bonds issued by the C. V. T. Co., of which it has already paid $350,000. The C. V. T. Co. now operates between New York and New London two freight steamers, and has docked at New London, awaiting the completion of the Palmer-Providence line, the two new steamers referred to. For the purposes of this investigation the existing and the proposed boat services may be considered as though operated or proposed to be operated directly by the C.V.R., for while the C. V. T. Co. is a distinct legal entity and has an organization, it has several officers in common with the railway, does no transportation business in its own name, files no tariffs, issues no bills of lading, solicits no traffic, and receives none except such as is delivered to it by the petioner, and handles no funds, its accounts being kept and expenses paid by the railway. It is apparently allowed only sufficient divisions to cover expenses. No dividends have been declared on its stock. The C.V.R. leases pier 29, East River, and pays all of the expenses in connection therewith, and also of solicitation. The traffic handled by the C. V. T. Co. from June 28, 1909, to Feb. 28, 1916, was:—

	From New York Tons	To New York Tons
June 28, 1909, to June 30, 1010..	273,228	85,196
Year ending June 30—		
1911	244,582	88,666
1912	260,660	69,065
1913	288,214	57,375
1914	331,590	58,766
1915	332,623	47,491
July 1, 1915, to Feb. 7, 1916.....	165,673	37,890
Total	1,896,570	444,449

The proportion of this traffic which originated at or was destined to points on the C.V.R. is not shown, but a large portion of it was interchanged with the G. T. R. The decrease in the tonnage to New York is explained to be the result of the cancellation in Sept., 1911, of joint rates, which have been republished since the hearing, between New York and points on the Boston & Maine Rd. This cancellation, it was claimed, caused a loss in revenue of over $100,000 a year, due to the diversion of traffic to other routes. The rates of the water-and-rail route of the C.V.R. and G.T.R. from New York to Chicago, Ill., and other central freight association points were, prior to the recent general increase, lower than the all-rail rates by the following differentials:

Class	1	2	3	4	5	6
Differential	10	8	6	4	4	3

Between C.V.R. stations and New York there are no differentials in favor of the rail-and-water routes. The C.V.R. participates in through routes and joint rates between New York and points on its line in connection with the B. & M. Rd. from South Vernon, Vt., to Springfield, Mass., and the N. Y., N. H. & H. Rd., between the latter point and New York, and to a limited extent in connection with the latter to and from New London. From points south of Brattleboro, Vt., there are no joint rates to or from New York in connection with the New Haven except on such traffic as cannot, because of its nature, move by boat. On forest products and other heavy low grade traffic the C. V. R. also participates in through routes and joint rates from points on its line to New York in connection with the N. Y. C. & H. R. and West Shore Rds. and intermediate carriers. The testimony is that all traffic which can be economically and satisfactorily handled by a rail-and-water route is routed in connection with the boats of the C. V. R. Co. unless specifically directed to the contrary by shippers. At four points on its line the petitioner meets competition from the New Haven, which has both all-rail and rail-and-water routes to New York, and at Norwich, Conn., from the Norwich & New York Propeller Co., an independent line operating a triweekly service in each direction between New York and Norwich and New London. A number of shippers from points on the C.V.R. testified as to the reliability and generally quick and satisfactory character of the service furnished by it. There was no testimony by shippers or others in opposition to the application. There are now two boat lines between New York and New London in addition to the one under consideration. One, operated by the New England Steamship Co., a subsidiary of the New Haven, furnishes a daily service, and, with the other water lines operated by that company and also by the Hartford & New York Transportation Co., another subsidiary of the New Haven, is now the subject of an investigation upon an application under the Panama Canal Act. The other, known as the Chelsea line, is the one above referred to, operated by the Norwich & New York Propeller Co.

The President of the C.V.R. testified that it was its purpose to complete as soon as practicable the line from Palmer to Providence, on which more than $6,000,000 has been expended. Since Aug., 1913, when work was resumed after an interruption, due, it is claimed, to financial difficulties, the expenditures on the portions in Massachusetts and Rhode Island have amounted to $2,612,870.89 and $1,206,642.14, respectively. Providence is now served by three steamer lines to New York, namely, the New England Steamship Co., the Hartford & New York Transportation Co., and a line independent of railway control, the Colonial Navigation Co. The wharves of these three lines are on the east side of the harbor, and the boats of the transportation company will land on the west side. While ordinarily there might be some question as to the wisdom of passing upon an application for permission to install a water service in a case where the date of its inauguration is so uncertain, the Commissioners think that the circumstances and conditions here appearing justify action at this time on that portion of petitioner's application. Upon the inauguration of the New York-Providence service there would seem to be no question but that the petitioner might, in connection with either of its steamer lines, compete with the other, for it would have two rail-and-water routes between New York and points on its own line and on the G.T.R. and its connections. The Commissioners therefore deem it unnecessary to enter into a discussion as to whether or not petitioner does or may compete with the C. V. T. Co. under present conditions. However, in order to maintain a satisfactory route from New York to the west at rates substantially lower than those ap-

plicable via the all-rail routes, it would seem to be necessary for the C.V.R. which serves no large city with its own rails, to operate, or control the operation of, boats between New York and New London; and, if the extension of the rail line to Providence is to have the effect of increasing the value of the route of the C.V.R. and the G.T.R. between New York and the west as a competitive force, it would likewise seem necessary for the petitioner to operate, or control the operation of, boats between New York and Providence. The application was granted.

Boston and Maine Rd.—This application covered the operation of the s.s. Washington on Lake Winnepesaukee in New Hampshire. The traffic carried on is purely a summer one and local. On account of its size, the vessel cannot serve more than 6 of the 32 landing places on the lake, the balance being covered by other independent companies. The company has offered to sell the vessel, but makes a stipulation that the service is to be maintained at its present efficiency for the summer residents. The company also owns the s.s. Lady of the Lake, operating on Lake Memphremagog, situated partly in Vermont and partly in Quebec. This vessel, which is registered in Canada, touches at one port only in the U.S. The B. & M. R., in connection with the C.P.R., publishes a joint fare of $1.75 between Newport and Magog at the head of the lake in Canada, the rail distance being 59 miles. The distance by water is approximately 30 miles and the fare is 85c. There is a competitive company, the Memphemagog Navigation Co., which also serves Newport. No request has been made to the B. & M. R. for through routes and joint fares in connection with that company, and it was intimated that if such request were made, it would be granted. The B. & M. R. has endeavored to sell the vessel, and would do so now, if a purchaser could be found. It was decided that so long as the vessels were operated as at present, they were in the public interest, and the application was granted.

Maine Central Rd.—The company operates a steamboat service from Mount Desert Ferry, Me., to various points on Mount Desert Island and on Frenchmen's Bay, and a similar service from Rockland, Me., to various points in Penobscot Bay, and between Bath and Woolwich on the opposite sides of the Kennebec River. The operation of vessels on the last named route are possibly within the Panama Canal Act technically, but as their continued use by the Maine Central violates none of the provisions, it need not be further considered. The Mount Desert line is run chiefly for the benefit of summer traffic, as is also the Penobscot Bay service, both of which, by themselves, were operated at a loss during 1915. The Eastern Steamship Co., an independent line, runs vessels through Penobscot Bay, calling at the same ports, and it was shown that all the traffic could not be handled by the vessels of either company alone, and that the Eastern Steamship Co.'s service has not been modified since the B. & M. service was inaugurated. The application was granted.

During the continuance of the war. the regulation of the internal traffic in Halifax harbor is under the direction of the Department of Naval Service, as represented by the Captain Superintendent of H. M. C. Dockyard. All masters of vessels, pilots and all other persons concerned must obey the instructions issued by him or his representatives.

The Submersible Vessel Deutschland.

