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The Economics of Electric Operation of Railways.

By W. G. Gordon, Transportation Engineer, Canadian General Electric Co.

Much has been written descriptive of the different railways now operating electrically, wholly or in part, and of the results as compared with steam operation. I will present some of the latest figures regarding the economies effected by electric operation. At the American Institute of Electrical Engineers convention last year, E. W. Rice said:—"Electric locomotives have been so improved and simplified that they are competent to haul the heaviest train that can be held together with the present train construction; to operate at the highest speed permissible by the alignment of the road and independent of its grades; and the electric locomotives can meet, in the most efficient and adequate manner, the transportation problems confronting the country, and offer better results than are now obtained or seem possible with steam locomotives. It should not be forgotten that steam locomotives burn about 25% of the entire coal mined in the United States, and that 12% of the entire ton mileage movement of freight and passengers carried, is represented in cars and tenders required to haul coal to supply steam for the locomotives." This percentage is shown from the following table (1) of one year's ton mile movement:

	Millions ton miles	Per cent. of total
Revenue coal	204,600	12.56
Railway coal	52,000	4.96
Revenue freight	372,040	35.60
Railway freight	5,600	0.55
Locomotives	148,200	14.20
Locomotive tenders	74,630	7.14
Passenger cars	186,890	17.90
	1,043,960	100.00

The comparative percentages for the different classifications are very close to those given above for the operation of our steam railways in Canada.

Where a trunk line is electrically operated from water power stations, it means that the total movement for railway coal and locomotive tenders is eliminated, and even if partially or wholly operated from steam power stations, the movement for locomotive tenders is eliminated, and the movement for railway coal greatly decreased. The benefit is self evident, of being able to apply this ton mileage, at present absorbed by steam operation, in the movement of revenue tonnage.

The cost of maintenance of the electric locomotive is very much less than that of the steam locomotive. Table 2 gives the cost of maintenance in cents per locomotive mile for a number of roads, these costs being for the years they have been operating electrically to 1917, inclusive. The costs are given for an average of 5 years for 3 roads, and average of 4 years for 2 roads and an average of 2 years for the Chicago, Milwaukee & St. Paul Ry. The average locomotive weight in tons is given for each road, and in order to obtain a comparison, I have given the cost also on the basis of the locomotives weighing 100 tons in each case.

Table 2. Cost of Maintenance of Electric Locomotives.

Road.	Average loco. wt. in tons.	Average maint. per loco. mile.	Average maint. on basis of loco. weighing 100 tons.	No. of years.
Baltimore & Ohio Rd.	98	5.13	5.24	5
Butte, Anaconda & Pacific Ry.	80	5.66	7.08	4
Chicago, Milwaukee & St. Paul Ry.	290	8.94	3.09	2
Michigan Central Rd.	108	4.39	4.06	4
New York Central Rd.	118	4.12	3.5	5
Pennsylvania Rd.	156	5.3	3.4	5
General average		5.59	4.39	

The cost of maintenance per locomotive mile for steam locomotives, compared with the above, will be from 10c to 20c or higher, depending on the capacity and service of the locomotive.

A very interesting comparison is given in Table 3, showing comparative results between steam and electric operation on the Butte, Anaconda & Pacific Rd. In 1913 the operation was entirely steam; since then it has been gradually superseded by electric. The figures for electric operation are averaged for 3 years, and as there was still a considerable amount of steam operation during these 3 years, the figures do not show full credit to the benefit of electric operation.

Table 3. Comparative Results, Steam and Electric Operation, B. A. & P. Rd.

	Steam 1913	Electric average for 3 yrs.	Saving in amount	Elec. Operation %
Fuel & power	\$294,850	175,165	119,665	40.59
Loco. repairs	97,492	57,881	39,611	40.61
Loco. men. wages	99,611	74,036	25,575	25.67
Loco. house expenses	28,342	16,703	11,639	41.06
Lubricants	9,345	5,444	3,901	41.76
Water	4,491	2,084	2,407	53.59
Other supplies	5,435	4,308	1,127	20.74
Total.	\$539,546	\$335,621	\$203,925	37.80
Revenue ton miles hauled	153,168,648	169,553,405	16,384,757	10.70

Table 3 shows a saving in electric operation of 37.8%, and at the same time an increase in the revenue ton miles hauled of 10.7%. Had this increased ton miles been hauled in 1913, the total cost would have been \$597,277, so that the actual saving in electric operation is 44%. On this road 17 electric locomotives were in operation in 1914, 24 in 1916, and at present there are 28.

Where mountain divisions are electrically operated, a further marked economy is effected by regenerative braking. This is obtained by exciting the fields of the motors on the locomotive on down grades, so that the counter electro-motive force builds up higher than the line voltage, and returns power to the line, this action retarding the train to whatever extent desired, without the use of the air brakes, as well as supplying power to other trains running on the level, or up grades. This action, of course, reduces the total demand on the substations, with consequent reduction in the power demand on the primary source of supply.

Table 4 which shows the saving thus obtained on the Chicago, Milwaukee & St. Paul Ry. is the result of careful tests just worked up by General Electric Co.'s engineers.

The above results are of extreme interest. The runs were taken in both directions, over the total electrified distance of 437.6 miles, with trains as high as 2,853 tons trailing load, giving a general average in watt hours per ton mile, without regenerative braking, of 24.06; and with regenerative braking of 19.72; or a reduction in power due to regenerative braking of 18.04%. As a direct result of regenerative braking, a large saving is effected in brake shoe wear, apart from the elimination of wrecks caused by overheating of the brake shoes, brake heads and wheels, where heavy trains are handled on long down grades. The air brakes are only required for emergency, as the braking is all done by the locomotive. It has been estimated that on the Chicago, Milwaukee & St. Paul Ry. the saving per

Table 4. Chicago, Milwaukee & St. Paul Ry. Tests. Watt Hours Per Ton Mile.

Preliminary calculation made from watt-hour meter reading taken on locomotives. This calculation includes ton mileage of road and helper locomotives.								
Run no.	No. of cars	Trailing tonnage	Ton miles trip includ'g locos.	With Reg. Brak. Kw. hrs. for trip	W. hr. ton mi.	Without Reg. Brak. Kw. hrs. for trip	W. hr. ton mi.	
Missoula Division—211.2 miles.								
3	Avery to Deer Lodge...	57-56	2497-2457	596485	15068	25.23	16432	27.55
7	Avery to Deer Lodge...	58	2767	656516	17207	26.20	18374	27.97
10	Avery to Deer Lodge...	61-60	2836-2796	665505	17971	27.00	19622	29.48
6	Deer Lodge to Avery...	62	2383	575436	6943	12.05	8927	15.51
9	Deer Lodge to Avery...	82	2853	674700	9344	13.85	11618	17.24
Average Values.								
Avery to Deer Lodge...					26.14		28.35	
Deer Lodge to Avery...					12.95		16.37	
Round trip average Missoula Division					19.54		22.35	
Rocky Mountain Division—226.4 miles.								
4	Deer Lodge to Harlowton	58-56	2539-2466	637367	10392	16.30	15141	23.75
11	Deer Lodge to Harlowton	60	2817	712518	12155	17.06	17405	24.42
5	Harlowton to Deer Lodge	67	2264	588640	14654	24.90	16792	23.52
12	Harlowton to Deer Lodge	64	2762	700021	14929	21.32	18498	26.40
Average Values.								
Deer Lodge to Harlowton					16.68		24.08	
Harlowton to Deer Lodge					23.11		27.46	
Round trip average Rocky Mt. Div.					19.89		25.77	
General average					19.72		24.06	
Reduction in power due to regeneration						18.04%		

year in brake shoe wear alone is close to \$200,000. On the Denver & Rio Grande Rd. 4% grade, between Soldier Summit and Tucker, the instructions are with steam operation not to exceed 8 to 10 miles an hour, and to stop every 5 to 7 miles, for from 15 to 30 minutes, to cool brake shoes and wheels. Under these conditions the energy dissipated between each brake shoe and wheel may be as high as 20 h.p., so it is readily seen that even on much easier grades of long extent the brake shoe wear, with steam operation, is a serious factor of expense.

The steam locomotive is a power plant, which, owing to physical limitations, can attain only a certain capacity and efficiency. On the other hand, the electric locomotive, itself very efficient, can draw any amount of power desired from a system fed by hydro electric plants, or highly efficient steam electric plants. The continuous draw bar pull of the electric locomotive is limited only by the strength

10 miles per hour. Curves are given for 3 of the 6 running speeds of the electric locomotive. At 16 miles an hour the continuous tractive effort which the electric locomotive can exert is greater than that of either of the steam locomotives, while at about 35 miles an hour the continuous tractive effort of the electric locomotive is more than three times the tractive effort of the consolidation.

With regard to collection of current, experience has shown that with the slider type of pantograph 1,000 amperes can be taken sparklessly from a single trolley wire. Using 2 trolley wires suspended side by side, as on the Chicago, Milwaukee & St. Paul Ry., 2,000 amperes can be collected. This at 3,000 volts is 6,000 k.w., or over 8,000 h.p. As there is no sparking, the wear on the trolley wire is exceedingly slight, as may be judged from the fact that here in Canada we are getting a life of from 10,000 to 12,000 miles from a single wearing strip on the panto-

graph. now available for substation operation, it can be confidently asserted that the substation equipment is now 99% efficient.

The question of load factor on the power supply lines of the Chicago, Milwaukee & St. Paul Ry. electrification is of considerable importance, since the price of energy per k.w. hour is based upon an assumed load factor of 60%. In case the ratio of the average to the maximum load is less than this amount, the price is somewhat higher. Because of the desirability of maintaining a relatively high load factor, there has been designed and installed, a power limiting and indicating system, which automatically limits the maximum load to certain predetermined peaks, and also indicates to the dispatcher the exact amount of power which the whole system is receiving at any instant. This apparatus is installed in the dispatcher's office at Deer Lodge, and in each of the substations, which are connected to the main office by pilot wires. Two totalizing k.w. meters are located over the dispatcher's desk, indicating respectively the amount of power being drawn by the 200 miles east and the 220 miles west. By means of the pilot wire control, acting upon the motor-generator sets in the substations, the trolley voltage is reduced temporarily on the overloaded substations, so that the total k.w. consumption on the totalizing meters never exceeds the predetermined maximum. By careful dispatching, it is thus possible to keep the maximum load within reasonable limits, without materially slowing up the movement of trains.

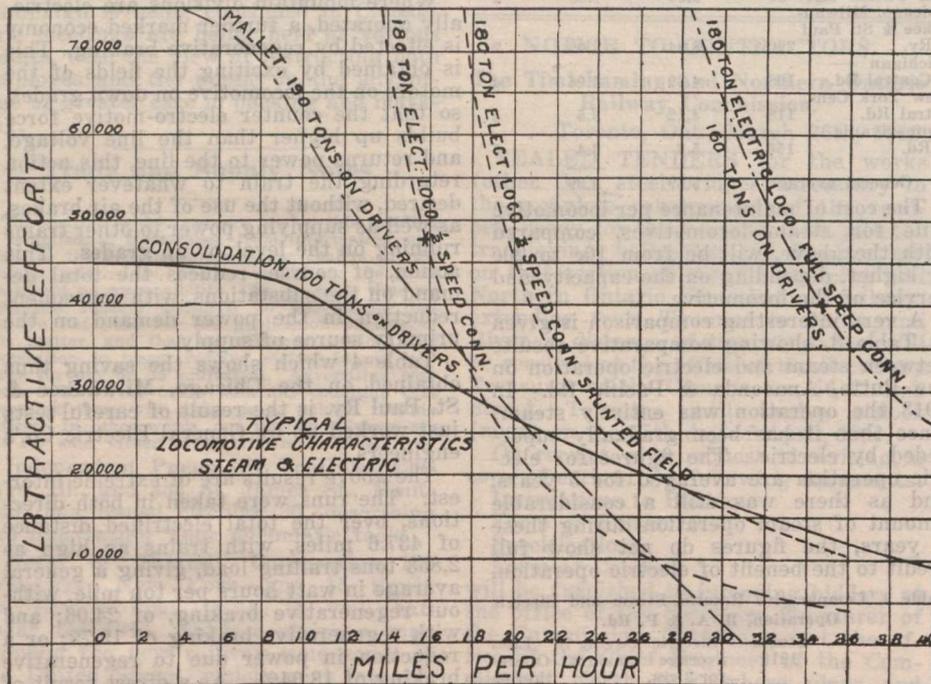
As to the reliability of the modern electric locomotive for continuous service, the returns for 1918 just made public by the New York Central Rd. show that the locomotives were inspected after each 3,000 miles of running and that they averaged 33,000 miles per detention.

In changing to electric operation there is practically no upsetting of the regular steam organization, as the locomotive crews, under instruction, readily become highly efficient in the operation of electric locomotives.

Proposed Bridge over St. Lawrence River at Montreal.

Some of the municipalities on the south shore of the River St. Lawrence, opposite Montreal, have taken up recently the question of securing the building of a bridge across the St. Lawrence between Montreal and the south shore, crossing St. Helens Island. A plan, issued by the Montreal Harbor Commissioners in 1914, showed such a bridge, as part of the proposed works in connection with the harbor improvements, provision to be made for steam and electric railway, vehicular and foot traffic. We are advised that no plans have been prepared for the bridge, nor has any charter been applied for. So far the Harbor Commissioners have not given any consideration to the construction of the bridge, but it is felt by south shore municipalities that it should be built in the near future to give them better access to Montreal, it being claimed that the G.T.R. Victoria bridge is congested. A deputation from the south shore municipalities waited on the Canadian National Rys. directors in Toronto recently, to enlist their co-operation.

The Winnipeg Board of Trade has established a Traffic Department, in charge of P. G. Denison, to give service to members of the board.



Typical Locomotive Characteristics, Steam and Electric.

of the draft rigging on the cars. By series, and various series-parallel combinations of the motors, a wide range of running speeds can be obtained, without rheostatic losses. This range can be further varied by shunting the motor fields. Due to the power input available, draw bar pulls can be maintained at speeds impossible with steam locomotives. This means that over any line, trains of heavier tonnage can be hauled at a much better schedule speed than with steam locomotives. In the case where a single track steam line has reached its capacity, and would have to be double tracked to handle increased ton mileage, electric operation will obviate the necessity of double tracking, and permit of a large expanse in ton mileage handled. The accompanying curve sheet giving typical locomotive characteristics, steam and electric, shows a comparison of pounds tractive effort, at various speeds, of 2 steam locomotives, a Mallet with 190 tons on drivers, and a consolidation with 100 tons on drivers, with an electric locomotive having 160 tons on drivers. It will be noted that the tractive effort of the Mallet drops off rapidly above 8 miles an hour, while the tractive effort of the consolidation drops off steadily, though not so rapidly, above

graph. As regards substations, a further decided economy is now credited to electric operation, through the perfection of automatic control. One serious operating condition was the flashing over of the generators from some short circuit outside the station. This might be severe enough to necessitate cleaning up the brush rigging and commutators. Continuity of operation required an attendant at each substation, while the generating sets were in operation. This trouble has been entirely overcome by the use of a high speed circuit breaker, which will open a short circuit, of many times the normal full load value of the generators, in less than eight thousandths of a second. With the further use of flash barriers on the commutators, flashing over of direct current generators is absolutely eliminated. With automatic control, the sets are stopped and started through the voltage drop reaching a definite value at any point on the system. In addition to doing away with substation attendants, this also improves the all-day efficiency of the generator sets, as they are shut down during periods where they are not automatically started up to maintain the line voltage at a fixed value. With the refinements

Canadian Pacific Railway Company's Annual Report.

The C.P.R.'s annual report has been issued over President E. W. Beatty's signature as follows:—

The accounts for the year ended Dec. 31, 1918, show the following results:—

Gross earnings.....	\$157,537,698.05	
Working expenses.....	123,035,310.38	
Net earnings.....	\$ 34,502,387.67	
Deduct fixed charges.....	10,177,512.98	
Surplus	\$ 24,324,874.69	
Contribution to pension fund.....	500,000.00	
	\$ 23,824,874.69	
Deduct net earnings of commercial telegraph, Jan. and Feb., transferred to special income acct.....	193,976.64	
	\$ 23,630,898.05	
From this there has been charged a half-yearly dividend on preference stock of 2%, paid Oct. 1, 1918	\$1,613,638.42	
And three quarterly dividends on ordinary stock of 1 3/4% each, paid June 29, Oct. 1 and Dec. 31, 1918	13,650,000.00	15,263,638.42
		\$ 8,367,259.63
From this there has been declared a second half-yearly dividend on preference stock, payable April 1, 1919	\$1,613,638.42	
And a fourth annual dividend on ordinary stock of 1 3/4% payable April 1, 1919	4,550,000.00	6,163,638.42
Leaving net surplus for the year (which amount has been placed taxes imposed by Dominion in reserve to meet special Government.	\$ 2,203,621.21	
In addition to the above dividends on ordinary stock, 3% was paid from special income.		
Special Income for the year ended Dec. 31, 1918.		
Bal. at Dec. 31, 1917	\$15,785,750.86	
Less: dividend paid Apr. 1, 1918.....	1,950,000.00	
	\$13,835,750.86	
Net revenue from investments and available resources.....	1,928,483.50	
Interest on deposits, and interest and dividends on other securities	2,779,854.22	
Net earnings ocean and coastal steamship lines.....	1,214,869.22	
Net earnings commercial telegraph and news department, rentals and miscellaneous	2,205,544.57	
	\$21,964,502.37	
Less: payments to shareholders in dividends: June 29, Oct. 1, and Dec. 31, 1918.....	5,850,000.00	
	\$16,114,502.37	
From this a dividend has been declared payable Apr. 1 1919.....	\$ 1,950,000.00	

The working expenses for the year were 78.10% of the gross earnings, and the net earnings 21.90%, compared with 69.46 and 30.54% respectively in 1917.

There were no sales during the year of 4% consolidated debenture stock, 4% preference stock, or other capital securities.

In consequence of the provisions of the order of the Governor General in council passed in Mar., 1918, imposing special taxes upon the company, the net surplus from railway operations for the year has been placed in reserve to meet such special taxes, and a notation to that effect appears in the accounts.

The sales of agricultural land in the year were 842,191 acres for \$15,375,996, an average of \$18.25 an acre. Included in this area were 64,424 acres of irrigated land which brought \$42.94 an acre, so that the average price of the balance was \$16.22 an acre.

Pursuant to the policy adopted by your directors in 1916, 100 farms for returned soldiers and qualified men have already been placed on a number of them. In your directors' opinion it is desirable that the company should continue, as conditions warrant, the preparation of farms and the sale of them on favorable terms to soldiers who have served in the Canadian or Imperial forces and to Canadians who have served in the allied armies.

At the outbreak of hostilities your company had in commission in Atlantic and Pacific service 38 steamships, with an aggregate gross tonnage of 342,000 tons. Since Aug., 1914, the construction of 4 steamships previously authorized, having a gross tonnage of 54,000 tons, has been completed, and 12 steamships of 69,000 gross tonnage have, in the same period, been purchased. During the war 15 steamships were lost by enemy action or through accidents at sea, and 9 have been sold to the British Admiralty, after having been requisitioned. The construction at the Fairfield Shipbuilding Co's yards of a ship 625 ft. long between perpendiculars, having a gross tonnage of 21,000 tons, is to be proceeded with pursuant to the authorization previously given, and three passenger ships of what is known as the intermediate class, for Atlantic service, two of which have been previously authorized, will be put under construction as soon as possible at John Brown & Son and the Fairfield Shipbuilding Co's yards. At the end of the fiscal year your company had in ocean service 28 steamships having a gross tonnage of 264,000 tons, and 6 steamships under order or purchased but not delivered having a gross tonnage of about 80,000 tons. On their delivery the total tonnage of the fleet will be slightly in excess of aggregate tonnage of the vessels in commission on Aug. 3, 1914.

In May, 1918, in consequence of the demands for increases in wages made to the United States Railroad Administration, substantial increases in all wage scales on U.S. lines were authorized, and were accompanied by increases in freight and passenger rates. Demands for wage increases were likewise made in Canada, and, by orders in council, passed under the War Measures Act in July, 1918, what is known as the McAdoo scale of wages was made effective in Canada, and increases in freight rates generally similar to those granted in the U.S. were made effective on all Canadian railways.

There will be submitted for your consideration and approval a lease of the Kaslo and Slocan Ry., extending from a junction with the Whitewater Creek Branch of the Nakusp and Slocan Ry. at Retallack to Kaslo, B.C., a distance of 17.7 miles, the control of which was secured by your company with your approval under agreement with the Province of British Columbia in 1912. With your approval the directors in 1893 concluded an agreement for the leasing of Nakusp and Slocan Ry. at a rental of 40% of the gross earnings. Bonds of the Nakusp and Slocan Ry. Co. for £132,960 were issued, guaranteed as to principal and interest by the Province of British Columbia and matured on July 1, 1918. The rental paid by this company has not been sufficient to pay the interest on the bonds, and \$321,698 had been advanced by the province for this pur-

pose up to Dec. 31, 1917. The lease of Nakusp and Slocan Ry. will expire in 1920, and during its existence your company has expended very substantial amounts in necessary betterments and improvements. In consequence of representations made by the B.C. Government your directors have agreed to the purchase by the company from the government of Nakusp and Slocan Ry. Co's. bonds to the above amount at the actual cost to the province of acquiring them, but not exceeding their face value, upon conditions which involve the extinguishing of all claims of the province against the railway. All the issued capital stock of the Nakusp and Slocan Ry. Co. is held by your company, and the arrangement is, in the opinion of your directors, warranted by the value of the railway as a traffic contributor to your company's system.

Subject to your approval your directors have concluded an agreement with the Grand Trunk Pacific Ry. Co. providing for the use by that company of your company's railway from a point east of Sutherland to a point west of Saskatoon, together with the use of your company's passenger, express, and freight facilities at Saskatoon station. The agreement is for 21 years from Sept. 2, 1918, the rental payable by the G.T.P. being based upon interest at the rate of 5% per annum on half the agreed capital account and the payment of maintenance expenses on a wheelage basis.

You will be asked to sanction the issue and sale of consolidated debenture stock to defray the cost of construction of the portion of the Moose Jaw Southwesterly Branch from mileage 35 to mileage 66, to an amount not exceeding £6,000 a mile.

Your directors are of the view that the construction of additional branch line mileage in the west will be necessary in the near future, and your authority will be asked for proceeding with the construction of the following lines when conditions warrant such construction, and for the issue and sale of a sufficient amount of 4% consolidated debenture stock to meet the expenditure, viz: Empress to Milden Branch, 132 miles; Empress to Acme Branch, 132 miles; Vidora east Branch, 35 miles; Russel north Branch, 15 miles; Lanigan north Branch, 150 miles.

Subject to your approval your directors have authorized expenditures on capital account during the present year of \$4,482,000, apportioned to the following works, namely:—

Replacement and enlargement of structures in permanent form.....	\$ 545,000
Additional stations, locomotive houses, freight sheds, ice houses and extensions to existing buildings.....	525,000
Additional terminal and side-track accommodation	400,000
Tie plates, rail anchors and miscellaneous roadway improvements.....	1,017,000
Lining tunnels, British Columbia district	185,000
Automatic block signal protection.....	112,000
Surveys for new lines and power possibilities	125,000
Miscellaneous improvements, and additions designed to improve facilities and effect operating economies.....	1,103,000
Improvements in connection with telegraph service.....	470,000

Your company subscribed to \$17,000,000 of the second Victory Loan and was allotted \$12,447,000 of its subscription. Included in this latter amount was \$4,866,666 allotted in exchange for the surrender by the company of £1,000,000 Do-

minion of Canada 3¾% bonds maturing in 1919.

The gross earnings of your transportation system in the fiscal year exceeded those of any previous year in the history of the company, and exceeded those of 1917 by \$5,148,363, but the net earnings were less by \$12,043,630. This large addition of \$17,191,993 to the working expenses is principally due to the great advance in wages, though the increased cost of fuel and materials of every description also added a substantial amount to the year's expenses.

The Board of Railway Commissioners having amended in certain respects the general train and interlocking rules effective upon the lines of all railway companies subject to the Dominion Parliament's jurisdiction, appropriate changes in the company's existing bylaws will be submitted for your confirmation and approval.

Lord Shaughnessy, who has been President of the company for the past 19 years, expressed his desire to retire from office in Oct., 1918, and his resignation was accepted with the deepest possible regret. During his tenure of office the company has enjoyed extraordinary and uninterrupted prosperity and now stands among the foremost transportation companies in the world. Your directors appreciate that this result has been due to Lord Shaughnessy's able and most devoted services, which have earned the admiration of the community and the gratitude of the shareholders. Your directors learned with gratification of Lord Shaughnessy's willingness to continue as Chairman of the company, and that the benefit of his counsel and advice will not therefore be lost to the company. E. W. Beatty was elected President. You will be asked to approve verbal amendments to bylaws passed by your directors and made necessary by the separation of the positions of Chairman of the company and President.

In order to give his entire time to your steamship interests, G. M. Bosworth, who for 22 years has been in charge of the company's freight traffic and for 17 years Vice President in charge of traffic, resigned his office and will hereafter be exclusively identified with the company's steamship enterprises as Chairman of the Canadian Pacific Ocean Services Ltd. W. R. MacInnes formerly Freight Traffic Manager, was appointed Vice President, in charge of traffic in succession to Mr. Bosworth.

Vice President Sir George Bury, after a service of over 35 years, during which he held many positions of increasing responsibility and importance, and in all of which he showed energy and ability of a very high order, resigned from the company's service in Oct., 1918. He, at the same time retired from the board and from the executive committee. Grant Hall, Vice President of Western Lines, was elected Vice President, a member of the board of directors and of the executive committee in succession to Sir George Bury.

The following directors will retire from office at the approaching annual meeting. They are eligible for re-election: R. B. Angus, Sir Edmund B. Osler, Sir Herbert S. Holt, Brig.-Gen. F. S. Meighen.

The Alberta and Great Waterways Ry. announced recently that it would receive at Edmonton, Alta., less than carload shipments destined for points on its line between Lac la Biche and McMurray, Alta.

The Filing of Railway Correspondence.

By F. W. Lambert, Chief Clerk to General Superintendent and Chief Engineer, Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont.

I read with interest the article by W. H. Mathews in Canadian Railway and Marine World for February, on the filing of correspondence in railway offices. In my opinion the general idea of a filing system should be so to arrange the index that all reliance upon memory is removed. The personnel of the office force changes from time to time, and when memory is responsible to any extent for the locating of files, the papers relating to matters a few months, or years, past are most difficult to find. It would appear, therefore, that the only manner in which this can be overcome is by the construction of a filing system using subjects as a guide.

As I understand Mr. Mathews' system, the unit system of filing correspondence is exactly the reverse. The memory must be relied upon to call to mind car numbers, locomotive numbers, mileages, etc., before the correspondence can be found. I infer that correspondence regarding locomotive engine failure would be filed under some combination of numbers constructed from the number of the locomotive, date, or mileage, regardless of the nature of the failure. I cannot see how it would be possible to find the papers at a later date, when these various numbers have passed from the memory of those in charge, or when the office force has undergone changes in its personnel.