The recent arrival and departure of a German submersible vessel at Baltimore, Md., have occupied considerable space in the daily press, and comments thereon have in many cases been made in sheer ignorance as to the actual value to be placed on such trips. The whole matter should be viewed in its true perspective, and neither magnified into an abnormal achievement, nor minimized into something of no account. If it was intended to prove that it was possible for a vessel to cross the Atlantic under water, then the trip failed, as it was not claimed that the trip was made under water for the whole way, somewhere about one third of the distance being accomplished under water. Apart from this, it is claimed in England with some show of authority that submersible vessels had already crossed the Atlantic, from Canada to England, last year, without fanfare of trumpets. Again, if it is intended to show that blockade running can be successfully carried out by the Germans, the success achieved so far is infinitesimal, and at a really prohibitive cost. Information which has been made public, as to the cargo and of the vessel itself is vague and contradictory, so that it is not possible to build correctly on what has been obtained. Some calculations have been undertaken by Engineering, London, Eng., with the information it had at hand, and these show that submarine navigation with vessels of the type used is a commercial and financial impossibility. Assuming a surface displacement of 2,000 tons, with a length of 300 ft. and 30 ft. beam, with a collective b.h.p. of 2,600, the surface speed would be 14 knots an hour. With these dimensions a deadweight cargo capacity of 800 to 1,000 tons is impossible, and under the most favorable conditions regarding disposition of weight in the vessels and her machinery and stores, a greater cargo than 350 tons could not possibly be carried by a submersible vessel of 2,000 tons surface displacement. The hull, including the ballast keel, water and air service, auxiliaries, electric cables, fittings, etc., will weigh about 1,100 tons. There is of course a difficulty in determining exactly the electrical equipment for propulsion when submerged, and the power available and the speed obtained when submerged, but there is room only for a slight percentage of error. The captain stated that he proceeded 90 miles under water without requiring to charge his accumulators, so that his radius of action is provided by his storage batteries. The machinery, including the main Diesel engines, electric motors, storage batteries and lubricating oil, would approximate 260 tons. The capacity of the fuel oil tanks has been stated as 190 tons. The crew, fresh water, provisions and other stores cannot be put at less than 60 tons. The remaining weight, including trimming ballast, gun and ammunition, which it is stated were carried for protection, may be taken as 30 tons. The total of the weights as given, shows that out of a 2,000 ton surface displacement, there is left only 350 tons as cargo deadweight carrying capacity. The weights allowed give an approximate radius of action of 4,500 nautical miles at 14 knots an hour, and 6,650 nautical miles at 11¼ knots. Assuming the reserve buoyancy as 55% of the surface displacement, the displacement when submerged would be about 3,100 tons.

Stranding of the s.s. Arachne Investigated.

An investigation into the causes of the stranding of the British s.s. Arachne, near Point Plate, Miquelon Island, June 20, was held at Quebec, Que., recently, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Commander E. G. V. Eliott, R.N.R, and Lieutenant J. A. Murray, R.N.R., as nautical assessors. The Arachne was bound from Montreal with a cargo of wheat in bulk and bags. The master, G. R. Sargent, stated that the weather was thick intermittently, and he was on deck continuously, with the officers of the various watches. He believed he heard the horn at Point Plate, but did not know it to be that horn, taking it to come from a sailing vessel, and believing he was on a right course, there was no influence to cause him to go in a different direction. The telegraph remained at full speed until the time of the stranding, but verbal instructions were given to ease off steam, which was done. On seeing a dark shadow ahead, he gave orders for full speed astern, but the vessel grounded. After this orders were given to launch the boats, and soundings were taken when it was shown in his estimation that the vessel had run about one third of her length on the rocks. He came to the conclusion that she could not be refloated without assistance, and proceeded to St. Pierre. On his return 800 tons of grain were jettisoned and 1,200 tons put into lighters, and with the assistance of other vessels his vessel was released eight days after she struck. Evidence of the other officers shows that they accepted the courses given to them by the master, and did not verify them by consulting the chart.

The court decided that in view of the master's conduct, and taking into consideration his long service without accident, also his frank confession of the facts as they occurred, without any attempt at prevarication, it would show its appreciation of such evidence and his long good record, by not retaining his certificate, but censuring and reprimanding him severely for the non-accomplishment of simple navigation principles, which, although ordinary, are necessary. The court also had in mind the scarcity of experienced masters occasioned by the abnormal conditions existing. The court also cautioned the master that he should see that his officers have sufficient ambition to ascertain for themselves that the courses given them are right, for the benefit of all concerned. Regarding the first and second officers, J. E. Turner and E. Evans, who are men of long experience in sailing and steam vessels, the court was astonished to note the lack of ambition displayed on their part, in accepting the information conveyed to them by the officer being relieved, as to the course, without ascertaining if it was one which would carry them safely through the watch, and in view of this lack of interest, they were warned and reprimanded severely. The conduct of the engineers was beyond reproach.

The Robert Reford Co. has been appointed agent for the Compagnie Generale Transatlantique, at Halifax, N.S., in place of S. Cunard & Co., whose shipping agency business there has been taken over.

The British s.s. Athos, which grounded near Trepassey, Nfld., recently, was temporarily repaired there, and then taken to St. John's, where she was docked for overhauling and complete repairs.

Rebuilding the s.s. W. C. Moreland.

There is proceeding at Superior, Wis., a combined new construction and repair job of unusual character. The salvaged stern section of the s.s. W. C. Moreland, wrecked and sunk nearly six years ago, is being repaired at the same time that a new forward end is being built. The two sections will be joined and the rebuilt 600 ft. vessel completed in time to enter the autumn lake trade. The after end was raised five years ago and after fruitless efforts were made to sell it, was again sunk. The same conditions which operated to recall to salt water service many hulks that had apparently sailed for the last time, also gave renewed value this year to this wreck, as it rested on the bottom of Lake Huron. The assurance of an enormous freight movement in 1916, culminating in the autumn when grain shipments begin their eastward journey, resulted in the stern again being raised. After being sold twice, it was placed in drydock at Superior under rush orders to rehabilitate the vessel and to commence the immediate construction of a new bow. The W. C. Moreland was launched originally July 27, 1910, at Lorain, Ohio, and was built for the Johns & Laughlin Steel Co., Pittsburg, Pa. Her original dimensions, which she will maintain in her reconstructed form, were 600 ft. over all, 580 ft. keel, 58 ft. beam and 32 ft. deep. Her carrying capacity was 12,000 tons.

The wreck which condemned her to almost six years of idleness, occurred on her maiden trip. Down bound with a cargo of 10,700 tons of iron ore, she stranded on the rocks at Eagle Harbor, Lake Superior, Oct. 18, 1910. The site of the accident is one of the most dangerous on the lakes, owing to its exposed position. Wreckers were immediately ordered to her, but heavy weather prevented work and she was abandoned by her owner as a constructive total loss on Nov. 2. At the time of the accident, she was the largest vessel ever lost on the lakes. She was broken into three parts. Breaks in the hull occurred at hatches 12 and 24. Following repeated efforts, the Reid Wrecking Co. raised the after portion of the vessel in the autumn of 1911. After being successfully bulkheaded, it was towed to Detroit, in Sep., 1912. The salvaged section was 292 ft. long. Unsuccessful efforts were made to sell the recovered section. With steel selling at the comparatively low prices of 1912, it was cheaper to build a new boat. The wreck, therefore was sunk in shallow water where she rested until last spring. The great increase in steel prices, with consequently higher costs for new vessels, coupled with the enormous demand for tonnage to move the record breaking 1916 freight, united to enhance the value of the salvaged section. R. M. Wolvin, Winnipeg, purchased her and she was raised and placed in drydock at Detroit. A few weeks ago she was towed through Lakes Huron and Superior, past the scene of her wreck, to Superior, Wis., and was sold to Canada Steamship Lines, Ltd. When completed she will sail under Canadian register.

Work on the new bow was begun in February and this section was expected to be launched in August. Work is being pushed on the after end. Both sections is expected to be ready to be placed in drydock at once, when the work of joining them will be started. Every effort is being made to complete the work in time to permit the vessel to participate in the heavy freight movement, and it is expected that she will leave Superior on her initial trip late in September. The refitting of the stern presented some unusual problems in ship yard work, all of which were successfully met. The entire bottom of the after end from frame 125 to the engine room, about 165 ft., including the whole inner bottom construction as well as the hopper sides, was cut out completely. One arch beam or division between hatches was cut out and replaced.

All electrical equipment was replaced, the after deck house was almost completely rebuilt and all woodwork in connection with the cabins was renewed. While about two thirds of the ballast piping in the after section was utilized, it was necessary to remove practically all of it in order to permit reconstruction work on the hull. Most of the plumbing and steam pipes were renewed, the steering engine was overhauled and the steering chains and cables renewed. The boilers and engines were found to be in fairly good condition, but a great amount of overhauling was necessary.

Furness Withy and Co.'s Report.—The report for the year ended Apr. 30, shows profits, including amount brought forward, of £1,528,406 1s 4d., an increase of £743,529 4s 1d over the previous year. The half yearly dividend on the preference shares was paid Nov. 1, and three quarterly dividends of 10% per annum, free of income tax, have also been paid, leaving an available balance of £,346,-531 1s 4d. Of this amount, £350,000 has been transferred to depreciation account, and £300,000 has been allocated to a trade contingency fund, bringing this fund up to £500,000. This fund was inaugurated to strengthen the company's position and in order to meet any competition which may arise after the war. A further £20,000 was appropriated for division among the masters, officers and engineers of the company at the end of the war, and it was decided to pay a bonus of 10% free of income tax on the ordinary shares. After the payment of the foregoing, £395,281 1s 4d was carried forward to the current year's accounts.

Claims re Loss of s.s. Titanic.—Final judgment was delivered in the Federal District Court, New York, July 31, disposing of all the claims against the Oceanic Steam Navigation Co., in connection with the loss of the s.s. Titanic, Apr. 15, 1912. The original claims were about $15,000,000, but were eventually reduced to about $3,000,000. The liability of the company was limited under U.S. statute, to the amount of freight and passenger money collected for the last voyage, and for the value of the lifeboats' salvage. This was estimated by the company to be $117,101, and this was deposited in court. A settlement was subsequently arrived at by which the company paid about $665,000 in settlement of all claims. The judgment held the company guiltless of any privity or knowledge as charged against it, and not liable to any extent for loss arising out of the collision.

The International Mercantile Marine Co.'s earnings for six months ended June 30 were $33,400,000, the earnings for June being $6,900,000. These figures represent the net operating revenue and do not cover the amounts for war tax, interest and depreciation. The war tax for the six months was approximately $12,-400,000. The balance is equivalent to $40.50 a share on the $51,730,000 of preferred stock, or at the rate of $81 a share for the year. The accumulated dividends on the preferred stock amount to $82 a share.

Purchase of St. Lawrence and Chicago Steam Navigation Co. Approved.

At a special meeting of shareholders of Canada Steamship Lines, Ltd., at Montreal, July 27, the purchase of the St. Lawrence & Chicago Steam Navigation Co.'s stock was formally approved. J. W. Norcross, Vice President and General Manager, stated that the opportunity of purchasing the controlling interest in the St. Lawrence & Chicago Steam Navigation Co. presented itself some time ago, but because they could not obtain complete control, the governors of the Canada Steamship Lines' guarantee fund declined to sanction the purchase. Later, a syndicate made up of directors of Canada Steamship Lines, purchased the stock and now proposed to turn over to the company 9,664 shares of the St. L. & C. S. N. Co. at $187.75 a share. In addition to this amount, which represents the purchase price of the shares, the syndicate will receive an amount equal to the net earnings of the St. L. & C. S. N. Co. between Apr. 20 and July 31, the period when the property was in its hands.

A letter was read from E. H. Mussen, Toronto, protesting against tne purchase on the ground that although Canada Steamship Lines had just passed through two years of the most profitable period in the history of navigation, it had only been able to pay one dividend, and that if there was any money to be expended, the shareholders should get some benefit from it. It was explained that the purchase was not being made out of earnings, but on capital account, the money at present being held by a board of governors, it having been received as insurance on lost vessels. Included in the transfer was cash to the extent of $400,000.

Suggested Underwriters' Agent for Newfoundland.—A Newfoundland shipmaster, said to be holding a Government position, has written to a New York shipping paper relative to the desirability of the underwriters appointing an agent in the colony, so as to be in a position to act quickly in case of a wreck. The usual method appears to be to wait the arrival of a surveyor from New York before commencing salvage operations. In many cases the vessel begins to break up before he arrives, and this delay is responsible for the large proportion of total losses along the coast. Naturally, if there was a resident agent with authority to begin salvage operations whenever such are deemed advisable, a material reduction would be experienced by the underwriters in the amounts they would be called upon to pay for total losses.

The s.s. Pere Marquette No. 5, formerly owned and operated by Pere Marquette Line Steamers, Manistee, Mich., has been sold to William N. MacDonald, Sydney, N.S. She is a freight and passenger vessel and was built at West Bay City, Mich., in 1890. She is of oak with diagonal strapping on frames, bow strengthened for ice, wooden arches, bottom sheathed with iron for winter service, windlass between decks with no efficient bulkhead abaft same, complete electric light plant, triple expansion engines with cylinders 19, 30 and 52 ins. diam., by 40 ins. stroke, 1,000 i.h.p. at 84 r.p.m., and supplied with steam by two Scotch boilers 11½ by 11 ft. at 150 lbs. Her dimensions are, length 226 ft., breadth 38 ft., depth 26 ft; tonnage 1,722 gross, 1,296 register.

Depreciation of Vessel Property

At a meeting of the executive committee of the Dominion Marine Association, at Toronto, recently, consideration was given to the Business Profits War Tax Act of 1916, and recommendations were made and forwarded in the form of a letter to the Minister of Finance. These recommendations dealt with the uniformity in returns filed under the act, with particular reference to deductions for depreciation, and the following schedule was suggested:—

(a) For steel built steam lake freighters	3%	per annum on the original cost of new vessels, including only structural additions
(b) Steel built barges	5%	" "
(c) Composite steamers and barges	5%	" "
(d) Wooden steam freighters	7½%	" "
(e) Wooden barges, including schooners	10%	" "
(f) Passenger boats, wooden or steel	7½%	" "
(g) Steel tugs	5%	" "
(h) Wooden tugs	7½%	" "

The resolution points out that this schedule is submitted as a suggestion of what vessel owners consider fair, having due regard to the many conditions governing, and that the association is fully representative of the tonnage on the inland waters of the Dominion, and is actuated by no desire to reduce unduly the contributions its members should make under the act.

Mainly About Marine People.

Aubrey McElhinney, dentist, who died in Ottawa recently, was the second son of the late Capt. M. P. McElhinney, who was on the Marine Department's staff for many years.

Capt. Gow, heretofore Marine Superintendent, Dollar Steamship Co., is reported to have been appointed Superintendent of Loading, Canadian Pacific Ocean Services, Ltd., Vancouver, B.C.

W. H. Fogg, heretofore secretary to Manager, and Stationery Agent, Grand Trunk Pacific Coast Steamship Co., Vancouver, has been appointed chief clerk in Manager's office, with duties as hitherto.

R. Richardson, who has been appointed a sub-lieutenant in the naval motor boat patrol, and has left for England, is a son of H. W. Richardson, of J. Richardson and Son, Kingston, Ont., vessel owners, and Vice President Great Lakes Transportation Co.

Robert D. Keay, General Manager, Yarrows, Limited, Esquimalt, B.C., who died recently, was appointed to that position when the company purchased the B. C. Marine Railways Co., about two years ago. He had been connected with the Yarrows company in England for 18 years prior to that.

Capt. Nilson, who has been appointed Marine Superintendent Coastwise Steamship and Barge Co., Vancouver, B.C., has been with the company since its incorporation in 1912. He was master of the s.s. Amur for some time, and on the company purchasing the s.s. Turret Crown, he was given command of her during her Atlantic coasting charter, and on the completion of that he sailed her to the British Columbia coast, by way of the Panama Canal.

Capt. Hiram Rowe, who died at Collingwood, Ont., Aug. 5, aged 72, was born at Welland, and at an early age took up sailing on tugs and barges on the old Welland Canal. In 1869 he went to Georgian Bay in charge of the tow barge Ontario, in 1870 was appointed mate of the tug Wales, and in 1871 was mate on the s.s. Chicora, which was then sailing on the upper lakes. He subsequently acted as master of a number of tugs and retired in 1875.

Caution to Navigators re Quebec Bridge Construction.—During July the construction of two heavy steel apparatus, which will be suspended from the outer or river side ends of each of the cantilever arms of the uncompleted Quebec Bridge, was begun by the contractors. These apparatus are to be used in connection with the guiding and lifting of the centre span from scows in the river below, which operation is expected to be completed some time before the close of navigation. The maximum clear distance between the north and south apparatus when in vertical position is 636 ft. These apparatus will be a menace to navigation, as they will extend vertically from the ends of the cantilever arms to about 20 ft. above high water. The lower end of each will be marked with a red light, visible from all points of approach, and they will be suspended from the bottom end of the construction as it progresses. The main portion of this apparatus, when completed, will be drawn up shoreward close to the bottom of the cantilever arm, in which position there will be a clearance of 100 ft. above high water. During fog, vessels are specially cautioned to avoid colliding with the above apparatus, which will be supported from the extreme end of each cantilever arm.

Proposed Further Diversion of Water from the Great Lakes.—The Rivers and Harbors Bill, which among other things contained an amendment approving of an expenditure of $5,000,000 by the State of Illinois in connection with the canal from Lake Michigan towards the Mississippi River, and restricting the amount of water to be taken from the Great Lakes, to the amount fixed by the Secretary of War in 1912, came before a joint committee of Congress at Washington, D.C., recently. The committee could not agree as to the restriction of water to be taken, and all reference to it was struck out of the bill, which leaves the matter as it was, except that the Secretary of War has had the matter brought prominently to his attention, and is likely to take steps to prevent the use of more water than was permitted in 1912.

Applications for Power Development in the St. Lawrence River.—The Dominion Marine Association's executive committee, at a recent meeting, passed a resolution calling attention to the application of the Beauharnois Light, Heat & Power Co., for approval of plans for development of power on a large scale in the St. Lawrence River, and to the association's attitude as expressed in previous resolutions that no further power concessions in the St. Lawrence be granted until the whole matter of power development be dealt with, with due regard to the requirements of navigation, and that the association be given an opportunity to consider such plans in detail, and make proposals. Copies of the resolution were forwarded to the Premier and the Minister of Public Works.