Mr. Mathews states that the proper place to file correspondence regarding car delays or pilfering, etc., is under a file number constructed from the car number. Let me suggest a situation which might arise. Some articles are lost from car 123,456, and the file is closed and filed away in file 56, these being the last two numbers. Six months later, the general superintendent requires the file, the company's police officer having located the missing articles. The chief clerk does not remember the car number, or, perhaps he may be a new man. The general superintendent most regretably has also forgotten the car number. It has departed from the memory of the file clerk and is forgotten by the company's police office. I presume the file remains in the archives. Would it not be much easier to locate the papers had they been filed under "Loss and damage?"

There is on the market a book on railway filing, the Williams Filing Classification on Railway Correspondence. This is constructed on somewhat similar lines to the Classification of Accounts issued by the Interstate Commerce Commission. It is subdivided under several headings, including Roadway and Structures; Equipment and Shops; Transportation and Storage, etc. These are again subdivided into various subjects, which in their turn are split up once more. While perhaps this, if adopted in its entirety, would not be practicable in every office, in my opinion it forms the basis upon which a filing system can be constructed. The one feature which recommends it most strongly is that memory is not relied upon. When a file of correspondence is required, it calls for no effort of memory to recall the subject, as were the subject not known the correspondence would never be requested. Moreover it seems to me to be logical that all correspondence relating to

various subjects should be assembled and filed, not necessarily in one file, but in one place in the filing system. The subjects, as mentioned, can be subdivided according to local requirements.

It may be that I do not understand Mr. Mathews' system correctly, but upon reading the summary given in the article referred to, I cannot see but that the whole system relies upon the memory of individuals, whereas the filing of correspondence under its proper subjects places the responsibility with the chief clerk for determining the subject under which the papers should be filed. If the chief clerk is competent to hold his position this part of his duties should not be beyond his ability.

I am at present chief clerk to the General Superintendent and Chief Engineer, Algoma Central and Hudson Bay, and have held positions of file clerk, general superintendent's accountant, and chief clerk in terminal office. [Editor's note: This is a very important and interesting subject, and we would be glad to get the views of other chief clerks in regard to it.]

Regulations With Respect to Railway Safety Appliance Standards.

The Board of Railway Commissioners passed general order 261, Mar. 18, as follows: The general order 102, Feb. 17, 1913, approving regulations with respect to railway safety appliance standards. Whereas reports made to the board show a large number of accidents, sometimes resulting fatally, to railway employes, because of defective coupler attachments used by railway companies; and whereas the Master Car Builders' Association has approved of equipment dispensing with the use of links, clevises, or chains. Upon reading what has been filed by the different railway companies affected, and for the purposes of uniformity and the safety of railway employes, it is ordered that the "Regulations with respect to railway safety appliance standards" approved under general order 102, be amended by adding at the end of the provision under the heading "Uncoupling levers", at the top of page 12, the following, viz: "Cars built after June, 1919, must be equipped with coupler operating lever, connected direct with coupler lock of lock lift without the use of links, clevises, or chains."

Central Railway of Canada Refused Sanction of Agreements.

The Board of Railway Commissioners passed order 28,167, Mar. 17, as follows: Re application on behalf of Central Railway Co. of Canada, for a recommendation by the board to the Governor in council for sanction of agreements made between the company and the Central Counties, the Ottawa River, the Carillon and Grenville, and the Ste. Agathe Branch Railway Companies, and the Ottawa River Navigation Co. Upon hearing the application at Ottawa, Mar. 4, in the presence of counsel and representatives for the applicant company, counsel for the Imperial Bank of Canada, and other creditors, it is ordered that the application be dismissed.

The Hamilton, Ont., Board of Trade, is urging the Grand Trunk Ry. to improve the passenger service between Hamilton, Allandale and Collingwood.

Financial Results of Operation of Railways By United States Government.

The U.S. Railroad Administration has issued the following statement:—The financial results of the operation of railways by the U.S. Railroad Administration during Dec., 1918, and for the entire year 1918, in comparison with those of the same period of 1917, are shown in a compilation just completed for the Director General by the operating statistics section of the Division of Operation. The figures apply only to class 1 roads under federal control—that is, those roads having annual operating revenues in excess of \$1,000,000. They will not correspond exactly with the final figures to be issued by the Interstate Commerce Commission as the commission's summary includes a few railways not under federal control, as well as a few terminal and switching roads.

In the month of December there are ordinarily many adjustments in the accounts, so that overestimates or underestimates in previous months (in those accounts which are conducted monthly on a basis of "accruals,") may be corrected to correspond with actual receipts and expenditures. This is in accordance with the accounting regulations of the Interstate Commerce Commission (which permit monthly accruals in certain accounts, but require that adjustments must be made before the end of the year, so that the complete figures for the 12 months will represent the actual results). These adjustments in Dec., 1918, particularly in charges for retroactive wage payments, have resulted in distorting the figures in comparison with Dec., 1917, but the results for the 12 months as a whole are comparable.

In considering the results for 1918 it should be borne in mind that that year was almost wholly one of war conditions. It was necessary to move freight expeditiously, in many cases regardless of cost. Preference had to be given to munitions traffic, and this naturally militated against economies. In addition, the railways were compelled in many instances to employ inexperienced and inefficient labor, due to the inroads made upon their forces by the demands of the military service. It should not be overlooked in this connection that the railways had to supply the demands of the military service generally, just as other industries did, but had the special demand made upon it of supplying men for the military railways of France. Therefore, in considering comparisons with the previous years, the fact that 1918 was one of war conditions should be constantly borne in mind.

The results for Dec., 1918, compared with Dec., 1917, were as follows:—

[Figures preceded by minus marks represent decreases.]

	Month of December—		Increase or decrease	
	1918	1917	Amount	Per cent.
Operating revenues	\$433,798,284	\$331,591,290	\$102,206,994	30.8
Operating expenses	388,201,080	246,086,629	142,114,451	57.7
Net operating revenues	45,597,204	85,504,661	-39,907,457	-46.7
Operating ratio	89.5	74.2	15.3	20.6
Net Federal income corresponding to standard return guaranteed by Government.....	\$31,503,259	\$64,870,350	-\$33,367,091	-51.4
Standard return for 1 month.....	74,194,649			

For the year the results were as follows:—

[Figures preceded by minus marks represent decreases.]

Calendar Year,	Increase or decrease.		Amount		Per cent.
	1918	1917			
Operating revenues.....	\$4,842,695,884	\$3,983,827,671	\$853,868,213	21.4	
Operating expenses.....	3,939,315,122	2,808,544,956	1,130,770,166	40.3	
Net operating revenues.....	903,380,762	1,180,282,715	-276,901,953	-23.5	
Operating ratio.....	81.3	70.4	10.9	15.5	
Net Federal income corresponding to standard return guaranteed by Government.....	688,200,083	960,492,111	-272,292,028	-28.3	

NOTE. Standard return for year \$890,335,685; so that the "Net federal income" for the year fell short of the standard return by \$202,135,602.

The wage increases which were authorized throughout the year had the effect of increasing the 1918 operating expenses by approximately \$583,000,000, which represents an increase of about 32 per cent over what would have been the wages if there had been no increases in 1918. The increased cost of materials also added heavy burdens to operating expenses. The increased cost of locomotive fuel alone was equivalent to adding approximately \$125,000,000 to the cost of transportation expenses. In 1918 operating expenses took 81.3 per cent of operating revenues, compared with 70.4 per cent in 1917.

The 1918 results were adversely affected by the extreme weather conditions of Jan. and Feb., 1918, and the extreme traffic congestion which obtained at that time. In January operating expenses took 95 per cent of operating revenues; in Feb. the operating ratio was 90 per cent. In comparison with the same months of 1917, the decrease in net federal income in Jan. and Feb., 1918, was \$100,000,000.

The results of freight train operation for Dec., 1918, compared with Dec., 1917, were as follows:—

[Figures preceded by minus marks represent decreases.]

	Month of December—		Increase or decrease	
	1918	1917	Amount	Per cent.
Miles of road operated.....	229,250	229,675	-425	-0.2
Revenue and nonrevenue ton miles (thousands)...	33,659,507	31,960,171	1,699,336	5.3
Loaded freight car miles (thousands).....	1,129,960	1,101,427	28,533	2.6
Total freight car miles (thousands).....	1,714,168	1,553,277	160,891	10.4
Freight train miles (thousands).....	50,402	51,586	-1,184	-2.3
Averages:				
Train load (tons).....	668.0	620.0	48.0	7.1
Carload (tons).....	29.8	29.0	.8	2.8
Per cent of loaded to total car miles.....	65.9	70.9	-5.0	7.1

The increase in freight traffic of 5.3 per cent shown above was handled with actually less freight train miles; in fact, the train miles were 2.3 per cent less than in December, 1917. This result was accomplished by better car and train loading.

The results for the year were as follows:—

[Figures preceded by minus marks represent decreases.]

	1918		1917		Increase or decrease
	Amount	Per cent.	Amount	Per cent.	
Miles of road operated.....	228,729		228,633		96
Revenue and non revenue ton miles (thousands)	14,923,303		15,815,601		-887,298
Loaded freight car miles (thousands).....	434,997,928		427,341,924		7,656,004
Total freight car miles (thousands).....	22,056,329		22,532,507		-476,178
Freight train miles (thousands).....	637,924		654,580		-16,656
Averages:					
Train load.....	682.0		653.0		29.0
Carload	29.1		27.0		2.1
Per cent of loaded to total car miles.....	67.7		70.2		-2.5

The figures for the year are more interesting than those for December, as the former reflect the results of freight operations during the first year of federal control, in comparison with those of the last year under private management.

In making the comparison, consideration should be given to the fact that the 1918 figures were adversely affected by the severe weather conditions and the traffic congestion of January and February. Notwithstanding the heavy losses during the first two months under federal control, the summary for the year shows that the 228,729 miles of railway produced 435 billions of ton miles in 1918, compared with 427 2-3 billions, or 1.8%.

This increase in traffic was handled with an actual decrease in train miles and in loaded car miles. The train miles were 2.5% less than in 1917 and the loaded car miles were 5.6% less than in 1917. This was accomplished through an increase of 4.4% in the train load and 7.8% in the carload, as indicated in the above statement.

The decrease in the percentage of loaded to total car miles was due principally to the relatively greater proportion of empty car miles, as a result of the policy of the U.S. Railroad Administration to move the empties in solid trains to the regions where they would be needed for prospective traffic, such as grain needed for war purposes. This policy, while somewhat increasing the empty car

mileage, had the favorable result of ameliorating the car shortage and of expediting the movement of traffic.

The passenger traffic for the year will show an increase in passengers carried 1 mile of approximately 9%. The complete figures for the 12 months are not yet available. Those for the 11 months ended Nov. 30 show that in that period of

1918 the railways under federal control carried 39 billion passengers 1 mile, an increase of 3¼ billions over the corresponding period of 1917. These figures include the movement of troops and other military passenger traffic.

Grand Trunk Ry. Employees at Belleville, Ont., have formed an amateur athletic association with W. D. Robb, Vice President, Transportation and Maintenance, and J. D. McMillan, Superintendent, Belleville Division, as honorary President and honorary Vice President respectively. H. M. Gain, Trainmaster, is President.

Railway Histories.—An interesting sale of 450 volumes of railway history of the world, took place in New York, recently. The collection included manuscript journals of George Stephenson and I. K. Brunel, among the more important volumes, and a copy of the Grand Trunk Ry. rules dated 1857, among the minor ones.

Birthdays of Transportation Men in May.

Many happy returns of the day to:

Jas. Bain, Superintendent, Halifax & South Western Ry. (Canadian National Rys.), Bridgewater, N.S., born at Pictou, N.S., May 24, 1860.

W. R. Baker, C.V.O., ex-Secretary, C.P.R., Montreal, born at York, Eng., May 25, 1852.

B. A. Bourgeois, Assistant to Comptroller and Treasurer, Canadian Government Railways, Moncton, N.B., born there May 24, 1869.

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

B. T. Chappell, General Superintendent, Prairie District, Western Lines, Canadian National Rys., Saskatoon, Sask., born at Charlottetown, P.E.I., May 1, 1878.

R. Crosby, Car Foreman, Canadian Northern Ry., Moose Jaw, Sask., born at Hawick, Scotland, May 2, 1886.

N. R. DesBrisay, District Passenger Agent, C.P.R., St. John, N.B., born at Minneapolis, Minn., May 18, 1888.

A. E. Duff, ex-District Passenger Agent, G.T.R., Toronto, now of Winnipeg, born at Sherbrooke, Que., May 1, 1872.

G. C. Dunn, Division Engineer, Grand Trunk Pacific Ry., Winnipeg, born at Quebec, May 13, 1862.

G. E. Graham, General Manager, Dominion Atlantic Ry., Kentville, N.S., born May, 1870.

G. H. Hedge, Works Manager, Canadian National Rys., Winnipeg, born at Neath, Wales, May 26, 1865.

G. A. Hoag, Superintendent, Nipissing Division, Ontario District, Canadian National Rys., Capreol, Ont., born at Walters Falls, May 31, 1866.

J. Irwin, Superintendent, Division 4, Western District, Canadian National Rys., Calgary, Alta., born at Clinton, Ont., May 28, 1866.

J. N. Murphy, Roadmaster, C.P.R., Brandon, Man., born at Mooretown, Ont., May 10, 1879.

Sir Augustus M. Nanton, President, Winnipeg Electric Ry., and director, C.P.R., Winnipeg, born at Toronto, May 7, 1860.

A. V. Redmond, District Engineer, Central District, Canadian National Rys., Winnipeg, born at Kingston, Ont., May 16, 1879.

A. C. Shaw, Passenger Department C.P.R., Montreal, born at Detroit, Mich., May 12, 1865.

W. H. Snell, General Passenger Agent, C.P.R., Montreal, born at Palmyra, Neb., May 23, 1872.

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

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

H. K. Wicksteed, B.A.Sc., C.E., Consulting Engineer, Canadian National Rys., Toronto, born at Quebec, May 25, 1855.

C. L. Wilson, Assistant Manager, Toronto & York Radial Ry., Toronto, born at Boston, Mass., May 23, 1871.

A. O. Wolff, Resident Engineer, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me., born at Copenhagen, Denmark, May 14, 1887.

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

General Manager Alfred Price's Advice to C.P.R. Agents.

The following letter, reproduced in facsimile of his handwriting, has been sent by Alfred Price, General Manager, Eastern Lines, C.P.R., to all agents in his territory:—

"As you read this letter, I wish you would regard it as a personal communication, just as though it had been addressed to no one else. The C.P.R. enjoys throughout this country the reputation of being efficiently managed, and while such a reputation redounds to the credit of the officials, no small part of it is due to the intelligent and loyal devotion of those employes through whom the public transacts its business with the company.

"An agent is one who acts for another, a representative or deputy. This is the position you hold for the C.P.R. at your station, and it invests you with the power to act for it. Higher officials may, from time to time, make some public statement of importance to the community at large, but the great majority of people who ship or receive freight, or who travel on this company's trains, to or from your station, know little or nothing about these higher officials. They do know you, however, and they regard you as the properly constituted representative of the C.P.R.—in fact, to most of them, you are the C.P.R. This makes you a real part of this great organization, with unlimited opportunities for advancing the company's interests. You are doing this effectually, not only when you are performing your manifold duties satisfactorily, but equally so when you are being courteous, patient and obliging towards the public.

"Our function, as a railway, is to transport goods and people, the shipping and travelling public being our customers. We have not the whole field to ourselves and competition is increasing year by year. It is simply good business, therefore, to cultivate intimate relationships with the public, and possibly the greatest factor the C.P.R. possesses for securing patronage is the well earned reputation of its employes for courtesy. It may be hard at times to practise this virtue, but if you can stand a fusillade of questions—some of which may appear to you to be ridiculous—without displaying any signs of irritation, and if you can keep on smiling good naturedly, even after it may seem that patience has ceased to be a virtue, the public will naturally conclude that your attitude is typical of the C.P.R. and you will win innumerable friends for it.

"The fact that you may be located at a place where there is absolutely no competition should make no difference whatever in your attitude towards the public, or in the way you perform your duties. An unnecessary delay to a shipment of freight, or any irregularity or carelessness in the handling of it, may cause the shipper or consignee to divert a large volume of competitive traffic via other routes. An ill-natured remark to a traveller might easily convert a friend into an enemy, with a resultant loss of revenue.

"Do not forget that your interests are

interwoven with those of the company to such an extent that if the company prospers it means prosperity to you, but in order to prosper it must have the confidence and good will of the public. You are an important part of the greatest transportation company in the world; not one excepted. Be proud of it. Stick to it. Popularize it. Remember that if it is to continue to prosper it must have friends, and because the public goes first to you in its dealings with the company, you must inspire confidence in it and must help it to make and retain friends".

Regulations for Transportation of Acetylene Gas.

The Board of Railway Commissioners passed general order 260, Mar. 7, as follows:

Re general order 203, Aug. 11, 1917, tion by freight of dangerous articles other than Explosives as amended by general orders 206 and 207, Sept. 7 and Oct. 26, 1917, and the application of the Prest-O-Lite Co. of Canada, for an order amending regulations approved by general order 203: Upon reading what has been submitted in support of the application, and the recommendation of the Board's Chief Traffic Officer, the Chairman of the Canadian Freight Association consenting for the railway companies, it is ordered that the regulations approved by general 203, be amended by striking out paragraph (j) of rule 1,861, and substituting therefor the following, viz:

"(j) Cylinders containing acetylene gas must be completely filled with a porous material that has been tested with satisfactory results by the Bureau of Explosives, and this material must be charged with acetone, or its equivalent, not to exceed 40% of the interior volumetric capacity of the cylinder. The pressure in cylinders containing acetylene gas must not exceed 250 lb. a square inch at a temperature of 70 degrees F.

"Cylinders containing acetylene gas must not be shipped unless they were charged by the person or company by or for whom the cylinders are manufactured. Provided that they may be charged by a person or company having possession of complete information, furnished in writing by the person by or for whom the cylinders were manufactured, showing the nature of the porous filling and solvent in the cylinders and the meaning of the test markings, solvent indicator markings, and other markings on the cylinders."

Quebec Railway Boards Interest.—The Quebec Legislature has amended the section of the Railway Act relating to the rate of interest on borrowed money, by striking out the words "legal rate" and inserting instead the words, "seven per cent." This rate is the maximum rate, and companies may borrow money at any rate not exceeding it.

A Paying Line.—An interesting statement, if correct, was made in England recently during the discussion as to the internationalization of the coal mines, to the effect that Lord Tredegar is the owner of one mile of line on which the freight is one penny a ton and from which he derives an income of £40,000 a year. It is called the "golden mill railway."

Relations Between Company's Officers and Employes, Organized and Unorganized.

By John McMillan, Manager of C.P.R. Co's. Telegraphs.

The relations between the company's officers and employes must be marked by cordial goodwill, intelligent co-operation and mutual respect. We cannot hope to build and maintain a successful organization on any other foundation. Officers should bear in mind that they are almost wholly responsible for the relations that exist between the official staff and employes. Officers instruct and direct. An officer should remember to instruct as he himself would like to receive instruction. All instruction should be clear and concise. Officers who expect to maintain the best relations with employes, should refrain from irreverent appeals to the Supreme Being; profane or abusive language is a weakness and should be avoided. Officers should be quick to note exceptionally good service. Your appreciation should be expressed. You should encourage the less skilful or less efficient, it will pay big returns. Helpful encouragement will make better workmen. Do not threaten to dismiss any employe, unless as a last resort.

Organized Employes.—The best relations will be maintained when officers and employes thoroughly understand and live up to the conditions of service contained in the schedule agreed to by the company and employes. Trifling schedule evasions may mean hours of argument before a labor board. Schedule evasions mean little to the company, and often lead to serious dispute. Officers should deal with organized employes with such fairness that there will be no occasion for an appeal to a grievance committee.

Unorganized Employes.—The relations between officers and unorganized employes should be marked by careful supervision. Officers should have a personal knowledge of each employe's record, so that good work will result in promotion. If there is no opportunity for promotion, and the work of the unorganized employe is important, an increase in salary should be arranged, without waiting for an appeal from the employe. The supervision of the unorganized employes is best test of an officer's fitness to maintain good relations with his staff. There may be little pressure other than his own standard of what is right and fair. His supervision should be such that the unorganized will feel no disadvantage by reason of the lack of organization.

Officers who discipline or dismiss, should, with as little delay as possible, give the employe the full reason for discipline or dismissal and not keep him in suspense. It is a waste of time, for which there is little or no excuse.

So far we have considered the principles that mean success in every organization, namely, goodwill, co-operation, and respect; the general principles of supervision, the recognition of faithful service as applied to organized and unorganized employes. If, however, we wish to create and develop broader lines of organization, which will mean better relations between officers and employes, then we must not be unmindful of the interests beyond the lines of instruction and obedience.

Safety First.—We should consider the

principles of safety first. Safety first methods are designed first to protect the employe. Safety first has been advertised extensively, wherever it seemed possible to find space for the familiar motto—"Safety First". Have safety first measures prevented accidents? Has safety first resulted in greater safety in transportation, less risk of injury to employes and passengers, and less loss of life? Officers should freely express their views as to the safety first rule. We should hold fast to every factor of safety and protection against accident.

First Aid measures should appeal strongly to officers and employes. First aid training, carried out by the company without expense to the employe, is appreciated by the employe, as it is an evidence of generous preparation to protect him in the event of accident or unexpected breakdown, due to ill health. In the event of accident our sympathies are quickly aroused, yet, without a proper knowledge of first aid, we can be of little assistance. First aid training will mean prompt and intelligent care of the injured, relieve suffering, and probably save human life. First aid training should be taken up by officers, foreman, chief clerks, engineers and conductors, and an effort made to enroll all who are interested.

Welfare Work.—We should not forget the general need for a broad policy of helpfulness in welfare work. The officers should consider, and probably suggest that the company appoint for the system, a general welfare work officer, appointed to make an inspection of all divisional points where the employes are housed in the company's buildings, and all Y.M.C.A. centers, social and athletic activities and supervision of general recreation interests.

Benevolent Fund.—An opinion should be expressed as to the need of creating a benevolent fund, maintained by the officers and employes by subscribing part of one day's pay; this fund to be administered by a committee of the employes on each grand district, to apply to all cases of unusual need caused by ill health or other emergent cases, not now provided for. For example, where an employe is advised by his physician that unless he is in a position to take special treatment, or two or three months rest and treatment in a sanatorium he is likely to suffer a complete collapse. In a case of this kind a request should be made for money to be taken from the benevolent fund. If the fund created by employes is well handled for at least one year, officers might then recommend that the company consider some assistance to it.

The country and company have passed through a critical period during the last four years. The company's record has been one of high honor; its policy has been marked by a generous administration; its officers are well trained and its employes efficient. It is, I am sure, the ambition of officers and employes, alike, to uphold the present high standard and bend every energy to effect improvements. We will attain the best results by broad and considerate administration and by mutual respect between officers and employes, and through a thorough

understanding, by the employes, of the company's policy of generous and fair treatment.

The foregoing paper was read at the C.P.R. Co's. officers' and employes' conference in Montreal recently.

Alberta Branch Line Construction Guaranteed by Government.

The report of the Alberta Department of railways for 1918 shows there were 4,491 miles of railway in the province against 1,060 in 1905. This includes the C.P.R. mileage and that built by the Alberta Ry. and Coal Co., and the St. Marys River Ry., both of which have been absorbed by the C.P.R. In 1906 the Canadian Northern Ry. added 178 miles to the total, and has year by year added to its mileage until now it has 1,195 miles, being second to the C.P.R., which has 1,920. The Grand Trunk Pacific Ry. completed 40 miles in 1908, and to the end of 1918 has completed 640 miles. The McArthur lines opened up traffic with 25 miles of the Edmonton, Dunvegan and British Columbia Ry. in 1912, which has now been extended to 544 miles, of which 308 are comprised in the E.D. and B.C. Ry., 287 in the Alberta and Great Waterways Ry., and 49 in the Central Canada Ry. The other railway is the provincially owned Lacombe and Blindman Valley, 20 miles.

Towards the building of these lines, the province guaranteed the bonds of the several companies, with the exception of the C.P.R., which did not ask any assistance. A table appended to the report shows that construction of 3,656.97 miles of line were called for, of which there have been completed 1,741.02 miles. Five of the lines contracted for with the Canadian Northern Ry., totalling 590.31 miles, and the new lines contracted for with the Grand Trunk Pacific Branch Lines Co., totalling 259.5 miles, have been completed, a total of 849.81 miles, or 1.44 miles more than the mileage for which bonds were issued. Construction has made progress on 11 of the other lines contracted for, while nothing has been done on three branch lines totalling 305 miles. Following are the partially which guaranteed bonds have been issued and "no construction" lines for sued:—

	Guarantee	Mileage	Miles
	per mile	guaranteed	built
Canadian Northern Ry.—			
North of Calgary to Lethbridge	\$13,000	120.00	29.00
Branch from above at Little Bow River, via Macleod to International boundary.....	13,000	110.00	.....
Macleod to Western boundary	13,000	65.00	.....
Onway to Peace River Pass	20,000	100.00	33.80
Oliver-St. Paul de Metis	18,000	100.00	44.30
Bruderheim to International boundary.....	13,000	30.00	.....
Calgary to Brazeau line	13,000	100.00	.....
Camrose to Alaska.....	13,000	80.00	59.70
Strathcona to Pincher Creek	15,000	25.00	1.29
Blackfields to Goose Lake line	13,000	118.50	60.60
Edmonton, Dunvegan and B.C. Ry.—			
Edmonton to Dunvegan and west	20,000	411.00	201.50
Grande Prairie branch....	20,000	60.00	50.00
Alberta and Great Waterways Ry.—			
Central Canada Ry.—			
Edmonton to McMurray	20,000	350.00	297.00
McLennan to Peace River and west.....	20,000	100.00	49.00
Lacombe and Blindman Valley Ry.—			
Lacombe west.....	7,000	39.10	18.44

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 the paper have a continuous record of the Board's proceedings. No other paper has done this.

General order 260, Mar. 17.—Amending regulations for transportation of dangerous articles other than explosives by freight covered by general order 203, Aug. 11, 1917, by striking out par. J of rule 1861, and substituting new rule.

General order 261, Mar. 18.—Amending regulations re safety appliances standards approved by general order 102, Feb. 17, 1913.

28138, 28139, Mar. 4.—Approving A. B. Bell Telephone Co.'s agreement, Feb. 5, with Dunwich & Dutton Telephone Co., Elgin & Middlesex Counties, and Feb. 10, with Goderich Rural Telephone Co., Huron County, Ont.

28140, Mar. 7.—Authorizing G.T.R. and C.P.R. to operate over interlocking plant at Woodstock, Ont., without first stopping trains.

28141, Mar. 6.—Authorizing C.P.R. to build road diversion at mileage 105.3, Kisbey Subdivision, Sask.

28142, Mar. 7.—Authorizing G.T.R. to operate trains over portion of siding to be built by Toronto Harbor Commissioners, on Block K.T., Toronto.

28143, Mar. 6.—Authorizing International Bridge & Terminal Co. to operate railway built for construction purposes along dyke on river front in Fort Frances, Ont.

28144, Mar. 8.—Authorizing Canadian Northern Ontario Ry. to build spur for Spanish River Pulp & Paper Mills Ltd., Westbrook Tp., Sudbury district.

28145, Mar. 8.—Approving Canadian Northern Ry. revised location through Secs. 23 and 22, Tp. 27, Range 21 west 4th meridian, mileage 191.90 to 183.80, Alta.

28146, Mar. 10.—Authorizing Canadian Northern Western Ry. to build across highway between Secs. 7 and 8, Tp. 27, Range 12, west 4th meridian, Sask.

28147, Mar. 11.—Relieving G.T.R. and Michigan Central Rd. from maintaining night signal men at crossings at Southwood and Appin, Ont.

28148, Mar. 11.—Relieving Canadian National Rys. from providing further protection at St. Dominique St., Jonquiere, Que.

28149, Mar. 12.—Authorizing G.T.R. to build along and across diverted concession road between Consl and 2, Lot 9, Thurlow Top., Ont.

28150 to 28152, Mar. 12.—Authorizing Canadian Northern Ry. to build bridge to carry its line over Rosebud River at mileage 322.4, Sec. 13, Tp. 28, Range 19, west 4th meridian, Alta., and authorizing it to carry its line by a bridge over same river at mileage 325.9 and 323.1.

28153, Mar. 12.—Authorizing Grand Trunk Pacific Branch Lines Co. to build branch for Dinant Coal Co. from Spicer Coal Co.'s spur in Secs. 12 and 13, Tp. 48, Range 20 west, 4th meridian, Alta.

28154, Mar. 12.—Authorizing C.P.R. to remove agent at Sidewood, Sask., caretaker to be appointed to keep waiting room clean, heated and lighted for passengers.

28155, Mar. 13.—Authorizing G.T.R. to rebuild bridges over the Mad, Batteaux, and Pretty Rivers, between Allandale and Collingwood, Ont.

28156, Mar. 13.—Approving details of concrete tunnel lining and portals to be built by Canadian National Rys., at Station 151, Sec. 23, Tp. 27, Range 21, west 4th meridian, Alta.

28157, Mar. 10.—Approving plan of G.T.R. bridge on its Montreal subdivision.

28158, Mar. 10.—Authorizing G.T.R. to build siding and two spurs for British Munitions Co., Montreal.

28159, Mar. 12.—Approving electric bell installation at crossing of highway by Toronto-Hamilton and Buffalo Ry., at Beach Road, 950 ft. west of Ottawa St., Hamilton, Ont.

28160, Mar. 14.—Extending to May 1, time within which work required by order 28053 in connection with protection by Kitchener & Waterloo St. Ry. at crossing of King St., Kitchener, Ont., shall be completed.

28161, Mar. 14.—Approving Pere Marquette Ry. live stock special contract form 83.

28162, Mar. 14.—Dismissing G.T.R. application for order amending order 9191, which directed it to install gates at the intersection of its air loop line with the Hamilton and Port Dover plank road, Jarvis, Ont.

28163, Mar. 13.—Approving G.T.R. plan showing improvements to be made in protection of diamond crossing at Junction Cut, Ont.

28164, Mar. 17.—Relieving G.T.R. from providing further protection at crossing of second highway east of Thedford, Ont.

28165, Mar. 14.—Dismissing Imperial Munitions Board application for order declaring shell bars or blanks to be entitled to rates applying on steel billets, and declaring that rates charged by rail-

way companies on shell bars or blanks from Sault Ste. Marie, Ont., to Toronto and Montreal, since May 1, 1918, were unjust, unreasonable and excessive to the extent that they exceeded lower rates in effect immediately before that date, refund of overcharges being authorized.

28166, Mar. 17.—Ordering Canadian National Rys. to extend existing arrangement to accommodate passengers from west of Trenton and east of Sydenham to trains 5 and 6, by stopping same on flag at Newburgh for passengers to and from Yarker and east, and to and from Napanee and west.

28167, Mar. 17.—Dismissing Central Railway of Canada application for recommendation to Governor in council for sanction of agreement with Central Counties, Ottawa River, Carillon & Grenville and St. Agathe Branch Rys., and Ottawa River Navigation Co.

28168, Mar. 18.—Rescinding order 26196, June 6, 1917, extending area within which express companies' tolls shall include collection and delivery of express freight in Montreal, so as to include British Munitions Co.'s plant for the war period.

28169, Mar. 18.—Authorizing Toronto, Hamilton and Buffalo and G.T.R. to build two branches for Canadian Cartridge Co., Hamilton, Ont.

28170, Mar. 15.—Ordering Canadian National Rys. to erect station in St. Laurent, Que.; plans to be filed with the Board and work done within 30 days from date; and suburban and local trains to be stopped there.

28171, Mar. 17.—Approving G.T.R. plan, Oct. 26, 1918, showing location, floor plans and elevation of combination station and section man's dwelling at Vine, Ont.

28172, Mar. 18.—Ordering C.P.R. to install improved type of automatic bell on each side of crossing of Horne Ave., Mission City, B.C.

28173, Mar. 21.—Ordering Canadian National Rys. to appoint caretaker at Vita, Man., to keep station clean, heated and lighted for accommodation of travelling public.

28174, Mar. 21.—Ordering that cost of maintaining transfer track between Grand Trunk Pacific Ry. and C.P.R., at Forrest, Man., be paid 75% by G.T.P.R., and 25% by C.P.R.

28175, Mar. 20.—Ordering that cost of building and maintaining highway crossing over C.P.R. at Pritchard, B.C., reserved under order 27832, Nov. 5, 1918, be paid by B.C. Public Works Department.

28176, Mar. 20.—Ordering C.P.R. to erect station at Horizon, Sask., to be completed by Oct. 1.

28177, Mar. 20.—Authorizing Manitoba Public Works Department to build highway crossing over Canadian National Rys. between Secs. 14 and 23, Tp. 34, Range 23, west principal meridian.

28178, Mar. 20.—Ordering G.T.R. to build farm crossing for H. Laroche, St. Agapit, Que.

28179, Mar. 17.—Approving plan showing changes in interlocking plant, Michigan Central Rd. and G.T.R. crossing, Welland, Ont.

28180, Mar. 21.—Ordering Canadian National Rys. to erect third class station at Arran, Sask., to be completed Aug. 15.

28181, Mar. 19.—Authorizing Canadian National Rys. to build spur for gravel deposit near Ardill, Sask.

28182, Mar. 20.—Authorizing Saskatchewan Highways Department to build highway crossing over C.P.R. on N.W. ¼ Sec. 27, Tp. 34, Range 19, west 3rd meridian.

28189, Mar. 20.—Authorizing C.P.R. to build extension to spur for P. Burns & Co., Calgary, Alta.

28184, Mar. 21.—Approving changed location of Grand Trunk Pacific Ry. right of way and station grounds in n.e. ¼ Sec. 12, Tp. 43, Range 2, North Alberta District.

28185, Mar. 20.—Authorizing C.P.R. to divert road allowance on eastern boundary of Sec. 5, Tp. 7, Range 24, west 2nd meridian, Sask.

28186, Mar. 21.—Authorizing G.T.R. to build three spurs for American Cyanamid Co., West Oxford Tp., Ont.

28187, Mar. 20.—Approving agreement, Mar. 7, between Bell Telephone Co. and Innisfail Telephone Co., Simcoe County, Ont.

28188, Mar. 22.—Authorizing Alberta Public Works Department to build highway crossing over Grand Trunk Pacific Ry., at Peers, Alta.

28189, Mar. 26.—Authorizing Canadian National Rys. to divert Rosebud River in Sec. 34, Tp. 27, Range 20, west 4th meridian, Alta.

28190, Mar. 29.—Suspending Nipissing Central Ry. tariff C.R.C. 20, increasing passenger fares, pending hearing by Board.

28191, Mar. 26.—Authorizing G.T.R. to build spur for L. Theroux, Supton Tp., Que.

28192, Mar. 22.—Approving electric bell installed by G.T.R. at crossing of Queen St., Brantford, Ont.

28193, Mar. 28.—Relieving C.P.R. and G.T.R. from maintaining tower man to operate crossing near Forrest, Man., between 5 p.m. Saturdays and 8 a.m. Mondays.

28194, Mar. 27.—Relieving G.T.R. from providing further protection at Woodstock St., Shakespeare, Ont.

28195, Mar. 28.—Approving G.T.R. revised plan 7668 showing track elevation, floor layout and location of station to be erected at Mitchell, Ont.

28196, Mar. 31.—Extending to June, time within which C.P.R. shall complete spurs for Dryden Timber & Power Co., near Eagle River, Ont.

28197, Mar. 25.—Authorizing Quebec and Lake St. John Ry. to use bridge at mileage 57 from Quebec, across Riviere a Pierre.

28198, Mar. 31.—Authorizing C.P.R. to build interchange track between Canadian National Rys. at mileage 28.61, St. Leonard Parish, N.B.

28199, Mar. 25.—Dismissing application of Town of Greenfield Park, Que., for order amending order 18824, Mar. 4, 1913, apportioning cost of installation, maintenance and operation of gates at G.T.R. crossing of Lapiniere Road between Greenfield Park and St. Lambert.

28200, Mar. 31.—Authorizing Quebec and Lake St. John Ry. to use bridge, as rebuilt, across Little Batiscan River, mileage 107 from Quebec.

28201, Apr. 2.—Ordering Edmonton, Dunvegan and British Columbia Ry. to build standard loading platform and stock yards at Donnelly, Alta., by July 1.

28202, Mar. 31.—Ordering C.P.R. to erect class A-2 station at Metiskow, Alta., by Sept. 1, 1920, and within two weeks from date of order, provide extra car body or other structure for temporary storage of package freight.

28203, Mar. 31.—Approving agreement, Mar. 19, between Bell Telephone Co. and Wheatley Telephone Co., Kent and Essex Counties, Ont., revised location from mileage 50.99 to 54.14 Melfort-Humbolt Branch, Sask.

28205, 28206, Apr. 3.—Authorizing Canadian Northern Ry. to rebuild bridges over Mud and Donovan Creeks at mileage 125.40 and 127.50, from Todmorden.

28207, Apr. 4.—Amending order 28059, Jan. 25, re G.T.R. crossing at Market and George Sts., Brantford, Ont., by substituting West for Market.

28208, Apr. 4.—Approving agreement Mar. 25, between Bell Telephone Co. and Southwold & Dunwich Telephone Association, Middlesex and Elgin counties, Ont.

28209, Apr. 3.—Authorizing Canadian Northern Ontario Ry. to rebuild bridge over Black Rapids Creek, mileage 241.60, from Todmorden.

28210, Apr. 5.—Ordering G.T.R. to keep its cars back two car lengths from the south side of Walnut St., Galt, Ont., while standing on crossing.

28211, Apr. 5.—Relieving G.T.R. from providing further protection at first crossing west of Beach Road, Ont.

28212, Apr. 3.—Authorizing Piapot Rural Municipality 110, Sask., to divert road allowance between Secs. 8 and 17, and ordering C.P.R. to remove trees obstructing the view and to make road shown on plan, and take out cut at westerly crossing.

28213, Apr. 8.—Ordering C.P.R. to restore within one week, on its Suffield, Irricana and Stirling subdivisions, Alta., semi weekly train service in effect previous to Jan. 1.

28214, Apr. 5.—Authorizing C.P.R. to remove station agent at Amazon, Sask.; caretaker to be appointed to keep the station clean, heated and lighted for passengers, and care for freight and express.

28215, Apr. 5.—Approving G.T.R. clearance at boiler house on siding serving Engineering and Machine Works of Canada Ltd., St. Catharines, Ont.

28216, Apr. 7.—Authorizing G.T.R. to build spur for Savoie-Guay Co., Plessisville, Que.

28217, Apr. 8.—Approving Canadian National Rys. plan of shelter on Niagara, St. Catharines and Toronto Ry., at Welland South, Ont.

28218, Apr. 7.—Approving Canadian National Rys. plan of signal protection at swing bridge across Trent Canal at Glen Ross, Ont.

28219, Apr. 4.—Authorizing Quebec, Montreal and Southern Ry. to remove its station agent at Boucherville, Que., caretaker to be appointed to keep station clean, heated and lighted.

28220, Apr. 10.—Authorizing City of Toronto to appeal to Supreme Court of Canada upon certain questions of law in connection with order 28071, Jan. 31, which authorizes Toronto Terminals Ry. to lay conduits for steam pipes across certain streets.

28221, Apr. 8.—Ordering Grand Trunk Pacific Ry. to erect standard A station at Gilroy Sask., by Sept. 1.

28222, Apr. 9.—Authorizing Canadian National Rys. to build extension spur for A. S. Jones, North Battleford, Sask.

28223, Apr. 10.—Ordering Canadian National Rys. to build third class station at Hyas, Sask., by Oct. 1.

Problems in Design and Maintenance of Car Trucks in Relation to Maintenance of Roadway.

By W. J. Hyman, Chief Draftsman, Car Department, G.T.R.

An intimate knowledge of each other's requirements, with close co-operation between the various departments of any great railway system is absolutely essential, if it is to be operated successfully under present conditions, and I am sure

STANDARD FREIGHT CARS, 1879.		
	Lbs. Capacity	Wheel Base
Average car	40,000	4 ft. 6 in.
Large car	60,000	5 ft. 0 in.
STANDARD FREIGHT CARS, 1919.		
Average car	80,000	5 ft. 4 in.
Large car	100,000	5 ft. 6 in.

study in regard to the changing conditions in capacity of equipment or roadbed. During this 40 year period, great changes have taken place in the construction of the roadbed and contour of track rails, frogs, switches, etc., which have all been standardized. The M.C.B. Association has done great work in the standardization of cars, and nearly all details which vitally affect the construction of cars have been made standard all over the continent, thus facilitating the interchange of cars on all railways.

As a lot of these standards, both for roadway and equipment, have a direct relation one with the other, especially in reference to contour of wheels and track rails, it would be practically impossible to change any of these designs without affecting the other, and costing the railways an enormous amount of money, and we therefore turn to truck wheel base to see if a change would be beneficial in the maintenance of roadway, or the reduction of cost in repairs to cars.

On passenger cars we have an 8 ft. wheel base for 4-wheel trucks and 11 ft. for 6-wheel trucks, and have taken care of certain conditions with a flexible truck to make an easy riding car. On freight cars we have a short wheel base 4-wheel truck, and fig. 1 shows the turning moment for trucks at various wheel bases under a freight car, at start of curve. From this diagram it is quite evident that, the longer the wheel base the less wear we would have on the ball of the rail at curves and tangents, thus reducing the cause of the removal of a large percentage of track rails at these points. It would also reduce the wear on the

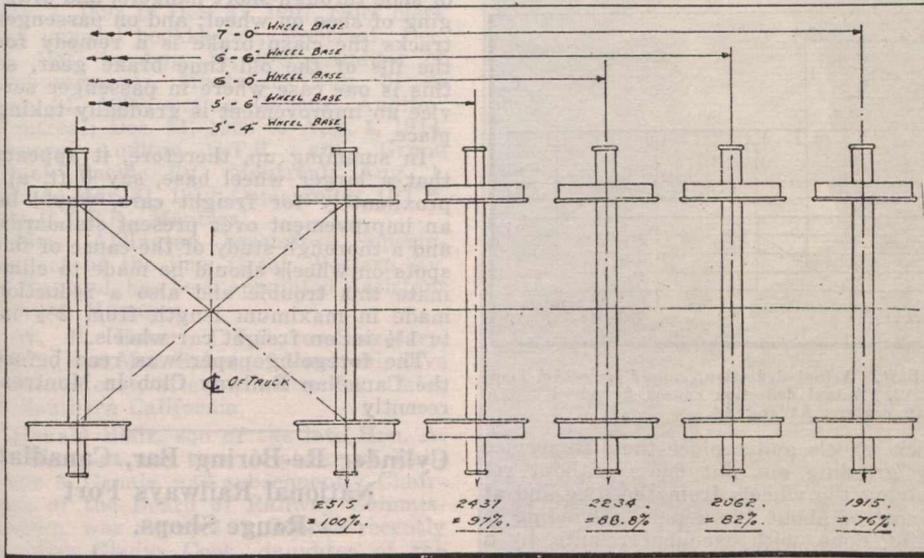


Fig. 1. Showing difference in turning, at start of a 200 ft. curve, for an 80,000 lb. freight truck, under full load, at 30 m.p.h., figured on various wheel bases.

you will agree with me when I say it was because the various departments in our railways worked harmoniously together, and had a sympathetic knowledge of each other's needs, that they were able to successfully cope with every emergency and difficult problem which developed under war conditions during the past four years. It seems therefore that as we are now in the great reconstruction period (which we all heard so much about during the war) a study of any subject which vitally affects two or more departments in any of our great railway systems, is quite opportune, and perhaps may be beneficial in helping to solve some of the problems now before us.

The subject of this paper covers such a wide field, and relates both directly and indirectly to such a multitude of details, both as regards equipment and roadway that I can only hope to deal with two of these problems (wheel base trucks in relation to tracks and flat spots), and, of course, from the car department's view.

The Wheel Base of a Truck is the distance between the centers of the outside wheels on a 6-wheel truck, and of course the distance between the centers of the wheels on a 4-wheel truck.

At present practically all freight cars in this company have the same length of wheel base under the different classes of cars. A 30-ton capacity car has a wheel base of 5 ft. 2 in. centers, a 40-ton car a wheel base of 5 ft. 4 in. centers, and a 50-ton car has 5 ft. 6 in. centers. As these three classes of cars are the standard freight cars of today I want to make a comparison of the wheel base of trucks under these cars and those of 40 years ago, to point out the difference between percentages of increase of car capacities and wheel base of trucks.

- Percentage of increase in load capacity of average car in 40 years, 100%.
- Percentage of increase in wheel base of trucks of average car in 40 years, 18%.
- Percentage of increase in capacity of large car in 40 years, 60%.
- Percentage of increase in wheel base of trucks of large car in 40 years, 10%.

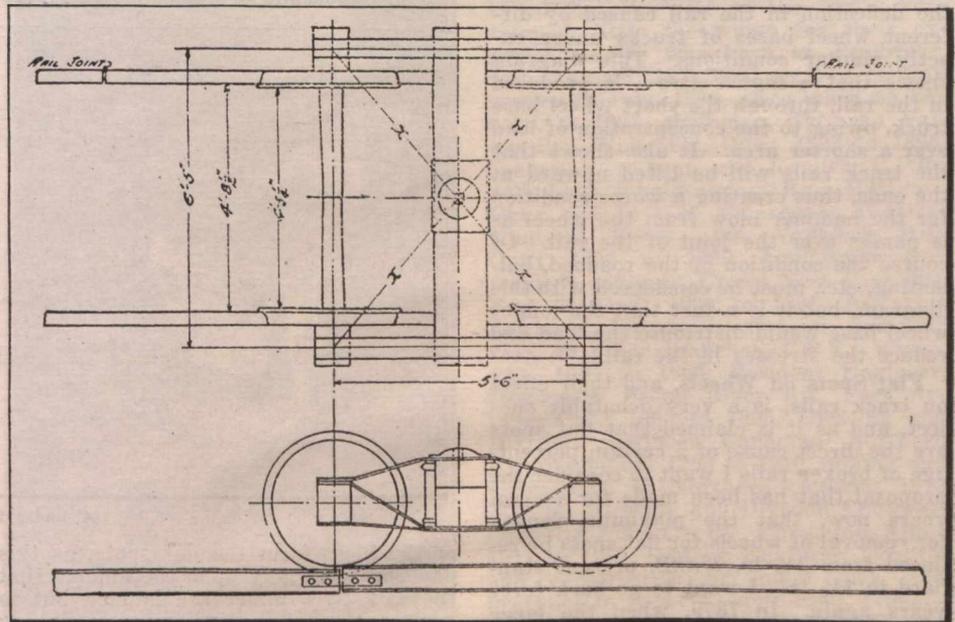


Fig. 2. Showing wheel suspended, before delivering hammer blow on lower rail.

One of two things must have happened in regard to the wheel base of these trucks. Either the original design was ideal, and needed little change, or because it was a standard 40 years ago, on account of trying to standardize as much as possible all material, the design has been perpetuated with little thought or

flange of the wheel, which is the cause of the removal of lots of wheels, and lessen the thrust on the collar of the journal, with the resultant wear on ends of brasses, and this end thrust is thought by many to be the direct cause of the start of a large percentage of hot boxes and anything which would reduce hot

boxes would be welcomed by several departments of any railway.

Another thing in favor of a longer wheel base is that the blow delivered on the end of the rail at the joint would be reduced. Track rails are frequently removed because of the flowing at the end where one joint has become lower than the other, and the constant blows delivered by the wheels of the cars, as they pass over the joint, gradually cause the end of the rail to flatten out or flow. (See fig. 2). It is impossible to figure out a formula to arrive at the blow delivered at these joints, owing to the fact

modern heavy car is many times greater than the impact from the car of 1879, when the present limit was fixed, due to much higher speeds, and the fact that the maximum wheel load is now nearly four times heavier than in 1879. It is a fact that rails are broken by flat spots, though specific cases have been difficult to cite, because often, the rail, while badly damaged, may not break until some time after the passage of the flat wheel.

Ordinarily wheels having 2½ in. flat spots are removed from the axle and scrapped, whereas if the limit were fixed at 1½ in. it would be possible to reclaim

ern 50-ton gondola, at 45 miles an hour is about 10 times greater than the impact from the old standard 20-ton car at the then maximum speed of 20 miles an hour. It would therefore appear that flat spots should be reduced from 2½ in. to a maximum of 1½ in.

There is a lot of argument today in regard to the length, and the angle, at which brake head hangers should be hung, and we are told that flat spots on wheels are frequently caused on this account; and on our latest freight cars we are using longer hangers, and trying to remedy the bad effects caused by tilting of shoe through short hangers, and dragging of shoe on wheel; and on passenger tracks the clasp brake is a remedy for the ills of the old time brake gear, so this is one case where in passenger service an improvement is gradually taking place.

In summing up, therefore, it appears that a larger wheel base, say 6 ft. approximately for freight cars, would be an improvement over present standards, and a thorough study of the cause of flat spots on wheels should be made to eliminate this trouble and also a reduction made in maximum length from 2½ in. to 1½ in. on freight car wheels.

The foregoing paper was read before the Canadian Railway Club in Montreal recently

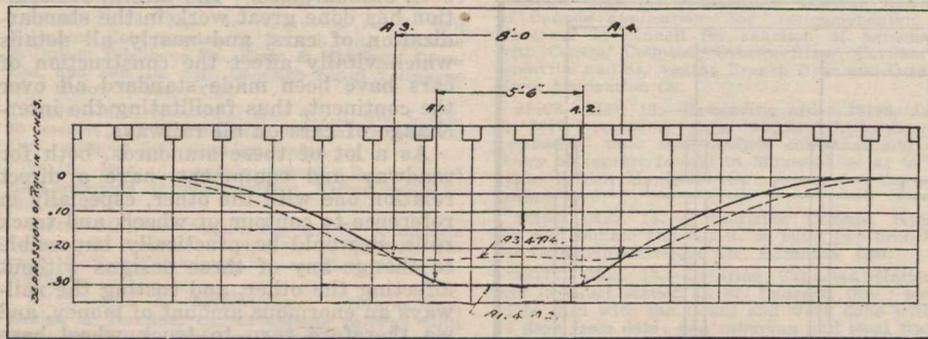


Fig. 3. A. 17,500 lb. per wheel; 85 lb. rail; 12 in. ballast. Actual deflection, caused by wheel loads under one truck, with 5½ ft. centers, A1 and A2. Actual deflection caused by wheel loads under one truck, with 8 ft. centers, A3 and A4.

that so many factors enter into the calculations, which vary at every joint, especially in the ballasting of the road and the wheel base of car itself, also the speed of the train, etc., but one thing is certain and that is proved by practical demonstrations by the American Railway Engineering Association's branch committee, that in proportion as the wheel base of a car is lengthened up to a certain reasonable point, this blow is decreased and the life of the rail would be proportionately longer.

The stresses produced in the rail through the different wheel bases is another factor to be considered, and shows the deflection in the rail caused by different wheel bases of trucks under exactly similar conditions. This diagram shows that a higher stress is produced in the rail, through the short wheel base truck, owing to the concentration of load over a shorter area. It also shows that the track rails will be tilted upward at the ends, thus creating a worse condition for the hammer blow from the wheel as it passes over the joint of the rail. Of course the condition of the roadbed, ballasting, etc., must be considered with this diagram, but it is a fact that the longer wheel base would distribute the load and reduce the stresses in the rail.

Flat Spots on Wheels, and their effect on track rails, is a very debatable subject, and as it is claimed that flat spots are the direct cause of a certain percentage of broken rails I want to consider the proposal that has been made for several years now, that the maximum length for removal of wheels for flat spots be reduced from 2½ in. M.C.B. present standard to 1½ in. I want to go back forty years again. In 1879, when the large freight car wheel load was but 8,250 lb., the M.C.B. Association fixed the allowable limit of flat spots at 2½ in., and although wheel loads have increased to 18,750 lb. (100,000 lb. cap. car) and as high as 30,000 lb. (170,000 lb. cap. car), and the speed of trains is now much greater, the present M.C.B. rules retain the allowable limit at 2½ in.

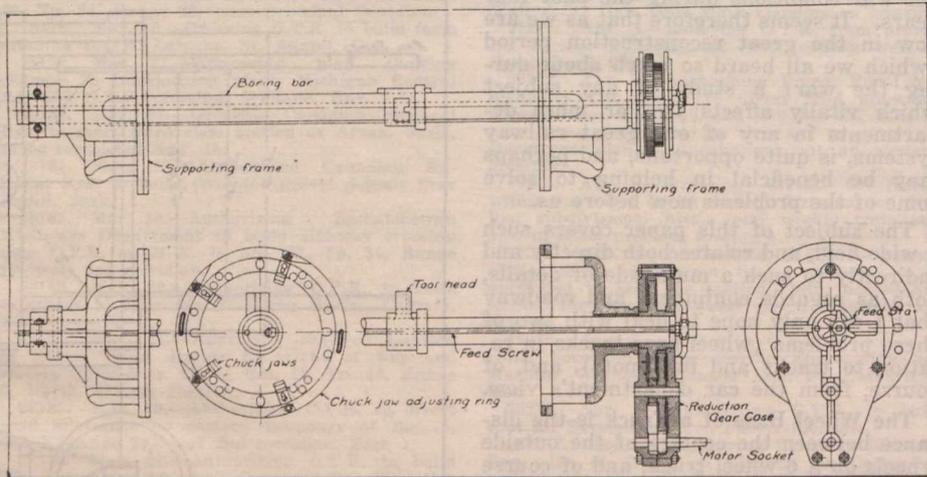
The impact from a flat spot under the

such wheels and replace them in service by grinding out flat spots without removing the wheels from the axle and at a cost of about 50c a pair. Grinding is being done, with excellent results, by a number of roads, and it is recognized by authorities as good practice, provided, of course, that the wheel has not been burned during the process of flattening. Therefore a reduction of the allowable limit from 2½ in. to 1½ in. would not only lessen the impact and damage to the rail, but should prove economical from the standpoint of service life of wheels.