The Hudson's Bay Co. has placed its steamship Discovery, which was specially built for Antarctic exploration, at the disposal of the Admiralty, free of all cost, for the rescue of the Shackleton party who were left on Elephant Island.

Canada Steamship Lines Notes.

The s.s. Strathcona, which was in collision with the s.s. Glencoe in British waters recently, has been repaired at Middlesbrough, and is now running on charter between United Kingdom and continental ports.

The s.s. Christopher, owned in Chicago, collided with, and sank the s.s. Topeka, owned in Milwaukee, in the Detroit River, near Sandwich, Aug. 15. The wreck is lying in 30 ft. of water on the Canadian side of the river.

A dividend of 1¾% on the company's preference stock was paid Aug. 1, and it is stated that an additional 1¾% will probably be paid Nov. 1, clearing up the arrears of dividend, and that a full payment of the 7% dividend for the current year will also be made.

The steamship which is under construction for the company at Detroit, Mich., some details of which have already been given, is to be named Sir Trevor, after Sir Trevor Dawson, a member of the company's advisory board in London, England, and who is also associated with Furness, Withy & Co., and Vickers, Ltd.

In commenting on the acquirement of the St. Lawrence & Chicago Steam Navigation Co.'s vessels, By-Water Magazine states that the "Haggerty, Hostler, Matthews and the Iroquis will carry the C. S. L. flag after Aug. 1." The names of the vessels acquired are, J. H. G. Hagarty, E. B. Osler, W. D. Matthews and Iroquois, respectively.

Some figures relative to the recent record cargo of 490,720 bush. of grain brought down from the head of the lakes by the s.s. W. Grant Morden, show that with an average yield of 17 bush. to the acre it would take 28,886 acres to grow the amount, which if all turned into flour would produce approximately 109,050 barrels. In turn, if this flour was made into bread it would make approximately 21,809,000 loaves of 24 oz. each.

The company's new steam tug J. R. Binning arrived in Montreal harbor at the end of July. She was built at the company's yards at Sorel (Sorel Shipbuilding & Coal Co.), and was launched at the end of June. The hull is of oak and the superstructure of pine, and she has accommodation for a crew of eight. Her dimensions are, length 66 ft., breadth 16 ft., depth 10½ ft. She has speed of 11 miles an hour, and is named after the Manager of Furness Withy & Co. at Montreal, who is also a director of Canada Steamship Lines, Ltd.

The Playter Transportation Co., Ltd., has been incorporated under the Ontario Companies Act, with $40,000 authorized capital and office at Owen Sound, to carry on a general steamship and navigation business. The company's officers are:—Morley Lemon, Owen Sound, President; W. T. Moore, Meaford, Vice President; J. G. Telfer, Owen Sound, Secretary-Treasurer; and J. C. Butchard and G. Cleland, and latterly by the Georgian Bay Navigation Co., Owen Sound. She was built at Benton, Mich., in 1889, and was named Mabel Bradshaw. She is of steel, of the hurricane deck type, with dimensions, length 137 ft., breadth 25 ft., depth 16 ft., tonnage 500 gross, 296 register, and she is equipped with fore and aft compound engine with cylinders 16 and 28 ins. diar., by 26 ins. stroke, 250 i.h.p. at 105 r.p.m., and supplied with steam by a boiler of the firebox type, 8 x 12 ft., at 125 lbs.

Canada West Coast Navigation Co. Limited.

Some details of the incorporation of this company and its programme have already been published in Canadian Railway and Marine World. It was incorporated under the Dominion Companies Act with a capital of $2,500,000 and office at Vancouver, B.C. Among those interested are, Jas. Carruthers, J. W. Norcross, Sir Trevor Dawson and M. J. Haney, all connected with Canada Steamship Lines, Ltd.; J. F. M. Stewart, of Lake Commerce Ltd., Toronto; R. M. Wolvin, Winnipeg, and H. W. Brown, formerly associated with the Pittsburg Steamship Co., Pittsburg, Pa. R. M. Wolvin has been elected President, J. F. M. Stewart, Vice President, and H. W. Brown has been appointed General Manager.

The incorporation of the company is an outcome of the British Columbia Government's recent act for aiding shipping and shipbuilding within the province, which, among other things, provides for the payment of a subsidy to the owner of any vessel, or vessels, to the number of 25, built in the province, and operated from any port therein, and returning to any port in the province for reloading. The subsidy is payable in ten annual instalments, the first to be in respect of the first year after the declaration of peace in respect of the present war, and so computed as to bring the net earnings of the ship for the year in respect of which the subsidy is payable, up to 15% on the actual cost thereof, but the actual subsidy payable must never exceed an amount equal to $5 a ton of deadweight cargo capacity in any one year. The subsidy is payable to the bona fide owner of the vessel, or to his assigns who actually operate the vessel, and the subsidy is not liable to attachment or any process of execution, and in the event of conflicting claims, the decision of a commission set up under the act, is binding, and without appeal.

This company has so far placed contracts for the building of eight vessels, six being built at the Wallace Shipyards, North Vancouver, and two by the Cameron-Genoa Mills Shipbuilders, Ltd., Victoria. They are wooden auxiliary motor ships, five masted, and known as the bald headed schooner type, that is, they do not carry any top sails. They will be equipped with two 160 h.p. Bolinders semi-Diesel engines, driving twin screws. The dimensions will be, length over all 255 ft., length of keel 225 ft., depth moulded 21 ft. 4 ins., breadth extreme 44 ft. Their gross tonnage will be about 1,500 tons and their deadweight capacity about 2,500, with a lumber carrying capacity of about 1,500,000 ft. b.m. They will follow the latest and best practice of the builders of United States schooners designed primarily for the lumber trade, and will be of very heavy construction. The plans have been approved by Lloyd's Register of Shipping and they are to be given the highest rating, A.1 for 13 years. This, we are advised, is the first time that Lloyd's have classed any vessels of this type on the Pacific coast. The vessels will be provided with two large hatches and four cargo winches of the latest type, designed for rapid handling of cargo. Vessels of this type carry approximately 50% of their cargo on deck, and they are designed chiefly for the off shore lumber trade. The cost of these vessels complete will be about $175,000. The keels of four of them were laid at North Vancouver recently, and two of them are now in frame. It is expected that the first will be launched about Dec. 1, and completed about six weeks after. Following this, it is expected that they will be turned out at the rate of one each month, the last to be ready for sea by July, 1917. Three of the vessels have been named respectively, Mabel Brown, Geraldine Wolvin and Jessie Norcross. The vessels were designed by J. H. Price, who designed and built the vessel City of Portland, a large auxiliary motor ship, at St. Helens, Ore., which attracted a great deal of attention in marine circles.

Stranding of the s.s. Haulwen

The enquiry into the cause of the stranding of the British s.s. Haulwen in Montreal harbor, June 14, was held at Montreal, Aug. 4, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. F. Nash and J. O. Grey, as nautical assessors. The court found that the vessels' officers were altogether blameless in the matter and that the pilot was solely at fault, as there appeared to be no interference on the master's part. The court expressed the opinion that the grounding of the vessel, which caused no damage, was due to an error of judgment, but not a culpable one. The pilot was therefore censured for not adopting a proper course in anchoring his vessel in such a narrow channel with the current then running, by dropping the starboard anchor instead of the port one when he found the vessel going in the opposite direction to the one in which he wanted her

Atlantic and Pacific Ocean Marine.

The Dollar Steamship Co. has leased the Great Northern dock at Vancouver, B.C., for handling its trans-Pacific traffic.

The Cairn Line s.s. Fremona ran ashore on Anticosti Island, Aug. 1, and was released Aug. 21 and taken to Montreal.

The name of the s.s. Strathhardle, acquired recently by the Dollar Steamship Lintes, Ltd., Victoria, B.C., has been changed to Harold Dollar.

Furness Withy & Co. are reported to have ordered six cargo steamships, each with a dead weight carrying capacity of 8,000 tons, for early delivery.

The s.s. William P. Edwards, until recently operated on the Great Lakes, which has been fitted for ocean service, is loading lumber at Montreal, for Ireland.

The Allan Line steamships Ionian and Scotian, which were requisitioned by the Admiralty in the early part of the war, have been released, and have returned to the Canadian service under Canadian Pacific Ocean Services, Ltd.

The s.s. Minnesota, owned by the Great Northern Pacific Steamship Co., is reported to have been sold to the United States Steamship Co., of which C. W. Morse, at one time President, Eastern Steamship Co., is President.

The New Zealand Shipping Co. has established a service between Wellington, New Zealand, and London, Eng., via the Panama Canal. This company, which also operates to Montreal, formerly ran its vessels round Cape Horn.

The White Star-Dominion Lines' steamships Canada, Northland and Southland, which were requisitioned by the Admiralty in the early stages of the war, for transport service, have been released, and have resumed service on the Canadian route.