It is impossible to determine the force

Cylinder Re-Boring Bar, Canadian National Railways Fort Rouge Shops.

The accompanying diagram shows a substantial cylinder re-boring bar, which is used in the Canadian National Rys. Fort Rouge shops, Winnipeg. The two heads are similar castings, and the faces are drilled for the various bolt arrangements used on the cylinders for which the bar was designed. Each face has a chuck jaw adjusting ring, the jaws working on a sliding cam face, the jaws mov-



Cylinder Re-boring Bar.

of the blow from the flat spots, as this depends so largely upon the amount that the rail gives under the impact, but to arrive at some conclusion as to energy of the impact the American Railway Engineering Association track committee made some tests, report of which I will quote. Assuming a 33 in. wheel and 2½ in. flat spots, we determine that for the modern car, at average speeds, the factor of safety for a 100-lb. rail is about 5, but for the heaviest cars about 2.75. According to this formula the impact from a 2½ in. flat spot under the mod-

ing radially on the adjusting ring being turned through a small arc. This is used for centralizing a small arc. This is used to be bored, and is a preliminary to bolting finally in place. Much time is saved over the old method of centering by cylinders.

The drive is by air motor, through a chain of gears in a separate gear case on the end of the boring bar. This case must, of course, be held down while the bar is in operation. The feed is the usual star wheel and screw arrangement as shown.

Mainly About Railway People Throughout Canada.

Walter Hardman Ardley, Comptroller, G.T.R., and Grand Trunk Pacific Ry., Montreal, who retired from active service, Mar. 31, under the company's superannuation plan, was presented recently with a gold watch, chain, pencil and knife, and a purse of money, by the Accounting Department staff. He was born in London, Eng., Apr. 24, 1858, and entered G.T.R. service Nov. 5, 1884, since when he has been, to Nov. 1, 1893, clerk in General Auditor's office, Montreal; Nov. 1, 1893 to Dec. 31, 1907, chief clerk and general bookkeeper, Montreal; Dec. 31, 1907 to Aug. 31, 1908, Auditor of Disbursements, Montreal; Aug. 31 to Dec. 31, 1908, acting General Auditor, Montreal; Dec. 31, 1908 to Aug. 1, 1914, General Auditor, G.T.R. and Grand Trunk Pacific Ry., Montreal; Aug. 1, 1914 to Mar. 31, 1919, Comptroller, G.T.R. and G.T.P.R., Montreal.

Chas. Aldington, heretofore Superintendent of the line, Great Western Ry. of England, has been appointed Assistant General Manager.

W. R. Baker, C.V.O., ex-Secretary, C.P.R., and Mrs. Baker, of Montreal, have returned east, after spending the winter in Southern California.

Donald Blair, son of the late Hon. A. G. Blair, at one time Minister of Railways & Canals, and subsequently Chairman of the Board of Railway Commissioners, was married in Ottawa recently to Miss Gladys Cook, daughter of the Assistant King's Printer.

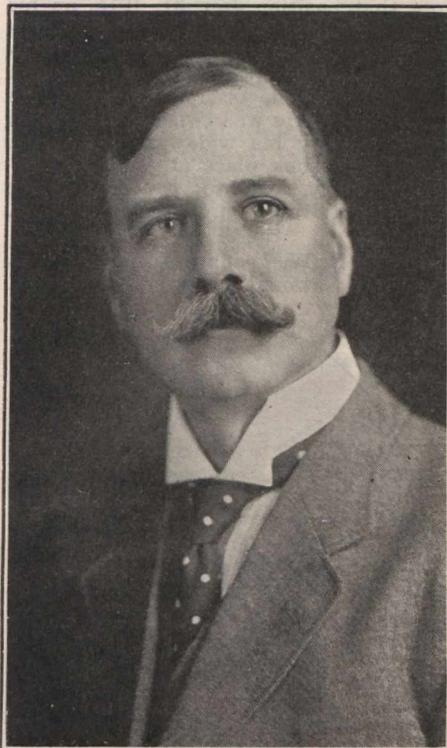
Sir George McLaren Brown, General European Manager, C.P.R., was one of the guests at a dinner given by Grant Morden, M.P., at the House of Commons, London, Eng., April 9, in honor of Lloyd Harris, Chairman of the Canadian Trade Commission.

John Burns, who has been appointed Works Manager, Angus shops, C.P.R., Montreal, was born there, Oct. 14, 1877, and entered railway service Oct., 1892, since when he had been, to Feb., 1898, apprentice, G.T.R., Montreal; Feb., 1898 to Mar., 1902, fitter, C.P.R., North Bay, Ont.; Feb. to Nov., 1903, Locomotive Foreman, C.P.R., White River, Ont.; Nov., 1903 to Sept., 1905, Locomotive Foreman, C.P.R., Chapleau, Ont.; Sept., 1905 to Sept., 1908, Locomotive Foreman, C.P.R., North Bay, Ont.; Sept. to Oct., 1908, General Foreman of Shops, C.P.R., North Bay, Ont.; Oct., 1908 to Feb., 1911, District Master Mechanic, C.P.R., North Bay, Ont.; Feb. to Oct., 1911, District Master Mechanic, C.P.R., London, Ont.; Oct., 1911 to July 1918, Master Mechanic, Eastern Division, C.P.R., Montreal; July, 1918, to Mar., 1919, Assistant Works Managers, Angus shops, C.P.R., Montreal.

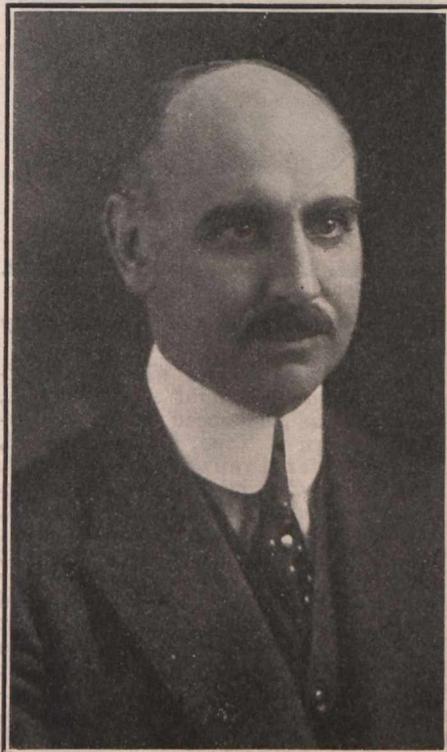
A. D. Cartwright, Secretary, Board of Railway Commissioners, is to receive an increase of salary. The Railway Act provides that the Secretary's salary shall be fixed by the Governor in council at not exceeding \$4,000. When the Consolidated Railway Act was before the House of Commons committee recently, the Minister of Railways moved an amendment, making the limit \$5,000.

W. H. Clancy, formerly City Passenger and Ticket Agent, G.T.R., Montreal, died at St. Michael's Hospital, Toronto, Apr. 15, after several weeks illness. He retired from active service in 1914, after about 40 years with the company, 30 of

which had been spent in Montreal, and the balance in Stratford, Cobourg and Toronto. Since his retirement, he lived in Toronto.



W. H. Ardley.
Who has retired from the position of Comptroller, G.T.R. and G.T. Pacific Ry.



W. T. Marlow.
General Freight Agent, Atlantic and Pacific Ocean Services, Canadian Pacific Ocean Services Ltd.

Mrs. Frank Cochrane, wife of Hon. F. Cochrane, M.P., ex-Minister of Railways and Canals, returned to Ottawa early in Apr., with Miss Edith Cochrane, after spending some time in the south.

Hon. N. Curry, Chairman of the Board, Canadian Car and Foundry Co., and Mrs. Curry, have been spending part of the winter at their house, Cedar March, Bermuda. Capt. Victor Curry returned from there to Montreal early in April.

Mrs. E. W. Duval, widow of Lt. E. W. Duval, formerly Superintendent, Saskatoon Division, Saskatchewan District, C.P.R., who was killed in action in the summer of 1918, has been spending the winter in southern California.

Philip Jay Farley, who was appointed recently Cashier and Paymaster, Western Lines, Canadian National Rys., and Duluth, Winnipeg and Pacific Ry., Winnipeg, was born at Foxboro, Ont., and entered railway service in 1901, since when he has been, to 1902, clerk in Roadmaster's office, Canadian Northern Ry., Winnipeg; 1902 to 1903, clerk in Superintendent's office, same road, Port Arthur, Ont.; 1903 to 1904, timekeeper and material clerk, same road; 1904 to 1905, chief clerk to General Roadmaster, same road, Winnipeg; and from 1905 Assistant Cashier and Paymaster, same road, Winnipeg.

W. L. Flaherty, stated to be the oldest Freemason in Canada, in point of membership, who died at Niagara Falls, Ont., Apr. 13, aged 84, was for many years a conductor on the Great Western Ry. and the G.T.R.

Alan Travers Fraser, Chief Engineer, Western Lines, Canadian National Rys., Winnipeg, who death in a snow slide in the Rocky Mountains, at mileage 26, Blue River subdivision, was briefly mentioned in our last issue, was on a train proceeding to the Pacific coast, when the train was held up by a slide. He walked ahead with a section gang to examine the obstruction, when another slide came down, burying the entire party. He was, apparently, instantly killed, but the rest of the party were rescued, little the worse for their experience. He was born at Pembroke, Ont., Jan. 13, 1872, and entered railway service in July, 1892, since when he has been, to 1893, chainman, Gatineau Valley Ry., Wakefield, Que.; 1893 to 1895, chainman, rodman and leveller, C.P.R., and Lake Timiskaming Ry., Mattawa, Ont.; 1895 to 1896, timekeeper, Ottawa-Montreal Short Line, Vankleek Hill, Ont.; 1897 to 1900, transitman and resident engineer, Crows Nest Pass Ry., Fort McLeod; 1900 to 1901, Assistant Engineer, Pipestone extension and surveys on other branches, C.P.R., Winnipeg; 1901 to 1903, Resident Engineer, Ontario & Rainy River Ry., Port Arthur, Ont.; 1903 to 1905, Locating and Division Engineer, Canadian Northern Ry., Winnipeg; 1905 to 1910, mining and prospecting in Northern Ontario; 1910 to 1911, Locating and Division Engineer, Canadian Northern Ry., Edmonton, Alta.; 1911 to 1915, District Engineer, location and construction of main line and branches in Alberta, same road, Edmonton; 1915 to Dec., 1918, District Engineer, Western District, same road, Edmonton, Alta.; Jan. 1, 1919, he was appointed Chief Engineer, Western Lines, Canadian National Rys.

F. E. Gautier, Purchasing Agent, C.P.R., and Mrs. Gautier, returned to Winnipeg, early in April, from a visit to Montreal and Quebec, during which Mr. Gautier attended the C.P.R. officials'

conference, etc., in Montreal.

J. D. Hamilton, an ex alderman, of Stratford, Ont., who died there, Apr. 14, was, for many years before retiring from active service, a conductor on the G.T.R. Buffalo-Goderich branch, and was well known to travellers.

D. B. Hanna, President Canadian National Rys., is reported to have stated at Edmonton, Alta., recently that he will address the Industrial Congress there in August, on industrial development in relation to railways.

Arthur Hills, Assistant to President, Canadian National Rys., and Mrs. Hills, have been spending a few weeks at White Sulphur Springs, West Virginia.

Lady Holt, wife of Sir Herbert Holt, one of the C.P.R. directors, and her son, Capt. Herbert Holt, returned to Montreal early in April, from overseas.

Chas. R. Hosmer, one of the C.P.R. directors, who has been in the Royal Victoria Hospital, Montreal, for some weeks, and who had to undergo a second operation, was reported Apr. 28 as resting easily and making satisfactory progress toward recovery.

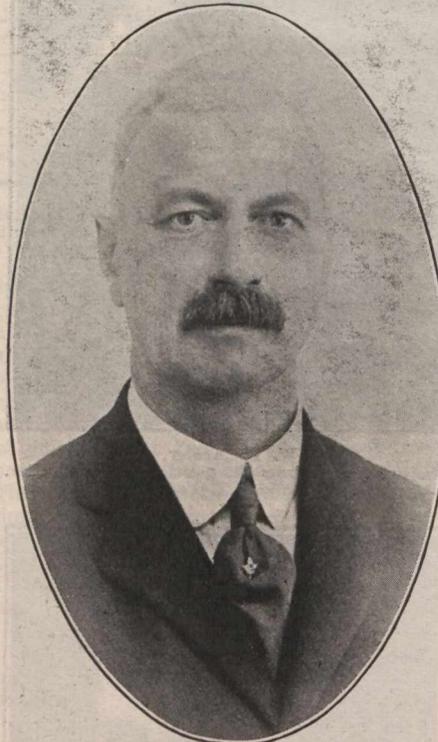
W. B. Lanigan, Freight Traffic Manager, C.P.R., Montreal, and Mrs. Lanigan, made a trip to the Pacific coast recently.

G. W. Lee, Commissioner and General Agent, and **Hon. R. F. Preston**, Commissioner and Land Agent, Timiskaming & Northern Ontario Railway commission, have had their honorariums as commissioners increased by the Ontario Legislature, from \$1,000 to \$2,000 a year.

Jas. W. Leonard, General Manager, Toronto Terminals Co., died at his home at Brampton, Ont., Apr. 28, after a long illness, due to stomach trouble, for which he had recently undergone treatment at Johns Hopkins Hospital, Baltimore, and subsequently an operation at Battle Creek, Mich. He was born at Epsom, Ont., in Oct., 1858, and entered railway service in 1872, since when he had been to Aug., 1877, telegraph operator and agent, Midland Ry., Aug., 1877 to Dec., 1878, agent, Victoria Ry.; Dec., 1878 to Mar., 1880, Assistant Manager, same road; Mar. to June, 1880 to Nov., 1883, General Passenger Agent, same road; Nov., 1883 to May, 1884, Master of Transportatn, Ontario and Quebec Ry.; May, 1884 to Mar., 1887, Superintendent, C.P.R., Toronto; Mar., 1887 to Mar., 1890, Superintendent, C.P.R., Kamloops, B.C.; Mar., 1890 to Mar., 1893, Superintendent, lines east of Montreal, C.P.R.; Mar., 1893 to Apr., 1901, General Superintendent, Ontario and Quebec Division; C.P.R., Toronto; Apr., 1901 to Mar., 1903, General Superintendent, Western Division, C.P.R., Winnipeg; Mar. to Apr., 1903, General Superintendent, Central Division, C.P.R., Winnipeg; Apr., 1903 to Jan., 1904, Assistant Manager, lines west of Lake Superior, C.P.R., Winnipeg. After some months spent in travelling, he was appointed President, Guelph and Goderich Ry. and in Feb., 1905 was appointed Manager of Construction, Ontario lines, C.P.R., and in Oct., 1905, Assistant General Manager, eastern lines, C.P.R., in charge of maintenance of way and operation, and also of construction of new lines in Ontario, which combined positions he held until the appointment of J. G. Sullivan as Manager of Construction, eastern lines, which left him solely to the duties of Assistant General Manager, eastern lines, in charge of maintenance of way and operation, with office at Montreal. He was appointed Gen-

eral Manager, eastern lines, C.P.R., Montreal, in Feb., 1908, and Assistant to the Vice President in Jan., 1911, attending principally to matters arising between the company and its maintenance of way and operating employes, eastern lines, especially as regards wages and other terms of employment; and retired from that position Jan. 31, 1915, on his appointment as General Manager, Toronto Terminals Co., in charge of the construction of the union station at Toronto, which position he occupied at the time of his death. He was twice married, and is survived by his widow and one son. The funeral took place at Mount Pleasant Cemetery, Toronto; the body being taken from Brampton, by a special C. P. R. train.

Lt. Col. R. W. Leonard, formerly Commissioner, National Transcontinental Ry.,



D. O. Wood,
Traffic Manager, Export & Import Department,
Canadian National Railways.

has given \$5,000 to Queen's University endowment fund.

Patrick John Melvin, whose appointment as Export Freight Agent, C.P.R., Montreal, was announced in our last issue, was born at Trim, Ireland, Mar. 3, 1872, and entered railway service in Oct. 1888, since when he has been, to Aug. 1889, junior clerk, Freight Department, Great Northern Ry. of Ireland, Omagh; Aug. 1889 to Mar. 1894, clerk, Freight Department, same road, Newry; May 1894 to Apr. 1898, clerk, Audit and Claims Department, G.T.R., Montreal; Apr. 1898 to Feb. 1906, clerk, Foreign Freight Department, C.P.R., Montreal; Feb. 1906 to Sept. 1918, chief clerk, Export Freight Department, same road, Montreal; Sept. 1918 to Mar. 15, 1919, acting Export Freight Agent, same road, Montreal.

Harold Roy Miles, whose appointment as Division Engineer, C.P.R., Lethbridge, Alta., was announced in a recent issue, was born at Winnipeg, Mar. 14, 1879. During 1899 he was on location work with the Washington County Ry., and from 1900 to 1901 was on location and construction, Algoma Central and Hud-

son Bay Ry., Michipocoten Harbor, Ont.; July 1901 to July 1, 1915, Assistant Engineer, and Resident Engineer, Maintenance of Way, Lake Superior Division, C.P.R.; July 1, 1915 to Jan. 15, 1919, Assistant Engineer, C.P.R., Montreal.

Mrs. Harriet Sym Moore, who died at Montreal, Mar. 29, was the mother of E. Moore, Insurance Commissioner, C.P.R.

C. Murphy, General Manager, Western Lines, C.P.R., Winnipeg, with Mrs. Murphy and Miss Olea Murphy, visited Montreal early in April, also spending a short time in Ottawa and Prescott, Ont.

Lady Nanton, wife of Sir Augustus Nanton, director, C.P.R. and President Winnipeg Electric Ry., left Winnipeg early in April, to visit New York, Atlantic City, etc.

C. S. Ogilvie, who has been appointed Assistant Engineer, Ottawa Division G. T. R., Ottawa, Ont., was formerly Assistant Engineer, G.T.R., at Belleville, Ont., and enlisted for overseas military service with the 13th Royal Highlanders, and went overseas with the first contingent of the Canadian Expeditionary Force. He was a war prisoner in Germany for about three years, and was liberated on the signing of the armistice.

F. W. Peters, General Superintendent, British Columbia District, C.P.R., returned to Vancouver, early in April, with Mrs. Peters and Miss Dorothy Langford, after attending the C.P.R. officials' conference, at Montreal.

S. P. Porter, who has been appointed Assistant to the General Manager for the Receiver, Grand Trunk Pacific Ry., Ottawa, Ont., was born in Somersetshire, Eng., in 1870, and came to Canada in 1886. He entered railway service in 1889 with the C.P.R. as trainman. From 1901 to 1907 he was homestead inspector for the Dominion Government, and in 1908 was appointed Deputy Minister of Railways, Telegraphs and Telephones for Saskatchewan, resigning in 1912, on his appointment as Executive Agent, Grand Trunk Pacific Ry., Regina, Sask.

Col. C. W. P. Ramsey, C.M.G., who commanded the Canadian Railway Construction Corps in France, addressed the C.P.R. Social Club at Montreal, Apr. 9, on the work done by the corps on the Western Front in France and Belgium, and at Salonica, Greece.

Hayter Reed, formerly Manager in Chief, C.P.R. Hotels, and Mrs. Reed, returned to Canada from England early in April and went to St. Andrews, N.B.

James Reid, who died at Toronto, Apr. 5, aged 52, was in C.P.R. service for many years, latterly as travelling auditor, out of Toronto.

Hon. J. D. Reid, Minister of Railways and Canals, spent Easter in New York, where he went to meet Mrs. Reid, who had been in Florida and at Atlantic City for some weeks.

J. K. L. Ross, one of the C.P.R. directors, arrived in Vancouver Apr. 5, in the private car Cromarty.

W. F. Salsbury, Local Treasurer, C.P.R., returned to Vancouver early in April, with Mrs. Salsbury, after attending the C.P.R. officials' conference in Montreal.

Lord Shaughnessy is patron of the big drive to raise \$300,000 for Loyola College, Montreal.

F. A. Skelton, formerly Vice President and Secretary-Treasurer, Canadian Car & Foundry Co., left Montreal recently to live at Essex, Lake Champlain, N.Y.

Lorne Cameron Thomson, heretofore General Storekeeper, Eastern Lines, Canadian National Rys., Toronto, has been appointed General Storekeeper, Canadian Car & Foundry Co., with jurisdiction over all plants, viz: Amherst, N.S.; Longue Point, Turcot, and Dominion, Que.; Weland, Brantford and Fort William, Ont.; and with office at 120 St. James St., Montreal. Canadian Railway and Marine World for April, contained his biography and portrait.

Edwin Newman Todd, whose appointment as General Foreign Freight Agent, C.P.R., Montreal, was announced in our last issue, was born at Huntingdon, Que., Oct. 17, 1879, and entered C.P.R. service May 7, 1896, since when he has been, to May 1, 1898, clerk and stenographer, Foreign Freight Department, Montreal; May 1, 1898 to June 1, 1903, import clerk, same department, Montreal, and West St. John, N.B.; June 1, 1903 to May 1, 1904, contracting clerk, Assistant Freight Traffic Manager's office, Toronto; May 1, 1904 to May 1, 1905, Contracting Freight Agent, Foreign Freight Department, Toronto; May 1, 1905 to Jan. 1, 1909, Assistant Export and Import Freight Agent, Toronto; Jan. 1, 1909 to Sept. 1, 1911, Export Freight Agent, Montreal; Sept. 1, 1911 to Sept. 20, 1915, Division Freight Agent, Montreal; Sept. 20, 1915 to Mar. 15, 1919, General Freight Agent, Montreal.

Ivan E. Vallee has been appointed to succeed his late father, L. A. Vallee, as engineer and director of railways for the Quebec Public Works Department.

F. L. Wanklyn, General Executive Assistant, C.P.R., Montreal, and Mrs. Wanklyn, made a trip to the Pacific coast during March and April.

Lady Whyte, widow of the late Sir Wm. Whyte, formerly Vice President, Western Lines, C.P.R., is visiting her daughter, Mrs. Charles Meek, in Vancouver.

E. R. Wood, one of the Canadian National Rys. directors, and Mrs. Wood, have been spending the greater part of the winter at their house at Beverley Hill, California.

David Oliver Wood, whose appointment as Traffic Manager, Export and Import Department, Canadian National Rys., Toronto, was announced in our last issue, was born at Kleinburg, Ont., Mar. 16, 1864, and entered transportation service in May, 1883, since when he has been, to 1902, billing clerk, chief clerk, District Freight Agent's office, and Assistant Foreign Freight Agent, G.T.R., Toronto; 1902 to 1905, Western Freight Agent, Donaldson and Thomson Steamship Lines, Toronto; 1905 to 1917, General Freight Agent, Allan Line Steamships, Toronto; 1917 to Feb. 1919, Assistant Export and Import Freight Agent, C.P.R., Toronto. From Sept. 1917 to Jan. 1, 1919, he was loaned to the British Ministry of Shipping (Canada), and acted as Assistant to the Director General, at Montreal.

Dominion Government Terminal Elevators.—The Trade and Commerce Department's estimates for the year ending Mar. 31, 1920, submitted in the House of Commons recently, contain \$30,000 to provide for the construction, acquisition, leasing or expropriation of terminal elevators.

The Canada Steamship Lines will not make any changes in its fares between Montreal and Toronto this year.

Passenger Rate Meetings at Detroit.

The Great Lakes & St. Lawrence River Rate Committee met at Detroit, Mich., Mar. 19. Most of the steamboat lines represented signified that their passenger fares would remain unaltered for 1919, but a few lines announced slight advances in their round trip fares. F. W. Milton, Assistant General Passenger Agent, Cleveland and Buffalo Transit Co. was elected chairman. Jas. Morrison, Assistant General Passenger Agent, Canadian National Rys., Montreal, who had been secretary for some 10 years, declined re-election, and A. E. Storey, rate clerk, General Passenger Department, G.T.R., Montreal, was elected to succeed him.

The International Water Lines Passenger Association meeting was also held at Detroit, Mar. 19, the President, M. J. Powers, A.G.P.A., Champlain Transportation Co. and Lake George Steamboat Co., occupying the chair. It was reported that lines controlled by the U.S. Government were withdrawing from the association, but the opinion was expressed that, when pre-war conditions return, the original lines will again take representation. The following officers were elected: President, W. F. Wasley, Manager and Treasurer, Muskoka Lakes Hotel & Navigation Co., Gravenhurst, Ont.; Vice President, L. G. Lewis, G.P.A., Detroit & Cleveland Navigation Co., Detroit, Mich.; Secretary, M. R. Nelson, Buffalo, N.Y.

The Roadmasters and Maintenance of Way Association's annual convention will be held at Chicago, Ill., Sept. 16, 17 and 18, and a committee of which J. H. Regan, Track Superintendent G.T.R., Chicago, is a member, has been appointed to make arrangements. The executive has appointed a committee on road ditching and drainage, of which H. Ferguson, General Roadmaster, G.T.R., Toronto, is a member; a committee on conservation of lumber in maintenance of way road crossings and signs, and a committee on track maintenance in freight and passenger terminals, of which G. T. McCole, Roadmaster, G.T.R., Toronto, is a member.

Longshoremen's Wages at Montreal.—At a joint meeting of members of the Shipping Federation of Canada and representatives of the Longshoremen's Union at Montreal, recently, to discuss the wage question for the current season, a contract was entered into, effective from Apr. 7, 1919 to Jan. 1, 1920, for a wage of 60c an hour, daywork, and 65c an hour, night work, for handling general cargo; the day being from 7 a.m. to 6 p.m., and the night from 7 p.m. to 5 a.m. The wage for handling grain is 75c an hour, and for coal, 65c an hour, at any time. The increase is practically 20c an hour all round.

New Time—Old Time—C.P.R. Time.—In connection with the controversy over daylight saving, attention has been called in Winnipeg to Manitoba Interpretation Act, sec. 24, of which reads: "The time used upon the C.P.R., and known as central time, being the time of the 19th meridian of west longitude, is hereby declared to be the standard time of this province, and when any statute heretofore or hereafter passed refers to any particular time of day, such standard time shall be considered to be meant."

Vice President Grant Hall's Western Inspection Trip.

Grant Hall, Vice President, C.P.R., accompanied by F. L. Wanklyn, General Executive Assistant, C.P.R., left Montreal, Mar. 25, and arrived in Winnipeg Mar. 27 for the purpose of making his first inspection of the company's western lines since his appointment as Vice President. D. C. Coleman, Vice President and General Manager, Western Lines, travelled with Mr. Hall from Winnipeg to the coast and back, the trip lasting from Mar. 29 to Apr. 15. Messrs. Hall and Wanklyn left Winnipeg Apr. 17 for Montreal.

The trip from Winnipeg to Vancouver was via Calgary and the Crownsnest Pass line, and the Kettle Valley Ry., and the return trip was made by the main line route, thence to Edmonton and back by way of Saskatoon.

In statements made at different points on the route, Mr. Hall is reported to have said the improvements and betterments announced in January, will be carried out during this year so far as labor and materials can be obtained. As to branch line construction, it was too early to say anything, owing to the fact that the company's application to the Dominion Parliament for legislative authority was still under consideration.

The only definite statement as to construction work was made by Mr. Hall in Vancouver, Apr. 6, where he is reported to have said that plans for the new ocean pier at that port were almost completed and that the pier will be fully up to date in every respect.

The Lambeth Motor Transport Co. began business Apr. 4, operating motor busses to carry passengers and freight between Lambeth and London, Ont. It gives five round trips a day, except Sundays, the single trip taking 40 minutes, and there are 6 stops on the route. The fare for the single trip is 25c; the return fare being 40c, with intermediate points at proportionate rates. Additional trips are being made on Wednesdays and Saturdays. W. K. Caldicott, Lambeth, Ont., is president of the company, and W. Winegarden, is the agent in London.

River Rouge Ry.—The Quebec Legislature has passed an act changing the name of the company in the English version of the charter to the Rouge River Ry. Co., and extending the time for the construction of the projected railway. The Legislature has also voted a land grant of 2,000 acres a mile in aid of the building of the line from Grenville, on the Ottawa River, in Argenteuil County, along the Valley of the Rouge River, to a junction with the C.P.R. branch line terminating at Mont Laurier, Labelle County, a distance of 80 miles. (Feb., pg.

Railway Ties and Timber for Great Britain.—A London press dispatch says that through the medium of the Canadian Trade Commission, of which Lloyd Harris is chairman, the British Government has entered into a large contract for the purchase of railway ties and other timber from British Columbia. It is said that British railways will require over 3,000,000 ties at an early date.

The Canadian Railway Board of Adjustment No. 1, has re-elected S. M. Berry, Chairman, and G. Hodge, Assistant to Vice President, Eastern Lines, C.P.R., Vice Chairman.

Canadian Transportation Men, Engineers, Etc. in the War.

The Canadian Military and Civil Engineers' Association is reported to have been formed in England, by Canadian Engineers of the 1st Division, with the object of protecting the interests of its members as regards pensions, war service gratuities, civil re-establishment, etc.

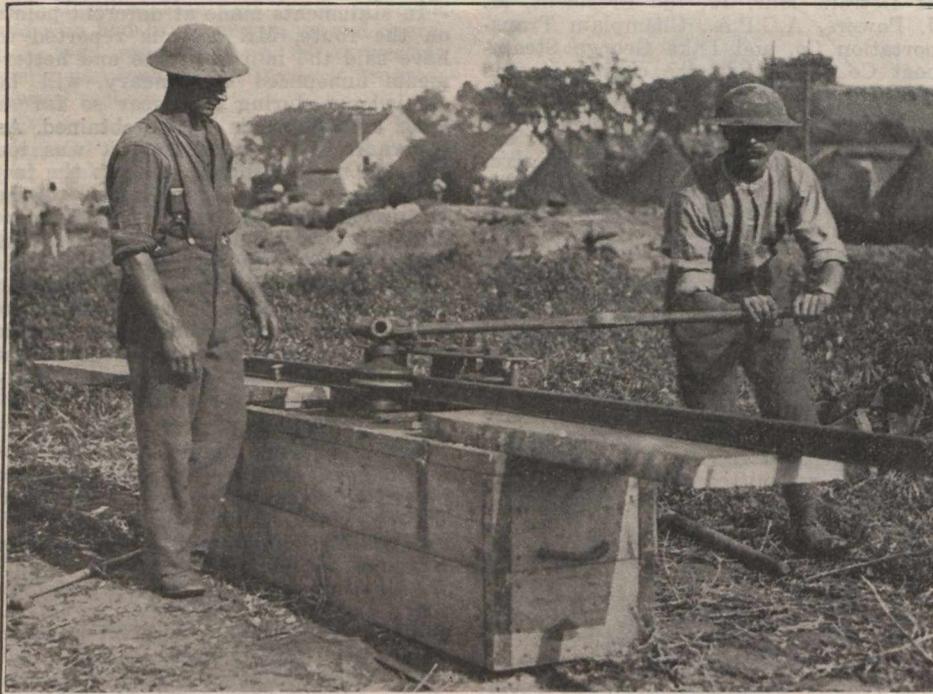
It is reported that of the 9,809 C.P.R. employes who joined the expeditionary force, 948 have died, and 1,881 were wounded. Of those who had returned to Mar. 31, 1,731 had been re-employed, and positions had been found for 2,091 other returned soldiers.

PERSONAL NOTES.

Major General Alex. McDougall, C.B., the Ottawa contractor, who was in command of the Canadian Forestry Corps

broken up, for reinforcing purposes, he transferred to the Imperial Railway Troops, going to France in Feb., 1918 as captain, and was engaged for some time in railway operating work. He returned to England in Oct., 1918 on leave, and was sent almost immediately to Salonica, as railway transportation officer, and after being there a very short time, was transferred to Constantinople, promoted to major and made deputy assistant director of railway transport, which department has charge of the Orient Ry. in European Turkey (Compagnie d'Exploitation des Chemins de Fer Orientaux) and also the Bagdad Line, which commences on the Bosphorus and extends to Bagdad, with a break from Nissibin to Samara, which is still under construc-

ing Editor, Canadian Railway and Marine World. His military work commenced in 1906, when he joined the University section of the 2nd Field Co., Canadian Engineers, which he left Sept. 22, 1911, to take out a commission in the 2nd Regiment, Queen's Own Rifles of Canada. He volunteered for overseas service with the 83rd Battalion Canadian Infantry, Aug. 9, 1915, and was promoted to captain, Oct. 21, 1915. On Feb. 4, 1916, he transferred to the 116th Battalion, Canadian Infantry, and was promoted to major, Mar. 1, 1916, proceeding overseas with that unit July 21, 1916. He went to France with the battalion on Feb. 11, 1917, reverting to captain to conform to the establishment in the field, being appointed acting major on arrival in France, which rank he held until May 26,



Canadian Railway troops in France, bending a rail for a curve in the line. Canadian Official Photograph. Copyright reserved.



Orient Railway Annual Pass.

overseas for a considerable period of the war, returned to England in April, to resume his duties with the corps.

Capt. Kenneth E. Drinkwater, son of the late Chas. Drinkwater, who was first secretary of the C.P.R. Co., after having been overseas three and a half years with the 3rd Battalion, Canadian Machine Gun Corps, is staying with his sister, Mrs. H. P. Timmerman, wife of the Industrial Commissioner, C.P.R., Montreal.

Lt.-Col. Halfdan F. H. Hertzberg, D. S. O., M. C., eldest son of A. L. Hertzberg, District Engineer, C.P.R., Toronto, and grandson of the late Col. P. H. Hertzberg, R. E., Christiania, Norway, was married in London, Eng., Mar. 19, to Miss Dorothy Hope Judah, of Montreal.

Lt.-Col. Thos. A. Hiam, formerly private secretary to Sir Donald Mann, Toronto, is now assistant director of railways at Haidar Pasha, near Constantinople. He went overseas with the Canadian Buffs in the autumn of 1916 as a lieutenant, and was at Witley Camp, Eng., for nearly a year, while the Buffs formed part of the 5th Canadian Division, and during which time he was promoted to captain and made assistant quartermaster. On the Buffs being

tion. This line is operated by the Societe Imperiale Ottomane de Chemin de Fer de Bagdad. From Constantinople he was transferred to Haidar Pasha as assistant director of railways, and was promoted to lieutenant-colonel. The accompanying illustration shows an annual pass on the Orient Ry. which Lt.-Col. Hiam sent Sir Donald Mann recently.

Major James McGregor has returned to his duties as Superintending Engineer, Halifax Ocean Terminals, Canadian National Rys., Halifax, N.S. He was attached to the 3rd Battalion, Canadian Railway troops, which was, for the most part, engaged on the light railway systems of the First Army, extending along the western front from about Armentieres, Lestrem, Bethune, Loos, Lens, Vimy Ridge, Arras, Queant and to Cambrai. Later, when the German retreat carried them east of their light railway zone, and light railway construction was abandoned, the battalion took part, with other battalions of the Canadian Railway troops, in the reconstruction of the main railway line between Douai and Mons.

Capt. F. H. Moody, B.A.Sc., has resumed his former position of Engineer-

1917, when he was wounded at Vimy Ridge. Following convalescence, he was appointed adjutant, 2nd Canadian Reserve Battalion, Aug. 26, 1917, remaining in that position until Dec. 9, 1917, when he was seconded to the Ministry of Munitions (Air Board) as an inspection and expediting officer in the Yorkshire, Lancashire and Derbyshire areas, relinquishing that work Oct. 8, 1918, proceeding to France Nov. 3, 1918, and rejoining the 116th Battalion, in the 3rd Canadian Division. On the latter returning to Canada in April, this year, he accompanied it, and was demobilized Apr. 20, 1919.

Lt.-Col. Blair Ripley, formerly engineer in charge of double track, C.P.R., Toronto, returned from overseas early in Apr. and left Toronto shortly afterwards to make a trip to the Pacific coast. It is expected that he will return to the C. P. R. Co.'s service in the near future.

Major Ian Sinclair, D.S.O., M.C., returned to Canada, Apr. 20, in command of the 13th Battalion, C.E.F. (Royal Highlanders of Canada). At the outbreak of war he was engaged on a contract which his father, Angus Sinclair, of Toronto, had for construction of the Canadian Northern Ry., between Ottawa and Sudbury, Ont., and immediately obtained a commission in the 15th Battalion (48th Highlanders). While at Valcartier

camp, he transferred to the Royal Highlanders, and except for periods, during which he was in hospital recovering from wounds, he fought with the 13th Battalion through all the engagements in which it took part, from the second battle of Ypres, four years ago, until the signing of the armistice. At the attack on Hill 70, he won the Military Cross, and was awarded the D.S.O. for work in command of the battalion during the offensive of Sept., 1918, against the Hindenburg line. He was wounded four times, and mentioned in dispatches twice.

Government Railway Employees' Compensation Act.

An act was passed by the Dominion Parliament in 1918 providing for the bringing under the provisions of the workmen's compensation acts of the different provinces any employes of the Dominion Government who might be killed or injured while at work. The act was passed at the request of employes of the Canadian Government Railways, and it has been found that subsec. 4 of sect. 1 of this act does not work out in practice. Parliament has now passed an act repealing subsec. 3 and 4 of the act of 1918, and replacing them by new sections. The new subsec. 3 provides for the payment by the Minister of Finance out of any unappropriated moneys in the Consolidated Revenue Fund as compensation, and their deposit with any provincial board or court, for the settlement of such cases and for any costs in connection therewith. The act, subsec. 4, provides that Prince Edward Island Ry. and Intercolonial Ry. employes shall elect whether they will take their compensation under the I.C.R. and P.E.I. Ry. Employes' Provident Fund or under the Act, and that dependents of killed employes who have not elected shall nevertheless be entitled to benefits under this Act. These amendments were approved of by the employes of the two railways interested. They are to be retroactive.

Ontario Assessment Act Amendments.

The Ontario Legislature has approved of amendments to the assessment act increasing the exemption on income for income tax purposes from \$1,500 to \$1,700 for householders, and from \$600 to \$700 for non householders in cities and towns; and from \$1,200 to \$1,400 for householders, and from \$400 to \$500 for non householders in other municipalities. In recommending that this change be made the legislature's special committee reported that the increased exemption was desirable owing to the increase in the cost of living, and would also cover the request of railway employes who advocated that they should be allowed a further deduction on account of expenses when absent from their place of residence.

The London and South Eastern Ry.—A section of the City of London Act passed by the Ontario Legislature recently, provides that the proceeds from the mortgage from the company to the City of London received by the city forms part of the corporation's sinking fund. The L. and S.E. Ry. Co. was formed years ago but never built any line. A site was provided in the City of London for terminal purposes and was used by the Michigan Central Rd., which obtained an entrance from St. Thomas, over the London and Port Stanley Ry.

Alien Holders of Canadian Railways Stock.

Mr. Justice Ducloux gave judgment at Montreal, Apr. 23, on the petition of the Dominion Government, asking that the Secretary of State be put in possession of 143,676 shares of Canadian Pacific Ry. stock held in New York in the names of German and Austrian shareholders. The petition was based on the consolidated orders in council of 1916 respecting trading with the country's enemies. While the C.P.R. gave the court all information in relation to the matter, it raised questions as to whether it had the right to compensate itself, out of the accumulated dividends on certain of the shares, for the indebtedness of the holders to the company. The C.P.R. had \$2,500,000 deposited in German banks at the

Halifax. Ocean terminal facilities have been provided at Halifax with a capacity of several times the present traffic and an ultimate provision for many times the present tonnage. At present the line from St. John, N.B., with the C.P.R., and Maine Central connections, the I.R.C. along the north shore and the low grade National Transcontinental south of it, converge at Moncton. Between Moncton and Halifax is a single track railway with heavy grades. To increase the tonnage capacity of this line several plans can be considered to keep pace with the developments at Halifax. Under maximum conditions at present, the line is operated to capacity."

The following are the possible plans:

- 1.—Electrification of the present line.
- 2.—Grade reduction on the present line.
- 3.—Double tracking the present line with grade reduction.



Canadian light railway construction on the British Western Front. The scraper filled, on its way to end of embankment.
Canadian Official Photograph. Copyright reserved.

outbreak of the war, and there was a balance of \$215,593 for cars, in addition to a special deposit of \$30,000, owing by Austria. The government's request was granted by the court.

A similar petition has been presented in an Ontario court by the Secretary of State in respect of about \$154,000 of Canadian Northern Ry. stock, held by 28 alien enemies.

Electrification of the Intercolonial Railway Between Moncton and Halifax.

W. G. Gordon, Transportation Engineer, Canadian General Electric Co., in speaking at an engineers' meeting in Halifax, N.S., recently, repeated an address delivered previously in Ottawa, and which appears on pages 229 and 230 of this issue, and added the following remarks of a more local nature:

"With regard to the 187 miles of line of the Canadian National Rys. at present steam operated, between Moncton and

4.—Double-tracking the present line without grade reduction.

5.—Construction of low grade single track on new locations.

"With electrification of the present line, three times the present tonnage could be handled. This is the result of electric locomotives being able to haul much heavier tonnage, at higher schedule speeds, with almost an entire elimination of the failures and delays at present due to steam operation. Under conditions of winter operation with low temperatures, the steam locomotive is at its worst, due to the dissipation of heat, whereas this condition allows the electric locomotive to operate at higher continuous draw bar rating than normal. With cheap power, available from large generating units, where the high tension lines follow the railway line, a continuously increasing load could be secured for power and lighting from points along, or near, the lines. Careful consideration of the methods above outlined show that the electrification of this line is economically justified on sound engineering principles."

Pacific and Switching Locomotives for Canadian National Railways.

The Canadian National Railways management has, as stated in a previous issue of Canadian Railway and Marine World, ordered recently 50 locomotives, 25 Pacific type and 25 switchers.

The Pacific type, which are being built at Montreal Locomotive Works, are almost identical with some Pacific type ones ordered by the Canadian Government Railways in 1917, general particulars of which were given in Canadian Railway and Marine World at the time. The principal differences being in the application of certain standards, with a view to the eventual standardization of the whole of the Canadian National Ry. operated lines. The general particulars of the locomotives now being built are as follows:—

Gauge	4ft. 8½ in.
Cylinders	23½ x 28 in.
Driving wheels	69 in.
Boiler	70½ in. i.d.
Boiler pressure	200 lb. sq. in.
Firebox	108 in. 10 x 75¼ in. wide
Tubes	185—2 in.
Flues	28—5½ in.
Length of tubes and flues	20 ft. 6 in.
Wheel base, driving	13 ft. 0 in.
Wheel base, engine	33 ft. 10 in.
Wheel base, engine and tender	66 ft. 6¾ in.
Weights in working order:—	
Engine truck	49,000 lb.
Driving wheels	160,000 lb.
Trailer truck	47,000 lb.
Total engine	256,000 lb.
Heating surface, tubes and flues	2,780 sq. ft.
Heating surface, firebox	215 sq. ft.
Heating surface, total	2,995 sq. ft.
Grate area	56.4 sq. ft.
Maximum tractive effort	38,100 lb.
Factor of adhesion	4.2
Capacity of tender, coal	12 tons
Capacity of tender, water	6,500 imp. gall.
Limiting height	15 ft. 3 in.
Fuel	Bituminous

The boiler will be of the straight top, radial stayed type, with sloping roof, face plate and throat sheets, and with a single fire door, with a factor of safety of 4½, and designed to withstand the usual tests. The similar C.G.R. locomotives had a boiler pressure of 180 lb., but this has been increased to 200 lb. The staying, and the washout and arch tube plugs, are to be of the new Canadian National standard.

The firebox will have a 5 in. water space in front, with 4 in. water spaces sides and back. The O'Connor firebox flanges will be used, as it has been found to relieve the frequent leakages at the fire door opening. The Franklin automatic firedoor will also be applied. The staybolts will be 1 in. in diam., 12 thread, with the usual tell-tale holes, and, in the breaking zone, Tate flexible staybolts will be applied. The security brick arch will be used.

The tubes will be of cold drawn seamless steel. The front ends of all tubes and flues are to be rolled, and in addition, the front ends of the flues, and the interspaced tubes, are to be beaded. All back ends are to be prossered with the standard C.P.R. prossering tool. One noteworthy change in the tube spacing is embodied. They are to be 2½ and 2 15-16 in. centers, instead of the usual 2¾ in. spacing. This will reduce the tube heating surface some 10 deg., but it is believed the increased ease of circulation will more than compensate for this loss.

The blow-off valve will be C.N.R. standard. The water supply will be cared for by a 4,500 gall. Hancock non-lifting inspirator on the left, and a Hancock lifting injector on the right. From the left inspirator, there will be a connection inside the cab for the ash pan sprinkler

system. The C.N.R. standard combined bell stand and boiler check will be applied for the boiler feed.

The grates will be of cast iron, standard design, equipped with the Franklin grate shaker, and the combined area of the grate openings to the ashpan will be 1-7 of the grate area. The ashpan hoppers will also be standard. The smoke box, stack, and all the front end arrangement will be the usual C.N.R. standard.

The superheater will be of the Hungerford-Cameron type, designed to give a superheat of 250 degrees under average conditions. It will be provided with C.N.R. standard inspection plugs.

The main frames will be of vanadium cast steel, with single forward section, with lugs, for holding the cylinders, and well braced together. All the driving boxes will have Franklin adjustable wedges.

The engine truck will be the Franklin Economy 4 wheel type, equipped with Preston hub liners, and with 33 in. wheels. The trailer truck will be of the Cole radial type, with 48 in. wheels.

The cylinders will be 23½ in. bore. The C.N.R. standard bypass valve will be applied, and apart from the King metallic valve stem and piston rod packing for the superheated steam, the fittings, etc., will all be C.N.R. standard. The steam ports will be fitted with peep holes, to facilitate the valve setting.

The valve gear will be of the Walschaert type, designed to cut off equally at all points of the stroke. The motion will be applied from the Ripken-King main rod arm, instead of from the crosshead arm. The reverse lever arrangement will be C.N.R. standard.

The main and side rods will all be of o.h. steel, and the big ends of the main rods will be similar to the U.S. Government standardized locomotive arrangement. The crosshead and piston head, will be C.N.R. standard.

The driving wheels will be 69 in. diam. over tires. The centers will be of cast steel, 62 in. diam.

The cab will be of the vestibule type, steel construction, wood lined and asbestos insulated, and equipped with the usual fittings.

Lighting will be provided by a Pyle-National type K2 turbine equipment, with a 250 watt incandescent lamp, in a special incandescent headlight case, with 18 x 9 in. reflector. The wiring will be carried through the hand rail, with circuits for the number, pilot and cab lamps. The number lamp will be of the new standard C.N.R. angle type, which provides for a wider angle of visibility. The steam heating equipment will be the Vapor make, with Gold no. 1012 regular valves.

The tender will be of the all metal type, with steel sills, substantial cover plates, and built up bolsters, and equipped with Sharon 5 x 7 in. M.C.B. coupler. The trucks will be of the pedestal type, with flat side frictions, spaced 40 in. centers on the front truck, and 50 in. centers on the rear truck, with M.C.B. standard braces, journal boxes, and trussed brake beams. The tender tanks will have a capacity for 12 tons of coal and 6,500 imp. gall. of water, and will be equipped with the Locomotive Superheater Co's. slope sheet type of coal pusher.

Switching Locomotives.

The 25 switching locomotives which

will be of the 0-6-0 type, similar to the 10 ordered by the Canadian Northern Ry. as described in Canadian Railway and Marine World for Mar., 1918, are being built by Canadian Locomotive Co. The same specifications throughout have been used. The general details are as follows:

Gauges	4 ft. 8½ in.
Cylinders	21 x 26 in.
Driving wheels	51 in.
Boiler	68 in.
Boiler pressure	180 lb.
Firebox	41¼ x 95 15-16 in.
Tubes	157-2 in.
Flues	24-5½ in.
Length over tube sheets	12 ft. 5 in.
Wheel base, driving	12 ft. 0 in.
Wheel base, engine and tender	41 ft. 1¼ in.
Weight in working order:	
Driving wheels	154,400 lb.
Tender	96,000 lb.
Engine and tender	251,000 lb.
Heating surface, tubes	1,437.8 sq. ft.
Heating surface, firebox	132 sq. ft.
Heating surface, arch tubes	11.5 sq. ft.
Heating surface, total	1,581.7 sq. ft.
Grate area	27.5 sq. ft.
Maximum tractive effort	34,400 lb.
Factor of adhesion	4.48
Tender capacity, coal	6 tons
Tender capacity, water	3,800 imp. gall.
Limiting height	14 ft. 10½ in.
Fuel	Bituminous

The boilers will be of the straight top, radially stayed, and with sloping back head, and designed to stand 200 lb. pressure, with a factor of safety of 4. There will be a superheater of the Schmidt type, and the security brick arch will also be applied. The feed water connections will be the standard C.N.R. type, through the bell stand. Nearly all the other features of the locomotives will be of the usual C.N.R. standard design.

Unusually Heavy Railway Construction.

The San Diego & Arizona Ry., now being built across Laguna Range in California to connect El Centro with San Diego, traverses some remarkably rugged country that called for heavy construction. Through Carriso Pass the grade has been kept down to 1.4%, because the cost of reducing grade later would be prohibitive. Elsewhere the grades run up to 2.2%, with 10 degree maximum curves. In the 12 mile section of the railway that lies between Jacumba and Carriso Gorge, there are 17 tunnels. Of these, two are about 2,500 ft. long, one is about 1,200 ft., and the remaining 14 are between 180 and 900 ft. The formation was loose, so that 75% of the total length required timbering. There remain to be completed about 11 miles of the mountain division, and crews are working on both ends of the gap. It is expected that the line will be ready for operation during the coming summer.

Exploration of Quebec Hinterland.—

The steamship Amberst, bearing the first group of explorers for the penetration of the interior of Ungava, left Quebec Apr. 8, for the north shore of the Gulf of St. Lawrence, whence they will proceed inland. It is said that this party is working in the interests of a British syndicate which has obtained charters from the Quebec Legislature for the building of two lines of railway,—the Quebec and Ungava Ry., and the St. Felicien and Ungava Ry., and is applying to the Dominion Parliament for the incorporation of a railway company with the title of the North Route.

Machine for Boring Babbit Linings of Car Journal Brasses.

For the rapid boring of the babbit lining in car journal brasses a special machine has been built by the Northwestern Elevated Rd., of Chicago, as shown in fig. 1.

Two sizes of journal brass in use on

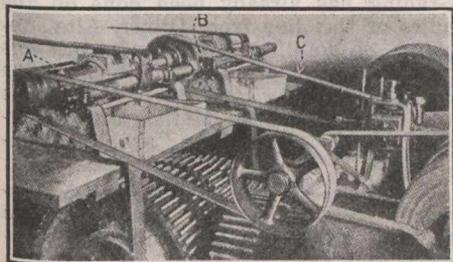


Fig. 1.—Machine for reboring car journal bearings.

this system are 4 and 4¼ in., and in order to handle both sizes the machine is made in two units connected together, thus forming the complete device. The cylinders are of two different diameters, the one at A being for 4¼ in. bearings

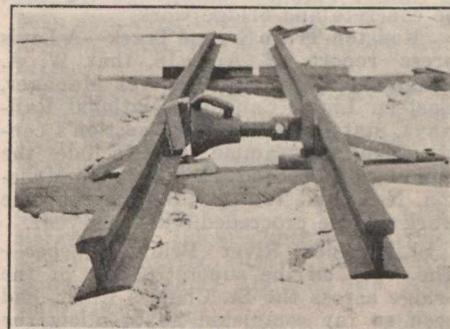
the shaft to the left beyond the bearings. This screw has a lead of 3-32 in. The handle G has a half nut on its upper face, which fits into this thread on the shaft, and when starting to make a cut the operator raises the handle until the half nut is in contact with the thread and is carried forward by it. The two handles are so fastened as to allow independent movement around the shaft H, which is free to slide longitudinally in its bearings; but the handles cannot move lengthwise on the shaft, therefore when lever G is moved forward by the thread, lever C carrying the brass moves with it.

The machine is always ready to operate, so when a workman takes out a journal brass and finds it badly worn at one end but still serviceable if redressed, he takes it directly to the machine. This is so simple in its operation that almost any workman can soon learn to operate it.

The cut obtained shows noticeable toolmarks, but it is claimed that this condition is not detrimental and that a run of a few miles on the road gives the

When the track becomes uneven, and out of surface, it is then necessary to shim it up, by using small wooden blocks of various thicknesses. It must be remembered that the depth of the spike in the tie diminishes as the thickness of the shim increases, accordingly, the holding power of the spike is reduced, and, owing to this, the side thrust of the trains has a greater tendency to bend the spikes, which causes the spreading or widening of the gauge. This is where the roadmasters and section foremen have to keep a close tab on work of this kind, and keep it braced up in the best possible manner, but in spite of all their efforts they will very often find the track or shims spreading, as it is impossible to keep a very accurate surface.

In order to assist and overcome the difficulties of track spreading, I have been experimenting on a new rail brace



clip. As the accompanying illustration shows, I have placed two rails on a tie, and placed shims under them, and spiked them down as though they were in a track. I have placed a standard brace on one side, and on the opposite side have placed another of the same type, using my rail brace clip, and to demonstrate the resisting power of the clip against the standard way of bracing, I have used an ordinary screw jack, so as to give pressure on the flange of the rails, as though it were the side pressure of a swaying train. It will be noted that the standard brace has given out, and the rail turned over, while the opposite side, with the rail brace clip, did not budge. This is due to the fact that the clip has the full service of the spikes, and in gauging the surface of the end of the brace, whereas, on the other hand, with the standard brace, only half of the spike is in the tie, and when the pressure is brought to bear on the brace, the spikes cut into the wood and also bend back. This rail brace clip is made of malleable iron, or pressed iron, with two little tits projecting out from the end of it, which is inserted into the end of the wooden brace. This holds the brace in place and keeps it from working off. The principal advantage of this clip is that it only takes half the material to make it, as compared with the standard type, and it can be used on or off shims, as desired.