A press report from London states that Furness, Withy & Co. has secured a majority interest in the Prince Line, Ltd., of Newcastle-upon-Tyne. The company owns 40 vessels ranging from 2,000 to 6,000 tons each, trading in various parts of the world.

The s.s. Matatua, which was in trouble on Mar. 12 and 13, at St. John, N.B., when fire broke out among her cargo, ran ashore in St. Mary's Bay, Newfoundland, towards the end of July. She is owned by Shaw, Savill and Albion Co., London, Eng., and is under charter by H. R. Goodday & Co., for a cargo of deals from Quebec to England.

List of Steam Vessels Registered in Canada During July, 1916.

No.	Name	Port of Registry	Where and When Built		Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
129491	A.E.McKinstry	Montreal	Glasgow, Scotland	1910	250 4	42 7	18 3	1964	1203	150 sc..	Canada Interlake Line, Toronto
126199	E.A.Shores, Jr.	Windsor, Ont.	Cheboygen, Wis	1892	162 0	34 0	11 0	593	310	70 sc..	J. G. Mullen, Amherstburg, Ont.
118615	Meaford	Toronto	Wallsend, Eng.	1903	248 9	42 0	20 6	1889	1210	225 sc..	Farrar Transportation Co., Toronto

List of Sailing Vessels and Barges Registered in Canada During July, 1916.

No.	Name	Port of Registry	Rig	Where and When Built		Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
138243	Asquith	Lunenburg, N.S.	Schr.	Bridgewater, N.S.	1916	126 4	31 4	11 5	271	Asquith Shipping Co., Ltd., Lunenburg, N.S.
138242	Atacama	" "	"	Mahone Bay, N.S.	1916	102 6	26 2	10 2	96	J. Ernst & Son, Ltd., Mahone Bay, N.S.
137885	Doris L. Corkum	" "	"	Shelburne, N.S	1915	109 0	26 2	10 6	99	Harold Corkum, LaHave, N.S.
113878	DuchessofCornwall	Sydney	"	Burgeo, Nfld.	1901	105 0	25 6	10 4	129	Robert Moulton, Ltd., St. John's, Nfld.
138202	Edith M. Cavel	Shelburne		Shelburne, N.S.	1916	107 2	26 2	10 4	134	George Penny, Ramea, Nfld.
138222	J. G. Rene	Montreal	Barge	Sorel, Que.	1916	197 5	36 7	15 2	870	A. A. Larocque, Montreal.

The s.s. Glenellah, formerly operated on the Great Lakes, and which is now running in trans-Atlantic service, under the management of Furness, Withy & Co., sailed from Quebec about the middle of August, for England, with a cargo of 2,500 tons of Canadian whiskey.

The repairs carried out on the British s.s. Arachne, which ran ashore on Miquelon Island recently, and which were carried out at Levis, are reported to have cost $55,000. The chief damage was in holds 1 and 2, where 72 plates were renewed.

A Vancouver press report states that Canadian Pacific Ocean Services, Ltd., has chartered the British s.s. Moskwa for service between Vancouver and Vladivostock. Considerable traffic is taking place between these two ports, and it is stated that the C.P.O.S. has under charter the steamships Unkia Maru 5, Strinda and Arabien, for this service.

The Japanese s.s. Kenkon Maru 3, which was floated off the Belle Chain reef, Mayne Island, recently, after being wrecked there, Jan. 12, was salved by the Vancouver Dredging and Salvage Co.,and towed to Esquimalt for examination. The contract for repairing the vessel has been awarded to a Seattle firm, who have sublet it to one of the yards at Portland, Ore. The cost of the repairs is stated to be $170,000, the work to be completed in 65 days. Temporary repairs to the hull were made at Esquimalt, and the vessel sailed for Portland, Aug. 2.

Canadian Pacific Ocean Services Ltd. has recently added a motor lifeboat of novel design to the life saving equipment of one of its steamships. It is 30 ft. long by 9 ft. broad by 4 ft. deep, and has a double skin of diagonal planking. The space below the water line is filled with air tanks, and extra buoyancy is obtained by means of a cork fender, while a cast iron keel makes the boat self righting. The engine is of the three cylinder type of 22½ b.h.p. developed on petroleum, and 25 b.h.p. on petrol. It can be started on paraffin and changed to petrol, or started on petrol and changed in three minutes to paraffin. All controls are led to a position aft of the water-tight engine housing, and it can be operated by one man. A speed of 8 knots an hour can be obtained and there is a margin of power for towing other life boats.

Maritime Provinces and Newfoundland.

An order in council has been passed approving amendments to the bylaws of the pilotage district of Miramichi, N.B., relating to pilotage dues.

The Maritime & Newfoundland Steamship Co. has libelled the s.s. Arachne, which stranded recently at Birds Rocks, Little Miquelon, for $75,000 for salvage services.

The Reid Newfoundland Co., which is now operating the s.s. Sibyl on the Cabot Strait route, has had her equipped with wireless telegraphy, so that she will be able to carry passengers as well as mails and freight.

The Cupica Co., organized recently in St. John's, Nfld., has purchased the Norwegian auxiliary vessel Cupica, which is 226 ft. long, 36 ft. wide and 23 ft. deep, with a deadweight carrying capacity of 1,900 tons. She is equipped with twin cylinder auxiliary engine.

The Norwegian s.s. Sandefjord, which ran ashore at Sydney Mines, N.S., Aug. 12, was floated off on the following day, and sailed into Sydney under her own steam. She had a cargo of 10,000 tons of iron ore, a portion of which was jettisoned before she could be refloated.

A three masted schooner of 350 tons was launched at Lunenburg, N.S., at the end of July, for the Hillcrest Shipping Co. She is said to be the largest vessel of this type to be built in the neighborhood, and is to be engaged in the foreign shipping trade, under the management of Zwicker & Co.

The steamboat Mary Jane, which is being offered for sale, is owned by I. H. Mathers & Son, Halifax, N.S. She was built at Noank, Conn., in 1890, and is screw driven by engine of 10 n.h.p. Her dimensions are, length 49.8 ft., breadth 14.6 ft., depth 6.4 ft.; tonnage, 29 gross, 20 register.

The Department of Naval Service received tenders recently for the purchase of the three masted schooner Burleigh. She was built at Shelburne, N.S., in 1904, and is equipped with a 40 h.p. auxiliary gasoline engine. Her dimensions are, length 101 ft., breadth 25½ ft., depth 10 ft. 8 ins.; tonnage, 149 gross, 130 register.

The s.s. Lintrose, formerly owned by the Reid Newfoundland Co., and operated on the Sydney and Port aux Basques route, and whilh was sold to the Russian Government about a year ago, is reported to have been lost last winter in the White Sea. It is said that she ran on a rock, and when pulled off, sank in 18 fathoms of water.

The lightship on Lurcher Shoal, off Yarmouth, N.S., was removed during August for repairs. Pending their completion the station has been marked with a combined gas and whistling buoy, painted red, with an occulting white light, and a submarine bell buoy painted red. It is expected that the lightship will be replaced during September.

The s.s. Samuel Blandford, en route from New York to St. John's, Nfld., with coal, struck on the Main Keys at Cape St. Marys, Nfld., in a dense fog, early in August and became a total wreck. She was built at Quebec in 1872, as a private yacht for the Allan Line, and was later engaged in the mail service between Halifax and St. John's, and again in the local seal fishery. About two years ago she was used in the coal trade, and was later acquired by Job Bros. & Co., and repaired and refitted for seal fishing.

The Montreal Transportation Co.'s s.s. Stormount, which stranded on Gull Ledge, near Marie Joseph, June 20, when en route from Philadelphia to Sydney, N.S., under charter to the Dominion Coal Co., has been abandoned, all efforts to release her having failed. She was built at Dumbarton, Scotland, in 1907, and was screw driven by engine of 202 n.h.p. Her dimensions were, length 249.1 ft., breadth 42.6 ft., depth 20.6 ft; tonnage, 1,955 gross, 1,231 register. The Wreck Commissioner's judgment in the investigation relative to her loss was given in our last issue.

The Halifax Graving Dock Co.'s report for 1915 show a gross profit of £23,877 18s 6d, and there is an available balance of £21,669 5s 2d after providing for London office expenses, accrued income tax, etc. The balance has been disposed of as follows,—Depreciation £797 3s 7d, deferred maintenance £2,000, machinery renewal fund £1,000, provision for current income tax £2,049 7s. 2d. 7% debenture interest £9,141 13s 8d, mortgage debenture stock redemption fund £6,681 0s 9d. The report states that owing to the dock having been continuously occupied during the year, it was not possible to carry out certain repair work. They have therefore reserved out of the profits £2,000 for deferred maintenance. The negotiations with the Dominion Government concerning extensions to the property have been suspended owing to the war.