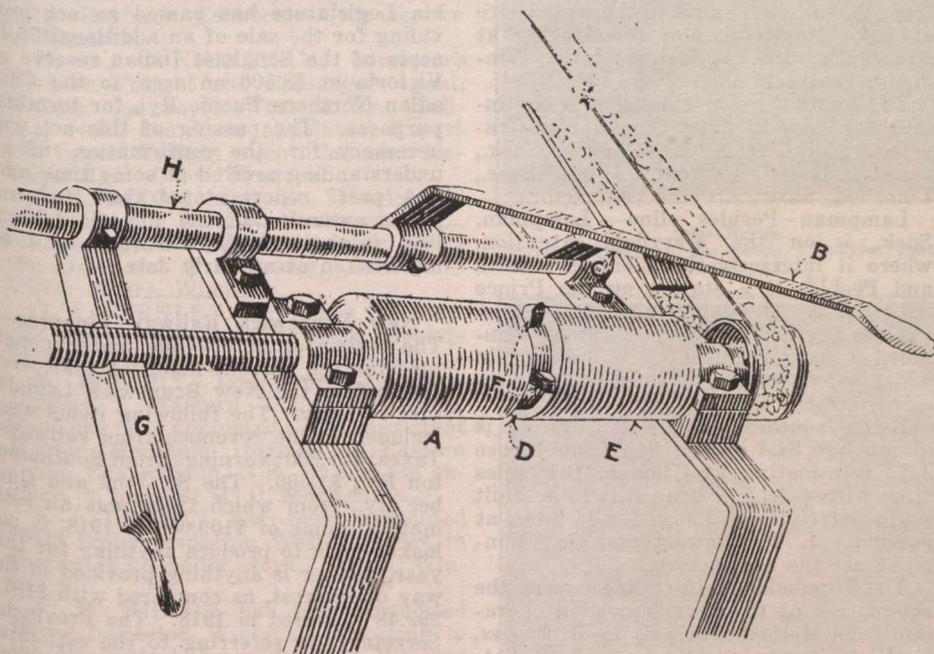


Fig. 2.—Details of boring machine, showing feed arrangement.

and that at B for the 4 in. bearings. Scrap pans are provided below the machine to catch the chips.

A brass, after the babbit lining is cast in, is laid on the cylinder A, fig. 2, which is driven by the belt from a motor. The arm B is lowered on to the brass, so that the prongs C lock into the notches provided on the back of the brass for the locking wedge. Pressing down on the lever the operator slides the brass across the gap D on to the cylinder E, which is slightly larger than A. In its passage across D the cutting tools F bore out the soft metal to a diameter corresponding to that of cylinder E. The action of the machine is somewhat analogous to that of a jointer, in which a piece of wood is planed by passing it from a lower table to a slightly higher one across a gap in which is the rapidly revolving cutter.

A uniform rate of feed is obtained by means of a screw, on a continuation of

metal a chance to work down to a good bearing.

The shop staff state they have obtained a considerable saving in the amount of babbit used since the installation of this device.

Rail Brace Clip to Prevent Track Spreading From Frost Effect.

By D. McIntyre, Roadmaster, C.P.R., Fort William, Ont.

The northern railways of America experience great difficulty in keeping their track in surface and line, due to the frost heaving. Heaving of track is caused by the freezing, and consequent expansion, of water which is absorbed and retained by the earth and ballast, and, therefore, we have the opinion of the best experts, that any improvement in drainage will greatly reduce the amount of shimming necessary.

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

	Acres
Calgary and Edmonton Ry.....	5,499.42
Canadian Northern Ry.....	26.68
Canadian Northern Alberta Ry.....	482.13
Canadian Northern Manitoba Ry.....	73.16
Canadian Pacific Ry. grants.....	482.13
Canadian Pacific Ry. roadbed and station grounds.....	16.50
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.....	69,933.19
Total.....	76,341.57

Canadian National Railways Construction, Betterments, Etc.

Halifax and South Western Ry.—A press report states that large quantities of ties have been distributed along the line, and preparations made for other work. It is reported that as soon as the improvements are completed a daily express service will be put in operation between Halifax and Yarmouth.

McGivney-Fredericton Improvements—A press report of Apr. 5 states that the work of bringing the Fredericton-McGivney Jct., section of the old Canada Eastern Ry., up to a standard sufficient for it to be used as part of the projected route from the National Transcontinental Ry. into St. John, over the St. John and Quebec Ry., is to be done by the railways own staff. The only work to be let by contract will, it is reported, be concrete and bridge work.

Moncton-Truro Second Track—A Levis press report of Apr. 16, that W. A. Kingstand, Assistant General Manager, Eastern Lines, Canadian National Railways, stated here that the section's construction programme will include the building of a second track between Moncton, N.B., and Truro, N.S., and that the work will be proceeded with this year.

St. Charles River Bridge, Quebec—The work on the superstructure of the bridge across the St. Charles River, had been so far completed as to allow the operation of trains across it, Apr. 7. It is expected that it will be completed and fully opened for traffic by June 1.

St. Malo, Quebec, Shop—A press report of April 22 states that tracklaying from the rain line to the St. Malo shops was nearing completion. Replying to a question in the House of Commons, Apr. 10, the Minister of Railways said that work on the shops will be started as soon as arrangements can be made, and it is expected that the Canadian National Railways will be in a position to handle some repairs there during the coming summer, and to have the shops in full operation by the end of the year.

Donnacona Washout.—The Quebec Board of Trade, having taken up recently the question of the rebuilding of 14 miles of track on the Canadian Northern from Donnacona east to Quebec, which was washed out some time ago, J. E. Morazain, General Superintendent Quebec, replied as follows: "It is the intention to commence repairs to this line as soon as weather conditions will permit, that is when the frost is out of the ground, but as there are several miles of grading washed away, it will take several weeks after work is started before the line can be opened to traffic. In the meantime we propose to resume running the Quebec-Shawinigan Falls local via the C.G.R. line, commencing at change of time table, which should take effect early in June."

Grenville, Que., Cut Off—Tenders were received recently for fencing, clearing, grading and the construction of culverts for about one mile of line to connect the Canadian Northern Ontario Ry., and the Canadian Northern Quebec Ry., near Cushing, Argenteuil County, Que.

Central Station, Ottawa—Replying to a question in the House of Commons, Apr. 10, the Minister of Railways said plans in connection with the entrance of Canadian National Railways trains into the Central Station, at Ottawa, without running backward when leaving for Montreal, were under consideration.

Port Arthur, Coaling Plant—A press report states that it is proposed to enlarge the coal handling plant at the south end of Port Arthur, Ont., and to modernize the equipment.

Grand Beach Improvements—A Winnipeg press dispatch states that considerable improvements will be made at Grand Beach, for the accommodation of summer residents, prior to the opening of the season in June.

Saskatoon Locomotive House—A press report states that the locomotive house at Saskatoon, Sask., is to be removed to a new site north of the city.

Extensions in Prairie Provinces—Tenders were received up to Apr. 15 for building of the following lines:—Amaranth extension; Lampman-Peebles line, Melfort north easterly, Eston, south easterly; Turtleford extension; Humboldt-Melfort; Luck Lake extension, Swift Current extension, Oliver-St. Paul extension, Acadia Valley line, and Hanna-Medicine Hat line, and contracts for grading and culverts have been let as mentioned above.

The Amaranth extension is an extension of some 35 miles of the Delta branch from Portage la Prairie to the west shore of Lake Manitoba, now terminating at Amaranth. Jno. W. Stewart & Co., Winnipeg, contractors.

The Swift Current extension is continuing for some 25 miles the Avonlea-Gravelbourg line from Gravelbourg, Sask., toward Swift Current, Gibbs Bros., Lumsden, Sask., are the contractors.

Lampman-Peebles line—Lampman, Sask., is on the Maryfield extension, where it intersects the Bienfait branch, and Peebles is a station on the Prince Albert line. The extension is to be from Peebles northerly to some 20 miles. Canadian Construction Co., Winnipeg, in which W. A. Dutton is principally interested, are the contractors.

Eston southeasterly, Eston, Sask., is at mileage 84.4 on the line from Elrose Jct., terminating at Glidden, 104 miles from Elrose Jct. A branch is to be built southeasterly from Eston for 35 miles at present. J. W. Stewart and Co., Winnipeg are the contractors.

The Humboldt-Melfort line covers the completion of the branch now in operation from Melfort southerly to St. Brieux, Sask., to Humboldt, 32 miles. J. W. Stewart and Co., Winnipeg, are the contractors.

The Melfort northeasterly line, of some 30 miles, is to traverse the Carrot River County. Jno. W. Stewart & Co., Winnipeg, are the contractors.

The Luck Lake extension is continuing for some 20 miles, a 9 mile branch from Elrose Jct., now terminating at Dunblane. Western Construction Co., North Battleford, Sask., are the contractors.

The Hanna-Medicine Hat line leaves the Saskatoon-Calgary line at Bonar, about seven miles east of Hanna, Alta., and was graded to the bank of the Red Deer River during 1918. Seventy-two miles more are to be built towards Medicine Hat. Canadian Construction Co., Winnipeg, are the contractors.

The Turtleford extension is a continuation for some 20 miles of a 56-mile branch line from North Battleford, now terminating at Turtleford, Sask. Western Canada Construction Co., North Battleford, Sask., in which J. W. Millar is

principally interested, are the contractors.

The Acadia Valley line, of some 25 miles, is to be built from the Saskatoon-Calgary line, at or near Alask, Alta. Grant Smith, Macdonnell & Co., Vancouver, are the contractors.

Oliver-St. Paul de Metis Extension—Grading has already been done on 100 miles of this line from Oliver, Alta., towards St. Paul de Metis, and track has been laid on 44 miles of this. Some 22 miles further are to be built this year to St. Paul de Metis. J. W. Stewart & Co., Winnipeg, are the contractors.

Kamloops-Vernon-Lumby Branch Contract—We are officially advised that a contract has been let to John W. Stewart and Co., Winnipeg, for grading, building and culverts on a line from Kamloops via Armstrong and Vernon to Kelowna, with a branch line from near Vernon to Lumby, B.C.

Surveys for this line were made in 1913, the total length of the line, including the branch from Vernon to Lumby being 140 miles.

Vancouver Island—The British Columbia Legislature has passed an act providing for the sale of an additional 26.42 acres of the Songhees Indian reserve at Victoria at \$8,500 an acre, to the Canadian Northern Pacific Ry., for terminal purposes. The passing of this act was necessary for the confirmation of an understanding arrived at some time ago.

A press report stated that the projected extension of the Victoria-Alberni line, into the Nitinat district, will be undertaken at an early date.

New Brunswick Railway Finances.—The estimates of revenue and expenditure for the current financial year were laid before the New Brunswick Legislature recently. The following items were included in the revenues from railways: Taxes, \$57,200; earnings from Southampton Ry., \$1,500. The St. John and Quebec Ry., from which there was an estimated income of \$100,000 in 1918, is not looked upon to produce anything for this year, neither is anything provided in the way of interest, as compared with \$187,299.48 provided in 1918. The Provincial Secretary, in referring to the estimates stated that the cost of the St. John and Quebec Ry. to Mar. 1 had been \$3,945,021.12.

Timiskaming and Northern Ontario Ry.—S. B. Clement, Chief Engineer and Superintendent of Maintenance, in his report for the year ended Oct. 31, 1918, states that owing to labor shortage and general conditions, the building of a short revision at mileage 80.8 was not gone on with during the year, but was postponed until a more favorable opportunity. Track laying on the division, mileage 63 to 66.5, was postponed, owing to the shortage in the supply of rails, but will be gone on with during 1919, as also will be the tracklaying on the revision between mileage 54 and 55.

Canadian Northern Ry.—There has been deposited with the Secretary of State at Ottawa, duplicate original of a trust mortgage made between the C. N. R. Co., Lloyd's Bank, London, Eng., and the Dominion of Canada, securing certain 5% guaranteed secured gold notes of the company.

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.

Algoma Eastern Ry.—J. M. ALTON has been appointed Treasurer, vice E. W. Shell, resigned. Office Sault Ste. Marie, Ont.

T. F. RAHILLY, heretofore Superintendent, has been appointed Comptroller, vice M. S. Connor resigned. Office Sudbury, Ont. The position of Superintendent has been abolished.

Canadian National Rys.—C. D. BOVARD, heretofore acting Assistant Superintendent, Moncton, N.B., has been appointed Terminal Agent there.

R. F. CLARK, General Agent, Chicago, Ill., has been appointed General Agent, Chicago and district, with supervision of Canadian National Rys. traffic in that territory. J. A. Boak, Western U.S. Agent, Canadian Government Rys., Chicago, having resigned. Office 64 West Adams St., Chicago, Ill.

W. F. CONNALL has been appointed Mechanical Engineer, Toronto, vice H. D. Cameron, who resigned recently, to enter Robinson Connector Co.'s service at Montreal.

W. A. CUNNINGHAM, heretofore Division Freight and Passenger Agent, Halifax and South Western Ry., Halifax, N.S., has been appointed Export and Import Freight Agent, Canadian National Rys. Office, Montreal.

H. A. DIXON, heretofore District Engineer, Pacific District, Vancouver, B.C., has been appointed Chief Engineer, Western Lines, vice A. T. Fraser, accidentally killed. Office, Winnipeg.

G. A. FERNLEY, heretofore Commercial Agent, Montreal, has been appointed Travelling Freight Agent, there.

M. HENCHY, Locomotive Foreman, District 1, Eastern Lines, Chaudiere, Que., has been appointed acting Assistant Master Mechanic District 5, Eastern Lines, Edmundston, N.B., during the absence on leave of H. D. MacKenzie.

S. J. LUPTON has been appointed Chief Boiler Inspector, Western Lines, in charge of all boiler work. Office, Winnipeg.

V. M. MILTON has been appointed Boiler Inspector, Winnipeg, reporting to the Mechanical Superintendent, Western Lines. Office, Winnipeg.

W. D. STEWART, heretofore Assistant General Storekeeper, Western Lines, Canadian Government Rys., Transcona, Man., has been appointed acting General Storekeeper, Eastern Lines, Canadian National Rys., vice L. C. Thompson, General Storekeeper, appointed General Storekeeper Canadian Car and Foundry Co. Office, Toronto.

W. WALKDEN has been appointed Bridge Engineer, Western Lines. Office, Winnipeg.

Canadian Pacific Ocean Services Ltd.—F. G. FRIESER, heretofore Export Freight Agent, C.P.R., New York, has been appointed General Agent, Freight Department. Office, 1548 Woolworth Building, New York, N.Y.

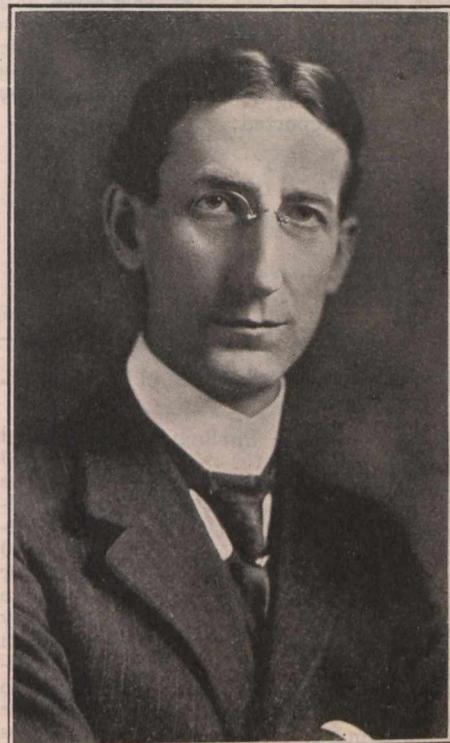
Canadian Pacific Ry.—J. D. ALTIMAS, heretofore Car Accountant, has been appointed Assistant General Superintendent of Car Service. Office, Montreal.

A. BROWN has been appointed Division Master Mechanic, Nelson, B.C., vice G. H. Nowell, transferred.

JOHN BURNS, heretofore Assistant Works Manager, has been appointed Works Manager, Angus shops, Montreal. H. G. DRING, heretofore General Pas-



John Burns,
Works Manager, Angus Shops, Canadian Pacific
Railway.



E. N. Todd,
General Freight Agent, Eastern Lines, C.P.R.

senger Agent, London, Eng., has been appointed European Passenger Manager. Office, 62 Charing Cross, London, Eng.

G. O. EVANS, Car Service Agent, Calgary, Alta., is reported to have resigned.

J. W. KEPPEL, heretofore Locomotive Foreman, Kenora, Ont., has been appoint-

ed General Foreman, Vancouver, B.C., vice J. D. Muir, transferred.

J. D. MUIR, heretofore General Foreman, Vancouver, B.C., has been appointed Assistant Works Manager, Angus Shops, Montreal.

G. H. NOWELL, heretofore Division Master Mechanic, Nelson, B.C., has been appointed Division Master Mechanic, Revelstoke, B.C.

W. PHELAN has been appointed Car Accountant, Montreal, vice J. D. Altimas, promoted.

S. F. PIERCE, heretofore Manager, Hotel Palliser, Calgary, Alta., is reported to have been appointed Manager, Royal Alexandra Hotel, Winnipeg.

R. F. RICHARDSON, heretofore Local Freight Agent, Calgary, Alta., has been appointed Local Freight Agent, Edmonton, Alta., vice S. C. Graham, transferred.

Caraquet & Gulf Shore Ry.—F. B. BURTON, Superintendent, Bathurst, N.B., is now in direct charge of this line, consequent on the death of W. B. Cronk, Vice President.

Grand Trunk Ry.—N. P. CLARKE, heretofore in the accounting department, Chateau Laurier, Ottawa, has been appointed Manager, Highland Inn, Algonquin Park, Ont.

W. CULLIGAN has been appointed Chief Dispatcher, Districts 20 and 21, London Division, Ontario Lines, vice W. K. Rogers, and the dispatching office for these districts has been moved from Brantford to Stratford, Ont.

J. B. FRANKLIN has been appointed Supervisor of Track, District 5, Montreal Division. Office, Brockville, Ont.

H. R. McLENNAN, Trainmaster, District 20 and 21, London Division, Ontario Lines, has had his office moved from Brantford to Stratford, Ont.

C. S. OGILVIE, formerly Assistant Engineer, Belleville, Ont. and latterly in military service, has been appointed Assistant Engineer, Ottawa Division, vice H. Mowat, assigned to other duties. Office, Ottawa, Ont.

W. A. STOTT has been appointed Road Foreman of Locomotives, Districts 2, 3 and 4, Eastern Lines, vice W. H. Wheatley transferred.

W. H. WHEATLEY, heretofore Road Foreman of Locomotives, Districts 2, 3 and 4, Eastern Lines, has been appointed Road Foreman of Locomotives, Montreal Terminals, vice E. S. McMillan assigned to other duties. Office, Turcot, Que.

Grand Trunk Pacific Ry. System.—W. P. HINTON, Vice President & General Manager, G.T.P.R. Co., and its subsidiaries, continues in that position for the companies, and is acting as General Manager under the Receiver, the Minister of Railways and Canals. With the Minister's approval, he has opened an office in the Railways Department, at Ottawa, where he is represented in his absence by S. P. PORTER, heretofore Executive Agent of the company, at Regina, Sask., who is acting as his assistant in all matters pertaining to the receivership.

H. H. HANSARD, Solicitor, G.T.P.R. Co., has been delegated to act as Solicitor to the Receiver, to assist the latter in all legal matters pertaining to the receivership. Office, Railways Department, Ottawa.

New York Central Rd. (U.S.R.A.)—F. M. BYROM, General Agent, Utica, N.Y., has had his jurisdiction extended to

Canadian Pacific Railway Honor Roll 42.

cover all stations on the Adirondack Division, including Montreal. All matters pertaining to passenger traffic, forwarded formerly to A. L. Miller, General Agent, Montreal, should be addressed to the General Agent at Utica. The company's general agency and ticket office, at 220 St. James St., Montreal, has been closed, and the New York Central is now represented in the Montreal consolidated ticket office, 238 St. James St., which is in charge of W. De W. Stott, Agent.

Pacific Great Eastern Ry.—G. E. MACDONALD, of MacDonald-Marpole Co. Ltd., Coal Merchants, etc., Vancouver B. C., has been appointed General Manager, vice G. L. Courtney, who has resigned recently. Office, Vancouver, B.C.

Quebec Land Grants to Railways.

The Quebec Legislature has authorized grants of land to aid the construction of the following railways:—

Quebec Central Ry.—From near Scotts Station on its main line, to the National Transcontinental Ry., near St. Jean Chrysostome, 20 miles, 2,000 acres a mile.

St. Francis Valley Ry.—In lieu of the grant voted in 1914, 2,000 acres a mile from Stanstead to St. Francis du Lac, 95 miles, and a similar grant for St. Bonaventure to Sorel, 25 miles.

Rouge River Ry.—From Grenville, Argenteuil County, to the C.P.R. in Labelle County, 80 miles, 2,000 acres a mile. Subsidy may be applied to the section already built from Huberdeau to the Canadian china clay mines, 8 miles, and to its immediate extension to St. Remi d'Ambrose, Labelle County.

Shefford, Bagot and Missisquoi Ry.—From the Vermont-Quebec boundary in St. George de Clarenceville, to the Intercolonial Ry. between Bagot and St. Eugene, 75 miles, 2,00 acres a mile.

Canada and Gulf Terminal Ry.—From the present terminal at Matane through the interior of the Gaspé peninsula to Gaspé Basin, 190 miles, 2,000 acres a mile, in lieu of grant voted in 1914.

Timiskaming or Kipawa to Des Quinze River.—To a company building a line from the C.P.R. line now terminating at Timiskaming or Kipawa, via Ville Marie to the Rivière des Quinze, 100 miles, 4,000 acres a mile.

Belle River to Lake Kamagama.—To a company building a line from the Kiask Falls of the Belle River southerly to Amos, on the National Transcontinental Ry., and thence to Lake Kamagama, between 80 and 100 miles, 2,000 acres a mile.

The Toronto Globe recently said that the Quebec Legislature had voted "a grant of 2,000 square miles per mile of railway track laid". Of course acres should have been stated instead of square miles. The difference between the two is a matter of 1,279,000 acres a mile of line.

The Crossen Car Co., in pursuance of the terms of the mortgage deed of Jan. 2, 1911, proposes to redeem the whole of the 6% first mortgage bonds which may be outstanding July 2 at 105% of par value, with accrued interest. In case of the neglect of bondholders to deposit their bonds for redemption by the date mentioned, the company will deposit the moneys so payable in the Montreal Trust Co., which shall constitute a discharge of the same.

Baker, Arthur Jones	Carman	West Toronto	Wounded
Barker, William C.	Yard foreman	Red Deer	Gassed
Bartholomew, Alfred	Waiter	B.C. Lake & River Service	Wounded
Blacklock, Philip U.	Clerk	Montreal	Killed in action
Bowles, Augustin	Helper	Field	Wounded
Brickwood, Charles H.	Wiper	Brandon	Wounded
Brooks, Harry	Apprentice	Winnipeg	Wounded
Brown, Alfred Stanley	Chargeman	Kingston	Killed in action
Brown, Nelson Alex.	Tie and timber inspector	Cranbrook	Presumed dead
Cameron, James	Yardman	Winnipeg	Wounded
Catchpole, William F.	Trimmer	Smith's Falls	Wounded
Cromarty, Thomas	Clerk	Vancouver	Wounded
Davis, Fred	Yardman	West Toronto	Died of wounds
DeWitt, Award W.	Trainman	Brownville Jct.	Killed in action
Dorward, James C.	Car cleaner	Winnipeg	Presumed dead
Duncan, James	Clerk	Vancouver	Wounded
Evans, Robert John	Loco. fireman	East Calgary	Wounded
Fisher, Frederick J.	Machinist	Winnipeg	Killed in action
Fitzsimmons, Hugh H.	Yardmaster	Frank	Wounded
Foster, Robert T.	Ditchrider	Strathmore	Died of wounds
Fraser, Thomas	Clerk	Ottawa	Died of wounds
Galbraith, William M.	Checker	MacLeod	Wounded
Hallam, John Edgar	Waiter	B.C. Coast Service	Wounded
Harrison, David	Clerk	Montreal	Wounded
Henderson, Allen	Car-wheel borer	West Toronto	Wounded
Hill, William	Trainman	Smith's Falls	Wounded
Jack, Charles Henry	Operator	Cobden	Wounded
Jeffs, Joseph	Loco. fireman	Regina	Killed in action
Judge, Thomas Roy	Clerk	Oshawa	Wounded
Laurie, William	Car checker	Cranbrook	Wounded
Lawson, James W.	Clerk	Fort William	Killed in action
Leahy, Michael	Bridgeman	Winnipeg	Wounded
Leaming, Charles	Trainman	Minnedosa	Wounded
McGillivray, Angus D.	Operator	Montreal	Wounded
McNabb, Mervin C.	Brakeman	Medicine Hat	Killed in action
Machin, James Edwin	Car checker	West Toronto	Died of wounds
Middlemiss, Henry	Clerk	Winnipeg	Wounded
Milne, John	Carman	Estevan	Wounded
Morgan, Arthur J.	Freight checker	Vernon	Killed in action
O'Brien, John	Brakeman	Chapleau	Wounded
Orrell, Samuel	Steamfitter's helper	Angus	Wounded
Osborne, Gordon	Apprentice	Angus	Gassed
Patterson, Henry	Constable	Ontario District	Wounded
Perry, Stanley F.	Locomotive man	Brandon	Wounded
Pulham, Cecil W.	Loco. fireman	B.C. District	Wounded
Reeves, Frederick J.	Delivery man	West Toronto	Wounded
Reed, Ernest	Watchman	Colonsay	Wounded
Richbell, Edwin	Locomotive man	Winnipeg	Wounded
Robertson, John P.	Locomotive man	Medicine Hat	Killed in action
Robertson, Walter B.	Storeman	Winnipeg	Presumed dead
Scott, Arthur	Fireman	Winnipeg	Wounded
Sefton, Harry	Clerk	Calgary	Killed in action
Simmonette, Thomas	Loader	Lethbridge	Wounded
Slade, George S.	Operator	Toronto	Wounded
Stephen, William	Sty. fireman	North Bay	Died of wounds
Stitt, Hubert B.	Assistant agent	Didsbury	Wounded
Unwin, Lawrence B.	Accountant	Schreiber	Wounded
Van Mourick, Adrian	Messenger	Vancouver	Wounded
Wilcox, Harry	Timekeeper	Montreal	Killed in action
Wiskar, S.	Teamster	Strathmore	Wounded

The following casualties to members of the European staff on active service have been reported:

Boddington, W.	Clerk	London	Killed in action
Cope, Wilfred	Clerk	London	Killed in action
Cowie, Edward	Clerk	Glasgow	Killed in action
Hutchison, Geo. H.	Clerk	Glasgow	Killed in action
Pedler, Albert	Clerk	Liverpool	Missing
Prevel, James	Clerk	London	Killed in action
Townley, James	Clerk	Liverpool	Killed in action
Van Ackeren, Joseph	Apprentice	Antwerp	Killed in action
Wilson, John	Clerk	Glasgow	Killed in action

Shown on Honor Lists to date: Killed, 895; wounded, 1,911; total, 2,806.

The Elimination of Level Crossings.