The Norwegian s.s. Borghild, which arrived at Halifax, N.S., Aug. 14, with the crew of the fishing schooner Oriole, which she sunk in collision, has been libelled by the owners of the schooner, and separately by the crew and the captain, on claims of $26,000, $10,000, and $770 respectively, for loss and damages, Relatives of three members of the crew, whose lives were lost, also claim $22,000.

The s.s. City of Ghent, registered as owned by W. A. Beattie, Pictou, N.S., is reported to have been sold to British parties for £700 more than she originally cost. She was built at Great Grimsby, Eng., in 1871, and is screw driven by en-

Saulte Ste. Marie Canals Traffic.

The llowing commerce passed through the Saulte Ste. Marie Canals during July.

ARTICLES			CANADIAN CANAL	U. S. CANAL	TOTAL
Copper	Eastbound	Short tons	2,063	11,684	14,047
Grain	"	Bushels	7,092,623	6,256,490	13,349,113
Building stone	"	Short tons	.....	.....	.....
Flour	"	Barrels	508,750	964,471	1,473,221
Iron ore	"	Short tons	1,801,188	7,770,986	9,572,174
Pig iron	"	"	.....	2,800	2,800
Lumber	"	ft. b.m.	483	52,604	53,087
Wheat	"	Bushels	12,899,570	19,008,233	31,907,803
General merchandise	"	Short tons	7,384	37,009	44,393
Passengers	"	Number	4,021	3,059	7,080
Coal, hard	Westbound	Short tons	9,780	357,190	366,900
Coal, soft	"	"	170,080	2,190,882	2,360,962
Flour	"	Barrels	12,960	.....	12,960
Grain	"	Bushels	.....	1,550	1,550
Manufactured iron	"	Short tons	836	19,266	20,102
Iron ore	"	"	10,894	1,008	11,.872
Salt	"	Barrels	10,500	75,482	85,982
General merchandise	"	Short tons	58,320	137,653	195,973
Passengers	"	Number	3,892	3,551	7,443
SUMMARY					
Vessel passages		Number	1,093	2,845	3,938
Registered tonnage		Net	1,959,736	8,318,783	10,278,519
Freight—Eastbound		Short tons	2,376,833	8,701,618	11,078,451
—Westbound		"	252,606	2,717,347	2,969,953
Total freight		"	2,629,439	11,418,965	14,048,404

gine of 40 n.h.p., and her dimensions are, length 135.9 ft., breadth 20.4 ft., depth 9,7 ft., tonnage, 199 gross, 119 register. She has been lying idle at Halifax for about three years.

Province of Quebec Marine.

Work at the Davie dry dock and shipbuilding plant at Lauzon, was suspended, Aug. 16, owing to a strike of workmen, who demanded an increase of 5c an hour. The present rate of pay is 30c an hour.

The St. Charles Navigation Co., Ltd., has been incorporated under the Quebec Companies Act, with $10,000 authorized capital and office at Quebec, Que., to own and operate steam and other vessels and to carry on a general navigation business.

The Quebec Shipbuilding & Repair Co., Ltd., has been incorporated under the Dominion Companies Act, with $40,000 authorized capital, and office at Montreal, to carry on the business of shipbuilders, and in connection therewith to build, own and operate steam and other vessels, etc.

The Upper Ottawa Improvement Co.'s paddle wheel steamboat G. B. Greene was burned at her dock at Quyon, Que., July 27, four of the crew losing their lives. She was built at Quyon in 1896, and was equipped with engine of 125 n.h.p. Her dimensions were, length 142 ft., breadth 44.8 ft., depth 8 ft.; tonnage, 225 gross, 218 register.

The Dominion Government s.s. Montmagny, which was sunk in the St. Lawrence River, near the Isle of Orleans, about a year ago, has been sold by public tender, as she lies under water, to the St. Charles Navigation Co., incorporated recently at Quebec, for $25,000. The Levis Wrecking Co. had a contract to raise the vessel some time ago, but the attempt was unsuccessful. When built, the Montmagny was valued at $100,000.

Ontario and the Great Lakes.

The Dominion Public Works Department will receive tenders to Sept. 8, for repairs to the east pier at Port Burwell.

The Farrar Transportation Co., Ltd., Toronto, paid on Aug. 1 a special dividend of 20% from its operations to July 1.

The A. B. Mackay Steamship Co., Ltd., has been incorporated under the Ontario Companies Act, with $40,000 authorized capital, and office at Hamilton, to take over two steamships acquired recently by A. B. Mackay, Hamilton.

A. B. Mackay, formerly of R. O. & A. B. Mackay, steamship owners, Hamilton, has purchased the s.s. Natironco, formerly Pioneer, built at Detroit, Mich., in 1892. She is equipped with engine of 146 n.h.p., driving a screw. Her dimensions are, length 225 ft., breadth 35 ft., depth 13.7 ft.; tonnage, 1,079 gross, 542 register. She was owned by the National Steamship Co., associated with the National Iron Works, Ltd., Toronto, but has been operated under Canada Steamship Lines management for some time.

The Lake Simcoe Navigation Co.'s s.s. Otonabee was burned and became a total loss, at Barrie, Aug. 15, when a considerable amount of damage was also done to the wharf and nearby buildings. The company owns and operates the steamboats Monarch and Otonabee, between Barrie and Peninsular Park, on Lake Simcoe. The Otonabee was built at Peterborough in 1907, and was screw driven by engine of 21 n.h.p. Her dimensions were, length 111.2 ft., breadth 24 ft., depth 5.6 ft., tonnage, 136 gross, 87 register. She was formerly owned by the Peterborough Navigation Co., Peterborough.

The U. S. Federal Court at Chicago, Ill., on Aug. 18, issued a temporary restraining order to prevent the sale of the nine vessels comprising the Great Lakes and St. Lawrence Transportation Co.'s fleet to the French Government. The complaint, on behalf of the Scranton Coal Co., stated that it was announced that five of the vessels were at Montreal waiting clearance papers for Havre, property of the French Government, and if this were permitted, the complainant would be without means to ship its coal. The company owns nine steel vessels, named A. D. Davidson, Albert M. Marshall, George G. Howe, H. G. Dalton, John Crerar, John Lambert, J. S. Keefe, Robert Wallace, and S. N. Parent.

It is announced that salvage work on the s.s. Charles S. Price, one of the steamships which was lost in Lake Huron in the great storm of Nov., 1913, has been definitely abandoned. It is stated that the man in charge of the preliminary operations has said that after having thoroughly explored the hull he was convinced that it would be impossible to float it without spending a very large amount, and there would be nothing but scrap to show for it. The interior of the vessel looks as though the boiler had exploded, the aft bulkhead is pushed forward and the machinery is wrecked and pushed towards the stern. The aft section is so badly damaged that it would be impossible to make any repairs under water. The aft and forward cabin sections are flat, and part of the machinery is resting on the lake bottom.

The Northern Navigation Co.'s s.s. Saronic was completely burned at Cockburn Island, Lake Huron, Aug. 21, when bound to Port McNicoll with a cargo of wheat. The crew escaped from the vessel in two boats. The Saronic was built at Sarnia, Ont., in 1882, and was formerly known as United Empire. The hull was of oak, and she was of the awning deck type, with two watertight and two non-watertight bulkheads, wooden arches, bow sheathed for ice, windlass between decks with no efficient bulkhead abaft same, and fitted with electric light. She was equipped with fore and aft compound engine with cylinders 34 and 60 ins. diar. by 42 ins. stroke, 1,200 i.h.p. at 75 r.p.m., and supplied with steam by two Scotch boilers 12 by 12 ft., at 100 lbs. Her dimensions were, length, 245 ft., breadth 36 ft., depth 23 ft., tonnage, 1,960 gross, 1,296 register.

The Plunkett Navigation Co., the incorporation of which was announced in recent issues, is operating the s.s. James W. Follette, formerly owned by W. H. Follette, Tonawanda, N.Y. She is in charge of Capt. Harry Redfern, with John McFaul as chief engineer. The officers of the company are: President, A. J. Punkett; Vice President, G. J. Plunkett; Secretary-Treasurer and General Manager, G. J. Madden, Cobourg, Ont. The s.s. James W. Follette was built at Gibraltar, Mich., in 1881, and is of wood, with well deck, diagonal strapping on frames, wooden arches, iron lined boiler house, and was originally named Jesse H. Farwell. Her dimensions are, length 212 ft., breadth 35 ft., depth 12 ft.; tonnage, 756 gross, 538 register. She is equipped with fore and aft compound engine with cylinders 27 and 44 ins. diam. by 40 ins. stroke, 600 i.h.p., at 72 r.p.m., and supplied with steam by boiler of the firebox type 10 by 16 ft., at 125 lbs.

British Columbia and Pacific Coast.

The C.P.R. s.s. Princess Sophia has been overhauled and some general hull and engine room repairs made.