The Dominion Parliament has passed an act providing for the extension for 10 years of the act passed in 1909 for the elimination of level crossings on railways. The act provides for the appropriation of \$200,000 a year for the next 10 years to aid actual construction work for the protection, safety and convenience of the public, in respect of highway crossings at rail level in existence on April 1, 1909, and the Minister of Railways stated that it was not intended to alter the procedure of distributing the money, but simply to extend for 6 years the time of the operation of the present act. Under the existing law the Board of Railway Commissioners may order the elimination of any crossing by the erection of a bridge or the construction of a subway and apportion the cost between the municipality and the railway company, and may direct the payment of a sum from the amount granted by parlia-

ment. In the consolidation Railway Act, provision is made to increase the government contribution to 25% of the actual construction cost, not to exceed in any one case \$15,000, with certain limitations as to the number of crossings dealt with in one municipality in the year. It was thought well to bring in the present bill pending the passing of the new consolidated Railway Act. The bill does not apply to the Canadian Government Railways.

During the discussion it was stated that the sums expended during the last 10 years were not very large, being as follows: 1909-10, \$70; 1910-11, \$69,109.18; 1911-12, \$7,643.14; 1912-13, \$20,807.38; 1913-14, \$39,968.11; 1914-15, \$92,099.48; 1915-16, \$47,079.99; 1916-17, \$46,630.53; 1917-18, \$13,740.85; 1918-19 (to Mar. 12), \$2,336.85.

The G.T.R. Shops at Montreal, Ottawa, Toronto, Stratford and London, Ont., now run 40 hours a week, viz.: 5 days of 8 hours each and not on Saturdays.

Wireless Telegraph Direction Finding Stations Erected by the Canadian Naval Service Department.

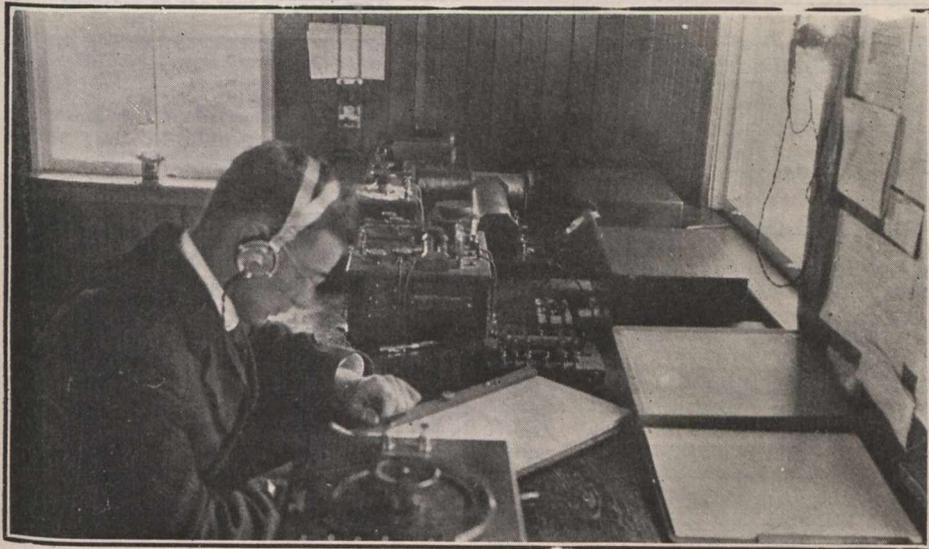
Of the considerable part played by wireless telegraphy in the war, little has been made public, for obvious reasons. To the average individual, wireless telegraphy is broadly associated with the idea of transmission and receipt of messages

the direction from which incoming signals are being received, and, in consequence, unless the sending station happens to be a known shore station, it is usually impossible to determine the direction of the signals from the signals themselves. The

of hostilities, efforts were concentrated more upon the development of this type of station, with very gratifying results. The system used is the invention of Bellini and Tosi, two Italians, and consists primarily of two looped aerials at right angles, and means for resolving the effects produced, so that the direction of the incoming signal may be determined.

Dr. Bellini was born at Foligno, Italy, April 13, 1876, and educated at Naples University. In 1901 he was appointed Electrical Engineer to the Royal Italian Navy, and in 1906 he became Chief of the Naval Electrical Laboratory at Venice, in which capacity he carried out research work, dealing with the employment of wireless telegraphy on warships and submarines. Later, in conjunction with Capt. Tosi, he invented the Radiogoniometer, an apparatus for directive wireless telegraphy. In 1910 the Bellini-Tosi system was installed at the Boulogne-sur-Mer station of the French post office.

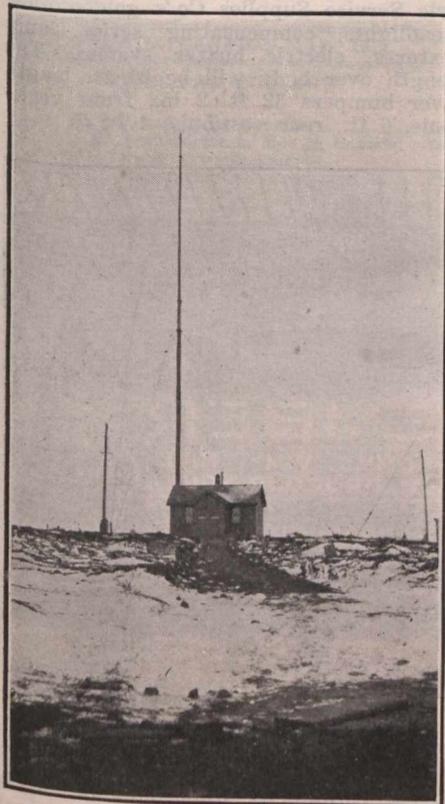
During hostilities the Canadian Naval Service erected four of these stations on the Atlantic coast, with the object of using them as a means of locating hostile craft, and as an aid to navigation of His Majesty's ships, with the ultimate idea of placing them, after hostilities, at the disposal of all shipping, as an aid to navigation. This latter has already been done, and it is anticipated that their successful operation will be an extremely valuable assistance to ships navigating in the waters about the Atlantic coast, particularly during the summer, when dense fogs occur from time to time. These four Canadian stations have been erected at Cape Sable, at the southern end of Nova Scotia; Chebucto Head, at the mouth of Halifax Harbor; Cape Canso, at the entrance to Chedabucto Bay, and Cape Race, Newfoundland. From any or all of these



Instrument Table, Canadian Government Wireless Telegraph Direction Finding Station, Canso, N.S.

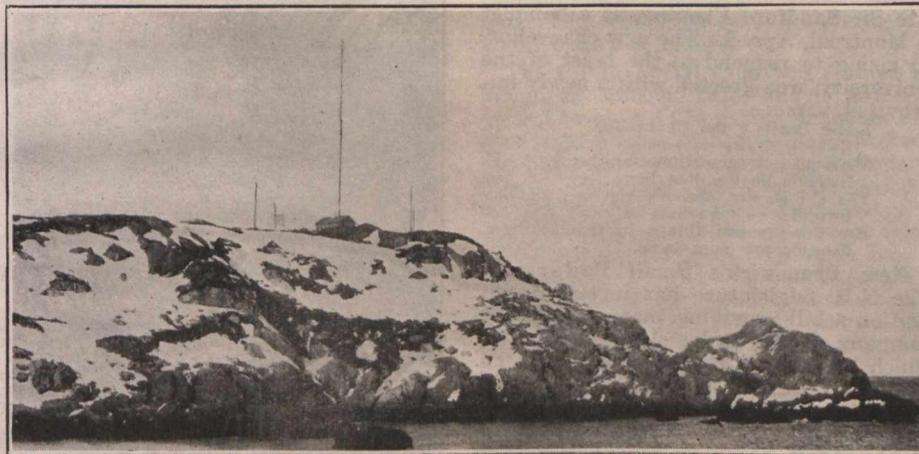
without intervening wires, and in the main, this undoubtedly is its chief function. There have, however, been important developments in the use of wireless telegraphy, in which the transmission and

outstanding advantages arising from the ability to determine the direction of incoming signals, with a reasonable degree of accuracy, are mainly, that it provides a means of locating the position or bearing of hostile craft, should they happen to be transmitting on their wireless equipment within the range of the direction finding stations, and that it provides a valuable aid to navigation, as it enables ships fitted with ordinary wireless telegraph gear to determine their position on the chart, or their bearing on the



Mast and Operating House, Canadian Government Wireless Direction Finding Station, Cape Race, Newfoundland.

receipt of messages is not the primary object, and one of these is the wireless telegraph direction finding station. At an ordinary wireless telegraph station, there are no means of determining



Canadian Government Wireless Direction Finding Station, Cape Sable, N.S.

station, this information being of the utmost importance to a vessel approaching a coast either in a fog or under doubtful reckoning.

The possibility of utilizing specially constructed wireless telegraph stations for the purpose of determining the direction of incoming signals received considerable attention in some quarters before the war, and efforts were made to produce apparatus and stations of sufficient accuracy to warrant general use, but, owing to the difficulties encountered, the success was not very marked. Upon the opening

stations a ship may obtain a bearing while still at a distance of several hundred miles from the coast. From the several bearings she would be able to determine her position on the chart. Experience gained during hostilities tends to show that bearings obtained are accurate to within less than two degrees, and that as the personal handling of the apparatus becomes more experienced the accuracy continues to improve.

During the summer, the whole of the Atlantic coast is occasionally fog bound for days together, and during these

periods it is extremely difficult for a ship to determine her position with the accuracy necessary to safety, and in consequence, in spite of all precautions, several valuable ships run ashore each year. It is fully expected that the intelligent use of these direction finding stations will reduce these wrecks.

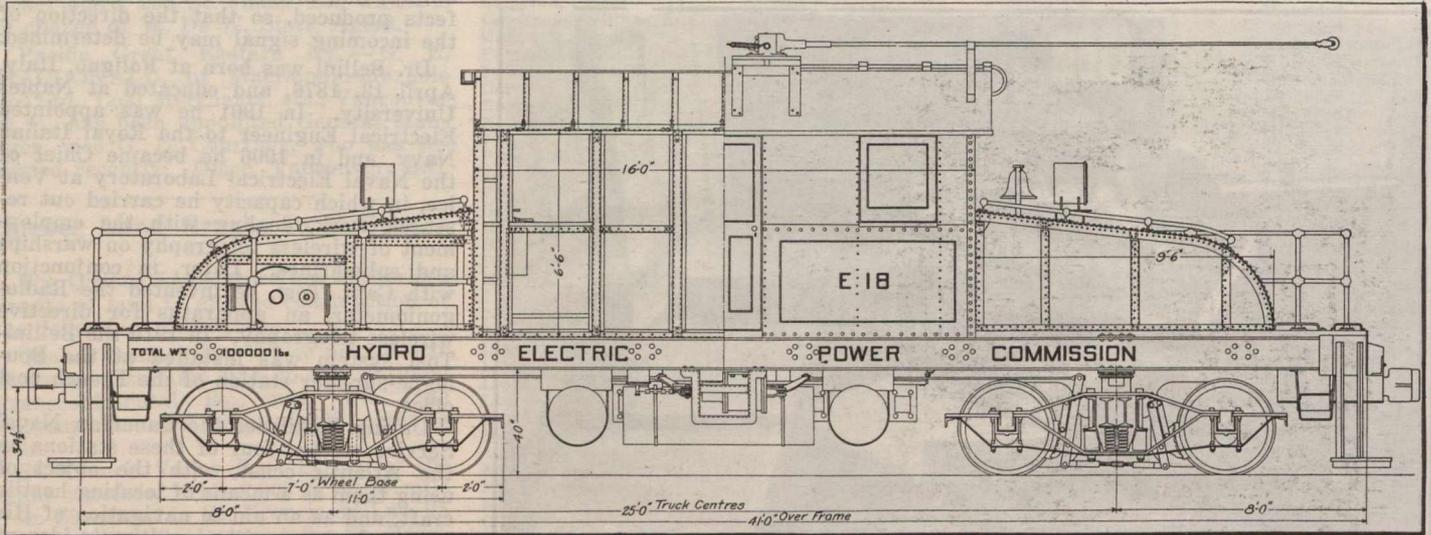
All these stations are now open to commercial shipping and information to this effect is being promulgated in notices

Too Late for Classification.

Sydney vs. Rimouski for Landing Mails.—The postal authorities in London, Eng. are said to have stated, with regard to mail and passenger service via Sydney, N.S., which the Canadian Government is said to be considering, that tests made in 1905 and 1906 proved that mails transferred at Sydney and forwarded thence

W. Leonard, C.E., formerly commissioner, National Transcontinental, \$25,000; E. W. Beatty, Vice President, C.P.R., \$5,000.

The Three Rivers Traction Co., Three Rivers, Que., has ordered 2 one-man, single truck cars, from Ottawa Car Manufacturing Co. The underframe is of wood construction reinforced with side sill plates 18 x 3/8 in., roof of arch type, interior finish cherry, folding



Electric Locomotive for Hydro-Electric Power Commission of Ontario.

The above elevation plan is of one of the six additional electric locomotives, which the Hydro-Electric Power Commission of Ontario is having built, for use on its Niagara power development construction railway, which were fully described in Canadian Railway and Marine World for April, page 204.

to mariners throughout the world. The service for the present will be given free of charge to the ship, but it may, at some future date, be found necessary to make a nominal charge to avoid abuse.

E. W. Beatty as Chancellor of Queen's University.—The Queen's University Alumni Association, of Montreal, entertained E. W. Beatty, K.C., President C.P.R., who has been elected Chancellor of the University in succession to the late Sir Sandford Fleming, at a banquet in Montreal, Apr. 8. The new chancellor, on rising to respond to the toast of the University, was greeted with a newly improvised verse:—

Eddie Beatty's the Chancellor
Sweedle de we dum bum.
We'll all get passes now, by Gar,
Sweedle de we dum bum.
The C.P.R. and Queen's you see
Sweedle we tchu hira sa
Are the greatest things in this countree
Sweedle we dum bum.

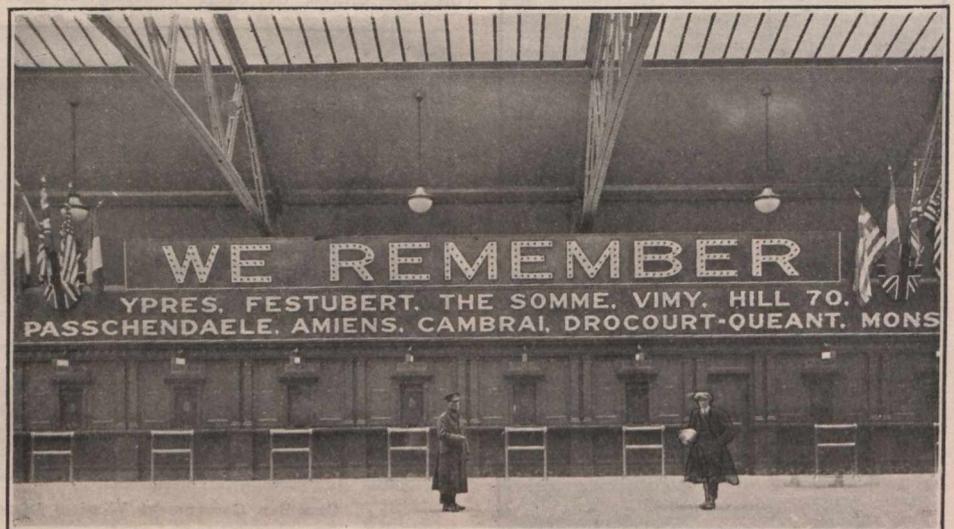
New Brunswick's Small Railways.—The N.B. Legislature has under consideration a bill providing that any railway company within its legislative authority, which has no statutory power to sell its line, may with the approval of the Provincial Government, sell its railway and undertaking to the Dominion Government. As it has been represented that certain lines which have been acquired, and others that may be acquired, by the Dominion, have not respectively, a right of way of a definite width within clearly established boundaries, the bill authorizes the Provincial Government upon such terms and conditions as may be advisable, to vest in such railways lands for a right of way of 66 ft. wide, and for station grounds and terminals 100 ft. wide.

J. G. Rutherford, C.M.G., one of the members of the Board of Railway Commissioners, Ottawa, has been offered the degree of Doctor of Veterinary Science, by Toronto University, and has accepted it.

by rail, reached their Canadian destination a day earlier than by the St. Lawrence route, while passengers for the Maritime Provinces saved 48 hours compared with Rimouski.

Lights and Fog Signals.—The Marine Department, Ottawa, has issued three lists of lights and fog signals, corrected to April 1, as follows: 1. Atlantic coast, including Gulf of St. Lawrence to head of

doors and steps with National Pneumatic Co.'s control, pantasote curtains, Consolidated Car Heating Co.'s electric heaters with thermostatic control, Electric Service Supplies Co.'s golden glow headlights, compensating series lamp fixtures, electric buzzer system. The length over body will be 21 ft. length over bumpers 32 ft. 2 in., front vestibule, 6 ft., rear vestibule, 4 ft.



Electrically Illuminated Welcome Sign Over the Ticket Offices in the C.P.R. Windsor St. Station, Montreal.

ocean navigation. 2. West of Montreal, and east of British Columbia. 3. Pacific coast and British Columbia rivers and lakes.

Toronto University Memorial.—Among the principal subscribers to the memorial to be erected by Toronto University, to its graduates and students who were killed in the war, are Sir Edmund Osler, one of the C.P.R. directors, \$25,000; R.

The Toronto Ry.'s noncompliance with the Ontario Railway and Municipal Board's order respecting the putting into service of an additional 200 cars, came before the board at the end of March, and was adjourned sine die, pending the result of the appeal to the Imperial Privy Council as to the Board's jurisdiction and powers to inflict a fine for failing to carry out its order.

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NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application. ADVERTISING COPY must reach the publishers by the 10th of the month preceding the date of publication.

TORONTO, CANADA, MAY, 1919.

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Answers to Questions About the Canadian National Railways.

During the House of Commons' current session, a large number of questions about the Canadian National Railways and their management have been asked by members.

The Minister of Railways gave the following information in answer to questions by A. B. Copp, M.P., for Westmoreland, N.B.:

The board consists of 11 directors, their names, dates of appointment, respective occupations immediately prior to appointment, and their places of residence being as follows: D. B. Hanna, Dec. 26, 1914, railway official, Toronto; Major Graham A. Bell, Nov. 5, 1916, Assistant to Minister of Railways and Canals, Ottawa; A. J. Mitchell, Sept. 6, 1918, railway official, Toronto; E. R. Wood, Sept. 17, 1916, banker and director various financial companies, Toronto; Robt. Hobson, Sept. 17, 1918, President, Steel Company of Canada, etc., Hamilton, Ont.; F. P. Jones, Sept. 17, 1918, Vice Chairman, War Trade Board and Vice President, Canada Cement Co., Montreal; R. T. Riley, Sept. 18, financier and managing director trust and loan companies, Winnipeg; C. M. Hamilton, Sept. 18, 1918, farmer, McTaggart, Sask.; Sir Hormisdas Laporte, Nov. 22, 1918, Chairman War Purchases Commission and merchant, Montreal; Thos. Cantley, Nov. 22, 1918, Chairman, Nova Scotia Steel & Coal Co., New Glasgow, N.S.; A. P. Barnhill, Nov. 22, 1918, barrister, St. John, N.B.

The directors, with the exception of Messrs. Hanna and Mitchell do not give their full time to railway. The directors receive no salaries as such, but receive an annual honorarium of \$2,000 each. Messrs. Bell, Hanna and Mitchell were appointed because of their long experience in various financial and business enterprises. There are no assistants, secretaries, stenographers or other officials attached to the board of directors.

Passenger and Freight Terminal Maintenance.

By D. McCooe, Superintendent of Track, G.T.R., Toronto.

The three most important things to consider in the maintenance of tracks in passenger and freight terminals may be classified as follows: Proper organization, supervision, and best methods.

The force should be sufficient to maintain all the tracks to a uniform standard of requirements the year around, this to be governed by local conditions and the volume of traffic. The terminal or yard should be divided into sections in charge of a foreman with a small gang (4 to 6 men) to take care of the ordinary maintenance work and policing of tracks. There should also be one or more large gangs of 25 or 30 men, similar to, if not, an extra gang, in charge of a competent foreman, to do all new work, such as relaying rail, rebuilding ladder tracks and other similar work, where necessary throughout the terminal.

The efficiency of foremen depends largely on the supervision and the instructions received from the roadmaster or supervisor, and it is their duty to see that foremen are supplied with the proper tools and the necessary material, and that their orders are obeyed.

The best method for doing the work is

to set a standard and adhere to it, and by making use of all practical labor saving devices, of which there are many. The reclamation of small track material, such as spikes and bolts, can be taken care of more economically by assembling them as they accumulate in the terminals, where they can be sorted out, and spikes straightened by hand or machinery. This will get the material into service again that is fit for further use, thereby avoiding delays by letting it accumulate in larger quantities before shipping it to the reclaiming yard, and awaiting its return.

Terminals of 100 miles and over, or where the work justifies it, should have their own blacksmith and carpenter, to repair tools and do other miscellaneous work under the supervision of the maintenance department, instead of having it done by some other department. A regular work train is also necessary in a terminal of this class to handle and distribute material and to expedite the work.

Railway Lands Patented.—Letters patent were issued during March for Dominion Railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:

Alberta and Great Waterways Ry.....	Acres. 218.28
Calgary and Edmonton Ry.....	2,535.14
Canadian Northern Ry.....	5,610.18
Canadian Pacific Ry.....	13.86
Manitoba and Northwestern Ry.....	152.73
Edmonton, Dunvegan and British Columbia Ry.....	89.15
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.....	54,233.45
Total	62,852.79

Record Car Movement.—What is claimed to be the world's record for the greatest number of freight cars passing a given point in 24 hours is indicated in a report of conditions made by the Director General of U.S. Railroads to President Wilson. It is stated that in one day 9,531 cars passed Columbia, Penn., on the Philadelphia division of the Pennsylvania Rd. The division operates between Harrisburg and Philadelphia. The report states that 250,000 freight cars passed Columbia in one month. The average daily movement was 8,544 cars, an average of about 6 cars a minute.

The C.P.R. Social Club was formed at Winnipeg, Jan. 9, 1915, and is now reported to have 1,026 active members exclusive of about 300 members at present serving with the Canadian Expeditionary Force. Meetings are held fortnightly, when addresses on railway work and general topics are given by prominent men, and discussions follow. The club has a choral society which gives occasional concerts, and is arranging an athletic organization for the present year. The club quarters are in the Royal Alexandra Hotel. Jas. Bending is President, and J. F. Sprankling is Recording Secretary.

Geo. Walton, Passenger Trainman, C.P.R., Peterboro, in remitting his subscription, writes: "I feel that every railway man should have Canadian Railway and Marine World, for his information, and I will do everything possible to promote the circulation and subscription of the same."

The Great North Western Telegraph Co. has opened an office at Little Metis lighthouse, Que., and has closed its office at Arthur, Ont. The name of the office at Mattawin, Ont., has been changed to Glenwater.

The G.T.R. has stated a new sleeping car service, leaving Toronto 5.45 p.m. daily and arriving at the Pennsylvania Rd. Station in New York.

Cut-Off Saw for Car Work.

The accompanying illustrations show a cut-off saw, set up by J. Gardner, General Foreman, Passenger Car Shops, Canadian National Rys., Transcona, Man. The machine consists of a no. 3 air motor, fitted with a 9in. no. 17 gauge, and a 6 teeth to the inch saw. The

from congested Canadian Northern areas over the Canadian Pacific and Grand Trunk Pacific Railways. This practice, commencing with wheat, was extended to coal and then to the movement of other bulk commodities. In general, wherever it would afford quicker transportation, rerouting has been carried out. The result is that the Canadian lines, in so far as actual transportation

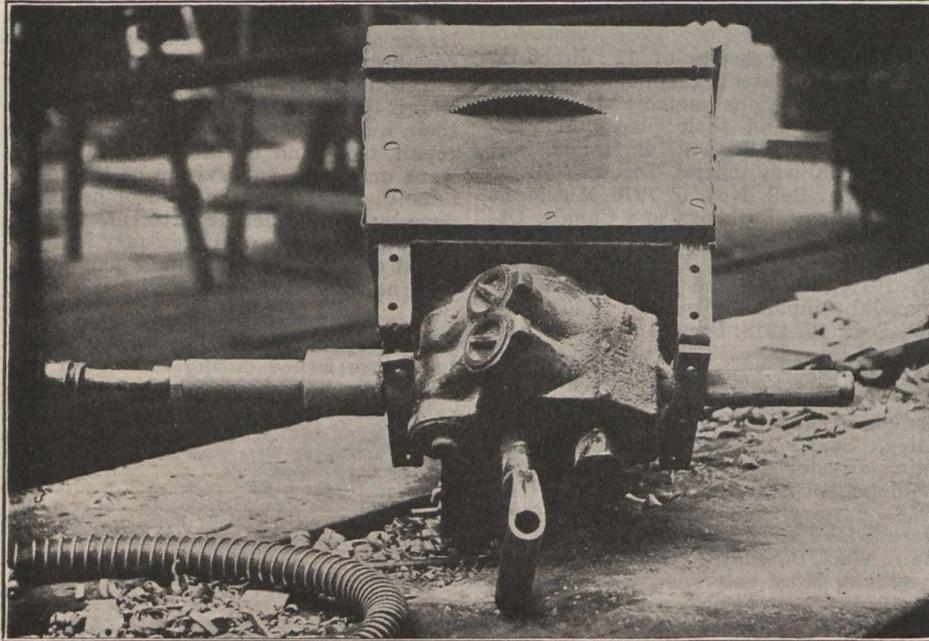
railways to cope with the problems created by the war.

Purchase of Equipment.—The Government has helped to bring about these results, particularly, by the purchase of 260 locomotive engines of various types and about 17,000 freight cars, a number of which are leased by the government to the railways which have not been in position to obtain satisfactory deliveries for their requirements.

Canadian Northern Realities Ltd., which is incorporated by the Dominion Parliament, has been licensed to do business in Ontario, but not to use a larger amount of capital than \$40,000. A. J. Reid, K.C., General Solicitor, Canadian National Rys., Toronto, has been appointed its attorney.

St. John and Quebec Ry. Enquiries Expenses.—The cost of the arbitration in connection with the claims of A. R. Gould against this railway were \$3,372.50, and the cost of the Steven's inquiry into matters connected with the railway were \$4,259.96. These figures were stated in the New Brunswick Legislature recently in answer to questions.

The C.P.R. s.s. *Empress of India*, which was sold to the Maharajah of Gwalier, on behalf of the heads of several of the Indian states, for a hospital vessel, in 1914, has done excellent work. The altering and refitting which was necessary to make her suitable for the work she was to undertake, was done during the latter part of 1914, and within four months of the declaration of war, she was ready for service. She was renamed *Loyalty*, and sailed from the Persian Gulf, Nov. 24, 1914, and during the course of the war, made 41 voyages, carrying 15,406 patients. The cost of purchasing the vessel and refitting her was approximately \$600,000, and her upkeep for four years was \$1,800,000, the greater part of



Cut-off Saw for Car Work.

rabbit in the box is $\frac{1}{2} \times 2$ in., allowing for $\frac{1}{2} \times 2$ in. strip to be nailed on the car, for the machine to ride on, the saw being set at the thickness of the sheathing to be cut. The machine is doing good work, and will cut off the side of a car in 10 minutes, and can also be used for cutting off box car roofs.

is concerned, have been treated as a single unit and worked for the purpose of obtaining the best results.