The C.P.R. s.s. Princess Victoria was docked at Esquimalt recently and thoroughly cleaned and painted and had a number of miscellaneous repairs carried out on her hull and engines.

The Pacific Coast Steamship Co.'s steamships Governor and President, which were withdrawn from service recently owing to the longshoremen's strike, resumed their calls at Victoria during August.

The contract for the construction of a concrete lighthouse tower, fog alarm building and dwelling house, at Triple Island, Brown Passage, is reported to have been awarded by the Marine Department to Snyder Bros. and Brethour, Vancouver.

The C.P.R. s.s. Princess Maquinna, which was docked at Esquimalt recently for survey and temporary bottom repairs, due to touching ground at the mouth of the Skeena river, has had a complete overhauling and two propeller blades replaced, and has returned to service.

The s.s. Turret Crown, owned by the Coastwise Steamship & Barge Co., Vancouver, and in operation between Tacoma, Wash., Vancouver and Anyox, was formerly owned by Mackenzie, Mann & Co. interests at Toronto, and was operated for some years in the lake trade, and latterly in the St. Lawrence and coast coal trade. She was delivered to her present owners at Quebec in Nov., 1915, and was then overhauled and equipped as an oil burner at Perth Amboy, N.J. Before going to the Pacific coast she was under charter in the sugar trade between New York and the West Indies. She was built at Sunderland, Eng., in 1895, and is screw driven by engine of 250 n.h.p. Her dimensions are, length 253 ft., breadth 44 ft., depth 19.4 ft.; tonnage, 1,827 gross, 1,142 register.

It is reported that such progress has been made on the outer harbor works at Victoria, that it is probable the work will be completed by the end of the year. Divers are working on the submarine foundations of the last length of 85 ft. of the breakwater. The construction of the pier to the westward of the breakwater, at Ogden Point, is also being hurried along. Of the total of 53 crib sections required for this structure, 42 have been laid, and the remainder, it is expected, will be laid by the end of October. Within the next few weeks the construction of the superstructure on piers 2 and 3 will be commenced, and the piers will probably be completed early in the new year. The contractors for the breakwater are Sir John Jackson (Canada) Ltd., and for the piers, Grant Smith & MacDonnell Ltd.

Vessels Turning in the Rivers at Fort William. — This matter, reference to which was made in our August issue, has been followed up by the Dominion Marine Association, with the view of showing that the order compelling vessels to go into one of the turning basins at Fort William, when making a turn, works an unnecessary hardship on canal sized vessels, without corresponding advantage. The question is being considered by officers of the departments concerned, but for the present they have recommended that the regulation stand unchanged, so that all steamships over 200 tons must go to the turning basins.

Harbor Improvement Scheme at Vancouver.

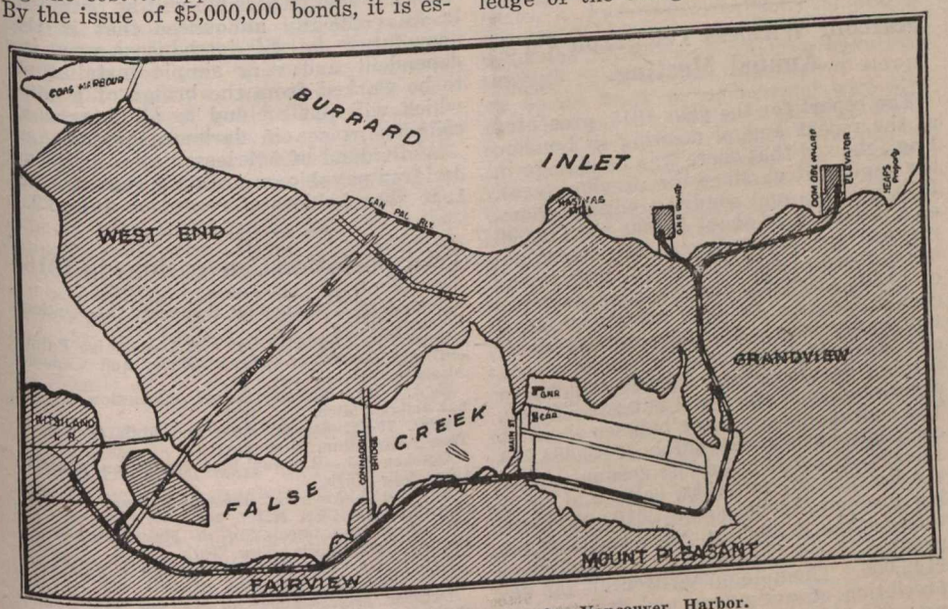
The Vancouver Harbor Commissioners have outlined a scheme of improvement for Vancouver harbor, extending over five years, at an estimated expenditure of $5,000,000. Among the properties which it is stated it would be necessary to acquire to carry out the scheme, are, the Kitsilano Indian reserve, 80 acres, $700,000; property at Port Moody, 88 acres, $550,000; the Heaps property on Burrard Inlet, 16¾ acres, $650,000; right of way for a harbor terminal railway from the Kitsilano Indian reserve to the Heaps property, $1,552,861; a portion of the Pacific Great Eastern Ry. right of way, $516,627; and wharf property and warehouses owned by the Great Northern Ry., and the waterfront property immediately east of the G.N.R. property, $1,800,000. The approximate total cost of the property thus to be acquired is $5,769,128. It is expected that the Harbor Commissioners will be able to effect exchanges for other lands which they hold, thus reducing the cost to approximately $2,448,834. By the issue of $5,000,000 bonds, it is estimated that approximately $1,500,000 will be available for the development of the harbor properties and the provision of facilities. The proposal and plans were submitted to the Marine Department and the scheme has been recommended for approval, and the commissioners are confident that it will be self supporting from the start. Some opposition to the scheme has developed, it being urged that the commissioners have not given the public necessary information, nor the time to think over the proposal. On behalf of the opposition, which consists chiefly of the Board of Trade, the Manufacturers Association and the shipping interests in general, it is urged that it will impose a heavy burden on the port and that it will not pay, and that the prices mentioned for the properties proposed to be acquired are far too high. The commissioners argue that each unit of the scheme will be revenue producing, that the project will not come on the port, that the prices quoted for properties are maximum estimates, and that actual prices paid will be lower. The accompanying plan shows the route of the proposed harbor terminal railway along the front connecting the Kitsilano reserve with the Heaps property.

The Harbor Commission was incorporated May 16, 1913, with jurisdiction over the harbor, which includes Burrard Inlet, with the North Arm and Port Moody, False Creek and English Bay, and all other tidal waters east of a line drawn from the Point Atkinson lighthouse southerly to the most westerly point of Point Grey. The commission consists of C. Carter-Cotton, Chairman, formerly editor of the News-Advertiser, salary, $2,000; J. A. Fullerton, formerly in C.P.R. service in connection with its trans-Pacific steamships; and S. McClay, interested in the stone business, salary, each, $1,500. Early in 1914, the commission's bylaws were approved by the Governor General in council. They authorized the commission to make certain charges against vessels using the port. Prior to this, Vancouver had been practically a free port, apart from certain charges made by private dock owners. local associations connected with shipping claimed that they had no prior knowledge of the charges to be imposed, nor any opportunity to express their views thereon. The charges for the port of Vancouver are as follows:—

Pilotage in and out $1 per ft. and 1c. a ton; sick mariners' dues at 1½c. a net registered ton, five times a year; harbor dues 3c. a net registered ton, five time a year.

These rates worked out for a specific vessel, show charges of $239 for Vancouver, and the following for two other Canadian ports and three U.S. ports,—Quebec, $354.94; Montreal, $479.94; San Francisco, $625.20; Portland, Ore., $483.20, and Seattle $455.95.

Some figures as to the tonnage handled at Vancouver show that for the year ended Mar. 31, the total tonnage paying wharfage was somewhat under 300,000 tons, compared with about 500,000 tons for the year ended Mar. 31, 1913, and that on the 1916 figures the commissioners are not justified in proceeding with such a large scheme. The commissioners are firm in the idea that they should plan for the future, and that in a short time sufficient shipping will come through the port to justify new piers and warehouses, and also that the provision of cheap industrial sites will attract manufacturers, all of which will be in the interests of the port.



Map of Proposed Terminal Railway for Vancouver Harbor.

Stranding of the s.s. Tyne.

An investigation into the causes of the stranding of the British s.s. Tyne on Twelve Foot Patch, Old Proprietor Island, Grand Manan, N.B., July 23, was held at St. John, N.B., recently, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. A. J. Mulcahy and Jas. Hayes, as nautical assessors. The court found that the master, H. W. Robson, did not adopt all the prudence required in navigating his vessel, taking into consideration the fact that he was a stranger to those waters and that he sailed from a port outward bound with a state of atmosphere which prevented him from seeing a very great distance and, owing to the direction of the wind, he should have anticipated that it would become denser. He committed two grave errors of judgment, first, left port without streaming his log, no matter what its condition, and second, in assuming that he was a mile or mile and a half off Ile Haute when he passed it. Some time before the stranding, a cast of the lead showed 100 fathoms, a few hours later 27 fathoms were found, and the vessel proceeded at half speed until another cast of the lead showed 8 fathoms, when she was stopped although the engines were not reversed. The master erred greatly in not going full speed astern the moment he found 27 fathoms, which indicated that the water was shallowing rapidly. It was felt that the master's certificate should be dealt with, but after taking into consideration the honesty displayed in giving his evidence, as it was quite apparent that he did not endeavor to hide any particulars or any of his shortcomings, and the able manner in which he succeeded in getting his vessel off the rocks, from which few vessels have hitherto escaped after striking, and also considering the shortage of masters and officers under present conditions, the court thought the justice of the case would be met by reprimanding and severely censuring the master for failing to adopt the precautionary measures mentioned. and did not attach any blame to the officers.

Stranding of the s.s. Middleham Castle.

The stranding of the British s.s. Middleham Castle on Matane reef, Que., July 27, was enquired into at Montreal, Aug. 3, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. F. Nash and J. O. Grey, as nautical assessors. After hearing the evidence the court expressed itself as handicapped, owing to existing conditions, in dealing with the certificate of the master, J. A. Kelly, with the severity the case demanded, and concluded the judgment as follows:—"Here we have a master ordered to come to Canadian waters, which are absolutely unknown to him. He stopped at Sydney, where he endeavored to secure some charts, but obtained for navigating his ship up the River St. Lawrence a chart of American publication. Without any sailing directions, not conversant with the tides and currents prevailing in this river, he ventured to sail his vessel within ¾ mile of head lands, which are really low points of land the same as other points along his course, which the court considers a foolhardy operation, and otherwise termed too close sailing. This ship is ready to sail, in fact, the sailing date has been delayed for this investigation to be held. If the court carried out its impression it would suspend the mas-

ter's certificate for two months for this reckless navigation; but by doing so it would expose the vessel to some delay in obtaining another master, and it would appear that the masters available today may not think fit to take command of this vessel, which is bound to a place in Europe with a cargo consigned to the Admiralty, containing provisions or ammunition for the Allies. This peculiar position prevents the court from acting as it would otherwise do, and therefore it will meet the situation as it is by severely censuring the master for venturesome navigation in unknown waters, without having first surrounded himself with the necessary information. The Third Officer, who was on the bridge at the time, is exonerated from all blame, as he took the courses from the master. The court has noted that the log books have been well kept, and noticed as well that the compass was increasing its error on the courses being steered, for some time past, which should have awakened the master to the necessity of giving the coast line on these courses a wider margin. With this reprimand goes the caution to the master to be more prudent and not hazard property entrusted to his care in the manner in which he did in this instance."

Telegraph, Telephone and Cable Matters.

The Great North Western Telegraph Co. has been ordered by the Board of Railway Commissioners to restore telegraph tolls charged prior to July 1, from Pas, Man., and to file amendment to its tariff accordingly.

The Marconi Wireless Telegraph Co. has established a school of wireless telegraphy at Montreal, equipped with a complete dummy system arranged for a radius of 400 miles. It is in charge of D. P. R. Coats, who has had considerable experience as a Marconi operator.

The Western Union Telegraph Co.'s new cable repair vessel, Lord Kelvin, was at Halifax, N.S., recently, on her first trip to that port. She is of the most modern type for her class of work, burns oil fuel, and is equipped with the most up to date machinery for locating, raising and testing cables.

The arbitration board appointed to deal with the Great North Western Telegraph Co.'s operators' application for increases of wages of about 15%, is as follows:—Judge C. T. Snider, chairman; F. H. McGuigan, Toronto, formerly Vice President, G.T.R., representing the company, and D. Campbell, Winnipeg, on behalf of the operators.

A. C. Fraser, Superintendent of Telegraphs, Eastern Lines, C.P.R., who was in Halifax, N.S., recently, is reported to have stated that the C.P.R. had completed a new copper line to the Marconi station at Louisburg, thus giving the company a new line for Marconi business, from Louisburg to Montreal, the one used previously for this traffic being released for other business.

It is reported that the Dominion Government has engaged P. E. Edelman, St. Paul, Minn., to prepare plans for wireless telephone and telegraph systems to secure communication with the Dominion parks in the west. The installations will, it is said, be the first of their kind, and a new application of radio communication, the equipment being of a special design adapted for the difficult mountain service.

The Great North Western Telegraph Co. has opened offices at Little Metis Beach, Manoir Richelieu, Pointe au Pic, and Perthuis, Que.; Barriefield Camp, Bobcaygeon, Chaffeys Iocks, Dwight, Grimsby Beach, Kemptville, Lake Joseph, Milford Bay, Muskoka Lakes, Petewawa Camp, Rosseau, Royal Muskoka Hotel and Sparrow Lake, Ont., and Sangudo, Alta. The offices at St. Andre de Kamouraska, Que., Colebrook, Ont., and Brule Lake and Cardiff, Alta., have been closed.

A. G. Saylor, General Manager, Eastern Division, Western Union Telegraph Co., New York, New York, who retires Sept. 1, on pension, was born at Bloomfield, Ont., June 11, 1859, and entered Dominion Telegraph Co.'s service at 10 years of age, as a messenger at Ingersoll, Ont. Two years later he was appointed operator at Walkerton, Ont., and after a year of service with the Montreal Telegraph Co. at the Parliament Buildings and at the Montreal main office, he was appointed night operator, G.T.R., at Portland, Me. He subsequently entered the Atlantic & Pacific Telegraph Co.'s service, and later joined the Western Union Telegraph Co., and remained there until his retirement. He was appointed General Superintendent, Eastern Division, Mar. 1, 1910, and the title was shortly after changed to General Manager.

Marconi Wireless Telegraph Co's Annual Meeting.

The report for the year 1915, presented at the recent annual meeting in London, Eng., showed that there was no change in the capital stock since the previous year. Bills payable and sundry creditors showed a reduction of about £8,000 and £16,000 respectively, and the general reserve account stood at £967,530 0s 6d, an increase of about £100,000. Other increases were, cash at bankers, £20,000; investments and temporary loans, £173,500; sundry debtors, debit balances and expenditures on foreign developments, £23,000; shares in associated companies and patents £23,000. The shares appear in the balance sheet at cost, but have a par value of £2,484,369 14s 10d. The profit and loss account shows the balance of contracts, sales and trading account, to be some £210,000 more than in the preceding year, and the net profit £377,817 12s 1d, an increase of some £145,000. The amount written off for depreciation of exchanges and investments was £53,000. Business during the year can scarcely be considered as normal. A considerable amount of work should have been undertaken in various parts of the world, but for the war, but against this there were many additional orders from British and allied countries. On account of the war, the associated companies have not been able to make the progress which they otherwise would have done. The trans-Atlantic service with the United States, which was ready for working when war commenced, has had to continue idle, the British stations remaining under Government control. The programme in connection with the Canadian company has had to remain in abeyance. During the war, the British Government has made considerable use of the company's patents, compensation for which will be matter for negotiation, as also will be compensation for the use of stations and the system generally.

During the year, G. Marconi, G.C.V.O., has been engaged in research work in Italy, where he carried out some important improvements and tests. The results obtained were far reaching and directly concerned with the future practice of wireless telegraphy and wireless telephony over long and short distances, no matter whether conducted by means of ordinary sparks, quenched sparks or continuous waves, and it is believed that results hitherto impossible will be obtained. It was officially announced that in the near future he will introduce a new, independent and very simple installation, to be worked from the bridge of a ship, which will put an end to all danger of collision at sea in darkness or fog.

A dividend of 5% less income tax was declared payable on ordinary shares, Aug. 1, to shareholders of record on June 29.

Transportation Conventions in 1916.

Sept. 5 to 8.—Traveling Engineers' Association, Chicago, Ill.

Sept. 12-14.—Master Car and Locomotive Painters' Association of United States and Canada, Atlantic City, N.Y.

Sept. 12-14.—Railway Signal Association, Mackinac Island, Mich.

Sept. 19-22.—Roadmasters and Maintenance of Way Association, New York.

October 3-5.—Railway Fire Protection Association, New York.

Oct. 9-13.—American Electric Railway Association, Atlantic City, N.J.

October 10.—Association of Manufacturers of Chilled Car Wheels, New York.

Oct. 17, 18.—American Association of Passenger Traffic Officers, Washington, D.C.

October 17-19.—American Railway Bridge and Building Association, New Orleans, La.

October 17-19.—Maintenance of Way and Master Painters' Association of the United States and Canada, Philadelphia, Pa.

Oct. 18-20.—Society of Railway Financial Officers, Washington, D.C.

Oct. 19-21.—American Association of Dining Car Superintendents, New Orleans, La.