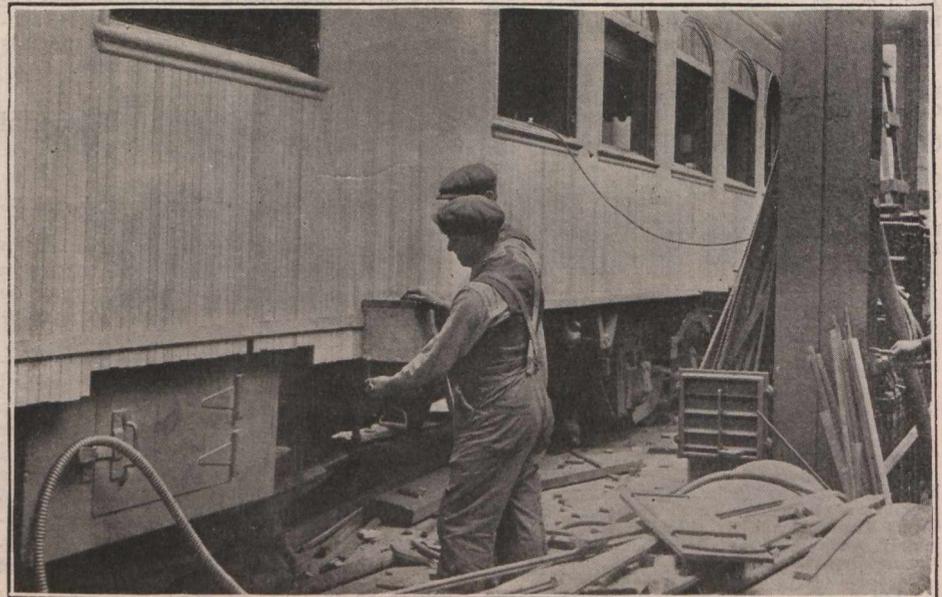
Canadian Railway War Board.—After the entry of the United States into the war the great industrial and agricul-

The Railways and the War.

The Canadian Railway War Board authorized the withdrawal from Mar. 20, of restriction as to the granting of special rates for conventions. The question of withdrawing the restrictions as to excursion and other special rates is under consideration.

Transportation.—The transportation burdens due to the war rendered it necessary to depart from the usual practice by which railways in Canada were operated as single and independent units. The first step taken in that direction was an amendment to the Railway Act during the session of 1915-16, when, on the request of the Board of Railway Commissioners, the board was empowered to take traffic in a congested grain area from the line to which it was tributary, and hand it over to other lines at any intermediate points at which a transfer could or should be made.

The power thus conferred on the board has been used to a large extent. It has enabled the large grain production of the west to be marketed practically without loss, through the diversion of traffic to the route, irrespective of its ownership, which at the time was least congested; and it has enabled the transportation of grain and flour to Great Britain and the European Continent to be maintained at the greatest possible speed. Thousands of cars of grain grown in Canadian Northern prairie territory, have been thus diverted



Cut-off Saw for Car Work.

tural activity, together with the movement of troops, caused the U.S. railway lines and terminals to become blocked, and put an increased burden on the Canadian transportation systems. In order to provide a freer and more perfect co-ordination of the systems, the Canadian Railway Association for National Defence, now termed the Canadian Railway War Board, was formed. The board's activities have materially assisted the

which was paid by the Indian states. She was built at Barrow, in Furness, Eng., in 1891, for the C.P.R.'s Pacific Ocean service, and was operated in the passenger and freight service between Vancouver, Hong Kong and Japanese ports.

The Winnipeg Electric Ry. has received 2 cars from Ottawa Car Manufacturing Co., completing its first order of 10 cars. Ten cars of similar type are now under construction.

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

Alberta and Great Waterways Ry.—The Alberta Deputy Minister of Railways in giving evidence before the legislature's public accounts committee, Apr. 13, is reported to have said the length of the line from Edmonton to McMurray is 289 miles, and that track has been laid from Lake Cache to the river bank. A further distance of 10 miles of rails have to be laid to reach McMurray, the grading for which has been completed. On the Egg Lake Branch, 30 miles of grading has been completed, and 11 miles of track has been laid. The province has guaranteed the company's bonds for the construction of 350 miles of line, including the Egg Lake Branch of 40 miles, and 20 miles of siding. The total cost of the line to date is \$6,748,613.77. (Apr., pg. 134).

Alberta-Hudson Bay Ry.—The Alberta Legislature is being asked for an extension of time for the building of the line authorized in 1910 on the application of the High River and Hudson Bay Ry., from High River to the Alberta-Saskatchewan boundaries with other lines added in 1917 and covering the whole of southern Alberta, from the Saskatchewan to the British Columbia boundary, and reaching the international boundary at Waterloo Lakes and at other points. The company also desires authority to build a line from Calgary to Edmonton, Alta. (May, 1918, pg. 186).

Brunner-Mond Canada Limited.—The Ontario Legislature has authorized the company to build a short tramway line from the Indian stone quarry to the Detroit River in Anderton Tp., to connect its works with navigation and general railway facilities. We were officially advised Apr. 16, that the question of the construction of the line was entirely in abeyance for the present at least. (Apr., pg. 191).

Calgary and Southwestern Ry.—We are officially advised that the company has almost completed the clearing of the right of way between Calgary and the Sheep Creek mining district, Alta., but has not yet made definite plans for the commencement of construction. It is expected, however, that some work will be done during the summer. John Callaghan, Calgary, Alta., is Chief Engineer. (Feb., pg. 79).

Canadian Western Ry.—The Dominion Parliament is being asked to extend the time within which the company may build its projected railway from the international boundary, through Pincher Creek and Cowley, and along the Old Man River to Livingstone Mountain, and thence to Calgary, Alta., with a branch to Michel, B.C. Smellie and Lewis, Ottawa, are solicitors for applicants. (Sept., 1917, pg. 350.)

Dolly Varden Mines Ry.—A select committee appointed by the British Columbia Legislature, Feb. 10, to enquire into matters affecting the construction of this railway, presented its report Mar. 22, setting out that the company was incorporated in 1917 to build a railway of about 18 miles to a group of mining claims on the Kitsault River, the line to be completed in 1918. A contract was entered into with the Taylor Engineering Co. Ltd., for building the line, under which during the first season \$275,000 was expended, without the line being completed. At that time

the mining company was negotiating a sale of the property, and an arrangement was claimed to have been made for the protection of the contractors' interests in the event of them completing the line. Relying upon this understanding the contractors resumed construction work in 1918, but were forced to suspend operations in October, and to make an assignment. In order to help out the mining company the Taylor firm began negotiations for the sale of the property to the Timiskaming Mining Co. of Cobalt, Ont., for \$1,100,000, but subsequently the mining company made an arrangement for a sale to the Timiskaming company for \$900,000. The proposal of the Dolly Varden Mining Co. is that in the event of the charter being extended it shall pay in full the claims for wages on the railway, leaving the Taylor company to meet the other losses. Since the proposal to sell to the Timiskaming Co. for \$900,000 was made an offer had been made on behalf of creditors of the Taylor Co. to take over the mines and railway at \$1,100,000 and pay all the creditors in full. The committee recommended that the charter be renewed upon condition that the actual cost of construction of the railway during 1918 plus 10%, such cost to be arrived at by arrangement between the parties, or by reference, shall constitute a lien on the property, subject to certain pre-existing charges. The wages due are to be paid within 14 days after the passing of the legislation and the balance due on construction account shall be paid within 30 days after it has been ascertained. In the alternative the Taylor Engineering Co. shall have the right to acquire the entire property on payment of the investment therein, the amount of such investment to be ascertained by agreement or reference, and on assuming certain pre-existing charges. The report was referred back to the committee for further consideration, but the committee reaffirmed it, and it was subsequently adopted, and a bill in accordance therewith was passed.

Under the terms of the act the B.C. Minister of Railways appointed Justice Clement to ascertain the actual amount due the Taylor Engineering Co. for the construction of the line. (May, pg. 132).

Edmonton and Southwestern Ry.—J. K. L. Ross, of Montreal, one of the C.P.R. directors, was in Edmonton, Alta., Apr. 7, his visit, according to a press report, being in connection with the project for the development of a water power at the Blue Falls of the Saskatchewan River. A part of the project is the building of a railway of 80 miles from Edmonton to the site of the proposed development. Under an agreement with the City of Edmonton made in 1916, the Hydro Electric Power Co., of which Mr. Ross is a shareholder, was to expend \$1,500,000 on the plant within 2½ years, and a further \$2,000,000 within the next two years. Up to June, 1918, there had been expended \$442,092, when the company, owing to war conditions, was unable to provide further funds. The company then asked the city council to extend the time for the expenditure of the money, but was refused. Mr. Ross is reported to have stated that if a restart can be made with the work the plant will be finished in five years. E. W. Barnes, who was in charge of the construction work has been in Edmonton again looking

into matters connected with the project. (Sept., 1918, pg. 390).

Edmonton, Dunvegan and British Columbia Ry.—The Alberta Premier, in a statement to the legislature, Mar. 28, relative to financial matters, is reported to have said that the government assumed full responsibility for allowing interest on guarantee by the province to be paid on construction estimates, these charges to be taken from the company's trust funds. However, if something is not done in the way of raising money to go on with construction, the system will have to go into a receivership. The trust account will probably not suffice for all charges for, more than a year. The railway is not in first class shape, but the opinion has been expressed by Dominion Cabinet ministers and a Dominion Government railway engineer, that the grade is of the best and that the line could readily be placed in running order. In this connection these ministers, after a conference with the provincial government, had made representations to the Dominion Government with regard to the line being taken over as a part of the national railway system. The line under present conditions, is not paying interest charges on the bonds guaranteed by the province.

The province has guaranteed bonds for \$7,000,000 at 4%, and approximately \$2,500,000 at 4½%, and has loaned \$2,000,000 at 5%, while the Dominion Government has granted a subsidy of \$320,000 for the Prairie Branch line.

Replying to a question in the House of Commons, Apr. 7, Sir Thomas White, acting Prime Minister, said while the railway has been brought to the government's attention for some three or four years past, in connection with matters relating to subsidies, no arrangement for the taking over of the line had been completed, nor were there any negotiations at that time looking to that end. It is, of course, open to those connected with the railway to bring to the government's attention, from time to time, anything that would be of public interest relating to its affairs. (Dec., 1918, pg. 541).

Grand Trunk Ry.—The Montreal City Council has authorized the reopening with the Board of Railway Commissioners of the matter of the elevation of the G.T.R. tracks in the city, which has been in abeyance during the war.

The Dominion Parliament has extended the time for the building of the projected Lachine, Jacques Cartier and Maisonneuve Ry., from Dorval to Maisonneuve, adding thereto the provision that construction must be started during the first year of the extension.

A proposition is being discussed in Norfolk County, Ont., for the electrification of the G.T.R. Woodstock-Simcoe-Port Dover branch, and for its extension to Port Rowan. (April, pg. 190).

Great Northern Ry. Lines in Canada.—The Brandon, Man., Board of Trade, is urging the Great Northern Ry. management to extend the Brandon, Saskatchewan and Hudson Bay Ry., which now runs from the international boundary, near Bannerman, to Brandon, to a junction with the Dominion Government Hudson Bay Ry. at Pas, Man.

Hudson Bay Ry.—Very early in the session a discussion was initiated in the

Senate by Senator Schaffner on the question of the navigability of Hudson Bay and Straits, the adaptability of Nelson as a seaport, and the building of the railway from Pas to Nelson. Subsequently on motion of Senator Fowler, a committee was appointed to take evidence and to report upon the navigability and fishery resources of Hudson Bay and Straits, and of the character of the ports on Hudson Bay, with regard to their places as railway terminals, and Senator Schaffner's motion was withdrawn. The special committee began its sittings Apr. 2, and on Apr. 9 took the evidence of S. W. McLachlan, the engineer in charge of the terminal works under construction at Port Nelson. He is reported to have described the character of the harbor works in progress which include a bridge 0.75 mile in length, built out towards the channel; at the end of the bridge crib work, is being constructed which will be filled in from the channel. This will make an island; will provide 9,000 ft. for dockage, elevators, etc. The summer of 1918 was spent surveying the channel. Soundings taken showed that there was a channel suitable for seagoing vessels approximately 20 miles from the harbor works to open water. This channel is from 300 to 1,200 ft. wide, but would have to be dredged for a considerable portion of its length.

It is reported that the Dominion Government has decided to take over from J. D. McArthur, the general contractor, the work of completing the line from Pas to Port Nelson, Man. The work to be done is the laying of 92 miles of track from the Nelson River to Nelson, ballasting and general finishing up work. This work, it is stated, will be done under the Canadian National Railways management.

A conference between members of the Manitoba Government and the Dominion Government, was held at Ottawa, Apr. 7, with regard to the completion of the line. Sir Thomas White, acting Premier, is reported to have informed the Manitoba representatives that the government recognized that the Hudson Bay project is one that must be gone on with. The government had asked for tenders for the supply of 250,000 ties for the line, but pointed out that any funds for the work placed in the estimates would be in the nature of a revote, as the sum voted last year was not expended. On his return to Winnipeg, Apr. 17, the Premier of Manitoba is reported to have said that the resumption of work on the line by the Dominion Government was assured. (Apr., pg. 190).

Lacombe and Northwestern Ry. Co.—The Alberta Legislature has changed the name of the Lacombe and Blindman Valley Electric Ry. Co. to the above, and has made the changes necessary in the original act and the amending acts, now that the line has been taken over by the Alberta Government. The Premier, in the course of the discussion stated that the cost of the line to the province up to date, was \$613,700.37, made up as follows: Advances by province, \$255,000; interest paid on defaulted bonds, \$41,000; accrued interest due on advances, \$9,000; miscellaneous outstanding liabilities, \$35,000; original bond issue, \$273,700.37. The estimated cost of an extension of 10 miles from Bentley to Larson is \$122,000, and for the remaining 10 miles to Rimberg, \$197,785, a total of \$319,785. It is practically necessary to complete the line, and when completed it will represent an

expenditure of \$933,485. The government has no intention of entering the railway business, and as soon as the line is finished, steps will be taken to dispose of it to one of the larger companies. The C.P.R. is apparently, not unfavorably disposed to consider its acquirement. There is a possibility of the C.P.R. building a line southwest of Edmonton to the Rocky Rapid's power site, in which case not more than 60 miles of territory will intervene between the rail head at Bentley and the Rapids. (April, pg. 190).

Magdalene River Valley Ry.—The Quebec Legislature has authorized the company to change the location of its projected railway along the Magdalene River to Little Falls, and on to Gaspé, for about 4,000 ft. in the parish of St. Maxime-du-Mont Louis, but it is not to approach nearer than 350 ft. to the east bank of the Magdalene River in so doing. (Mar., pg. 135).

Medicine Hat Central Ry.—Jos. B. Swan is reported to be the principal promoter of this projected line from Coutts, via. Medicine Hat to Hilda at the Alberta-Saskatchewan boundary line. The projected line would include the 7.5 mile Colberg line from Medicine Hat to the Ajax mines, completed recently. (Apr., pg. 191).

Miller Independence Gold Mines Co.—A press report states that this company has a project for the construction of three miles of narrow gauge railway to give connection between its mines and Boston Creek, the Timiskaming and Northern Ontario Ry., 153 miles from North Bay.

The North West Route.—The Dominion Parliament is being asked to incorporate a company with this title to lay a transportation route by railways and steamboats from the westerly end of Baker Lake, at the headquarters of Chesterfield Inlet, Hudson Bay, to the easterly end of Great Slave Lake, near Old Fort Reliance. The railways are proposed to connect the navigable stretches of the several waterways reached, and the company seeks power to deepen and widen the waterways, where necessary, to develop the water powers and to carry on a general navigation business. The head office of the company will be in London, Eng.; its authorized capital is to be \$1,000,000, and power is asked to issue bonds for \$50,000 a mile, and work of railway construction or under contract. The provisional directors are: Right Hon. Viscount Templeton, Sir John Scott Keltie, T. L. Gilmore, H. C. Thomson, London, Eng., and B. Spring-Rice, Burwash, Sussex, Eng. The first and last mentioned of these directors are also provisional directors of the Quebec and Ungava Ry. Co. and of the St. Felicien and Ungava Ry. Corporation, at the Quebec Legislature's recent session, which aim at the opening up of rail and water routes from Seven Islands of the St. Lawrence River to Hudson Bay.

Pacific Great Eastern Ry.—The British Columbia Government is reported to have let a contract to Robertson and Partners, Vancouver, for the erection of an electric power plant at Squamish, the starting point of the Pacific Great Eastern Ry., inland, at an estimated cost of \$72,000. The plant will supply power for the railway machine shops and for other purposes.

A Vancouver press report of Apr. 14, states that the British Columbia Premier had said that it is expected to have the line completed to Soda Creek, by

the autumn. This would provide a through connection from Vancouver to Prince George by rail and water, and would be available on the opening of navigation, 1920.

The Port Arthur Terminals Limited has been incorporated under the Ontario companies Act to take over certain lands in Port Arthur, from J. J. Carrick, and to deal with the same under the terms of an agreement. The company is authorized to lay out townsites on the property, and to sell land for residential purposes, and to loan money for the erection of buildings thereon. It is debarred from operating or controlling any public utility or municipal franchise. The capital is fixed at \$1,500,000, of which \$300,000 shall be preference shares. Its offices is at Port Arthur. A. J. McComber, Port Arthur, is named as trustee for the company in the agreement for the transfer of the property.

Quebec Central Ry.—A press report, Apr. 21, states that as soon as the frost leaves the ground, work will be started on the construction of the extension from Scott's Jct., to the Quebec Bridge. (Apr., pg. 191).

Quebec and Ungava Ry. Co. has been incorporated by Quebec Legislature to build a railway from Seven Islands on the north shore of the St. Lawrence River, in Saguenay County across Ungava, to the most suitable harbor between the mouth of Big River and Nastapoka Sound on Hudson Bay. (Mar., pg., 135).

Quebec and Saguenay Ry.—A press report of Apr. 17 states that the Dominion Government has paid over the balance of the purchase price for this line.

A Quebec Lumber Railway.—A press report states that lumber men in the St. Maurice district and the upper section of Lake St. John, Que., are planning to organize a company to build a railway to open up timber limits which at present cannot be worked because of lack of transportation facilities.

Stewart, B.C.—A press report states that C. F. Caldwell, President of the Utica Mines Ltd., is promoting the building of a railway from Stewart, in the Portland Canal district, B.C., to some recently discovered gold mining areas. About 20 miles of railway are said to be needed to reach the district, of which 12 miles would be in United States territory. Mr. Caldwell, was stated, Apr. 8, to have left Vancouver for Ottawa and New York in connection with the matter.

The St. Felicien and Ungava Ry. Co. has been incorporated by the Quebec Legislature to build a railway from St. Felicien, St. John County, to Lake Mistassini, thence to Lake Nichikum, and to Lake Petitsikapau, or by an alternative route between the same termini. (Mar., pg. 135).

St. John and Quebec Ry.—The Dominion Parliament has granted an extension of time to Dec. 31, 1919 for the completion of construction of the line from Gagetown to Westfield, N.B. When the bill was before the Senate, Mar. 27, Senator Loughheed stated that the work was about 85% completed, and that it would cost about \$406,000 to complete the line. The work to be done consists principally of repping, ballasting, culverts and cleaning up. The cost of the line to Oct. 31, 1918, was \$2,314,000, and the total cost when completed, will be about \$2,720,000. The Dominion subsidy paid

over to date is \$121,500. When completed, the line will be taken over for operation as part of the Canadian National Railways system, under the terms of chap. 23 of the statutes of 1916, under which the Gagetown-Centerville section of the line was built.

A bill was introduced in the New Brunswick Legislature recently, authorizing the N.B. Government to grant an extension of time for construction to Dec. 31, by order-in-council, and to make any agreements or modification of agreements with the company, or the Dominion Government, which may be necessary owing to the granting of the extension of time. The bill recites that negotiations are being carried on with the Dominion Government to transfer the ownership of the lease from the N.B. Government. In order to provide for such transfer being made, if agreed upon, it is declared that the lands taken by the company for railway purposes are the company's property and provision is made for the payment of the N.B. Government for any such lands not already paid for. The N.B. Government owns the railway subject to a trust mortgage held by the Prudential Trust Co.

In speaking in the legislature in support of the bill, the provincial secretary stated that the cost of the Gagetown-Westfield extension to Mar. 1 was \$2,377,545, and it was estimated that it would cost \$290,000 more to complete it. The cost of the completed sections of the line was: Fredericton to Gagetown, \$1,170,065; Fredericton to Woodstock, \$2,419,994; Woodstock to Centerville, \$920,000. Surveys have been made at a cost of \$58,415 for the extension of the line from Centerville to Andover. The total expenditure to Mar. 1, therefore, was \$6,946,019.

Timiskaming and Northern Ontario Ry.—An extension of this Ontario Government owned railway, from the southern terminus at North Bay, south westerly to Parry Sound, has been asked for by the Parry Sound Board of Trade, and the Ontario Associated Board of Trade have endorsed the request.

Vancouver Union Terminals.—The Vancouver City Council, on Apr. 7, received a report from the city solicitor upon a proposal for the laying out of a union terminals and the building of a central station there, which was submitted to it Mar. 12, by A. P. Gillies, of New York. The city solicitor said the scheme was an ambitious one, but that before the city should take action the applicants should give some assurance of the willingness of the railway companies to join in the application. From a legal standpoint the only status the city has in the matter is to consider the advisability of giving its assent to cross the streets as shown on the plans. This consent, of course, would be given on any application made to the Board of Railway Commissioners to consider the scheme. The letter was ordered filed. (April, pg. 191).

Disabled Soldiers in Railway Shops.—A Winnipeg press dispatch says that according to a decision by the Canadian division of the International Railwaymen's Union, disabled soldiers may enter railway engineering shops as three-year apprentices at the special rate of 48c an hour on the basis of a 47 hour week. Such men are to be recommended for these positions by the vocational authorities at Ottawa.

Traffic Order by Board of Railway Commissioners.

Rates on Shell Bars or Blanks.

28,165, Mar. 14. The complaint of Imperial Munitions Board against Canadian Pacific, Algoma Central and Hudson Bay, and Canadian Northern Railways, for charging complainants higher rates on shipments of shell bars or blanks from Sault Ste. Marie, Ont., to Toronto, and Montreal, than was charged on commercial steel bars; and re subsequent application of Imperial Munitions Board for an order declaring shell bars or blanks to be entitled to rates published to apply on steel billets. Upon hearing the complaint at Ottawa Mar. 5, 1918, the Imperial Munitions Board, the Canadian Pacific, the Grand Trunk, and the Canadian Northern Railways being represented at the hearing, and upon the report and recommendation of the board's Chief Traffic Officer, representatives for the respondent railway companies later undertaking to refund the amount declared by this order to have been wrongfully charged and collected on such shipments, it is ordered and declared as follows:—That the application for an order declaring shell bars or blanks to be entitled to the rates published to apply on steel billets is refused. That the rates charged the complainants by the respondent railway companies on shell bars or blanks from Sault Ste. Marie to Toronto and Montreal, as aforesaid, since May 1, 1918, were unjust, unreasonable, and excessive, to the extent that such rates exceeded the lower rates in effect immediately before May 1, 1918, subject from August 12, 1918, to the increase authorized by order in council 1863, July 27, 1918; the respondent railway companies being hereby authorized to refund to the complainants the excessive rates charged and collected.

Demurrage on Coal Cars at Ottawa.

28225. The application of Ottawa Gas Co. for cancellation of demurrage charges made by G.T.R. on cars loaded with coal consigned to the applicant company at Ottawa: Upon reading what is filed in support of the application and on behalf of the G.T.R. and the Canadian Car Demurrage Bureau, and the report and recommendation of the board's Chief Traffic Officer, and upon its appearing that the influenza epidemic had a material bearing on the accrual of demurrage. It is therefore declared that the applicant company shall be required to pay the G.T.R. \$3,058.50 only, as demurrage charges on the cars in question.

Lumber Carload Rates in British Columbia.

28232. April 14. Re complaint of Pacific Coast Shippers' Association, on behalf of Abbotsford Timber and Trading Co., against rate of 9c per 100 lb. on lumber, in carloads, charged by C.P.R. from Abbotsford to Vancouver, B.C. Upon its appearing that the C.P.R., by its tariff C.R.C. no W. 2248, published and filed what is therein described as a competitive rate of 5c per 100 lb. on lumber, in carloads, from Huntingdon, B.C., to Vancouver, and in the same tariff a mileage rate of 9c per 100 lb. from Abbotsford, B.C., Abbotsford being intermediate between Huntingdon and Vancouver. It is declared that the movement from Huntingdon to Vancouver, not being competitive within the meaning of the Railway Act, the lawful rate on lumber, in carloads, from Abbotsford to Vancouver,

over the C.P.R., on June 14, 1917, when the shipment complained against was made in car 122950, was 5c per 100 lb., on which basis reparation is authorized.

Placing and Weighing of Cars on Track Scales.

The Board of Railway Commissioners has issued the following circular: "The board has had its operating department for some time past investigating the methods and practices of railways, in connection with the manner in which cars are placed and weighed on track scales. Tests have been made of the scales at various points on the different railways, by weighing cars when standing free, uncoupled at both ends, coupled on one end, and, when the deck of the scale permits, coupled at both ends. The report and recommendations of the board's Chief Operating Officer as the outcome of these inquiries is as follows:

"The best results are obtained where one person is employed to supervise and check the weighing of cars and that person should be sworn in. He need not be engaged as a weigh master, exclusively, but a suitable person, already working in some position on the staff, should be instructed by the company's general officer, having the jurisdiction, and this person should have the power to instruct the men how to place the cars and supervise and take the record himself from the scale beam. Each company, in its own interests, should go over the facilities, to see that it gets the best arrangement for protecting scales from severe winter conditions, water, etc."

"The board desires to have the various railway companies' comments upon the foregoing recommendations, together with a concise statement as to the practice now followed by each railway, with a view to considering and adopting some uniform system which will work satisfactorily to both the shippers and the railways."

The New York Central Rd.'s general agency and city ticket office at 220 St. James St., Montreal, was discontinued Apr. 1, since which date the New York Central has been represented in the Montreal consolidated ticket office, at 238 St. James St. which is in charge of W. de W. Stott, agent. Diagrams of Pullman cars via New York Central operating from Montreal, are handled at Windsor St. station ticket office and applications for space in parlor or sleeping cars should be addressed to E. J. Whelan, ticket agent. The jurisdiction of F. M. Byron, general agent, N.Y.C. to Utica, N.Y., has been extended to cover all stations on the Adirondack Division, including Montreal. All matters pertaining to passenger traffic formerly forwarded to A. L. Muller, general agent, Montreal, should be addressed to the General Agent at Utica.

The Consolidated Railway Act.—The measure for the consolidation of the Railway Act, which had been before Parliament in 1917 and 1918, was the first bill introduced into the Senate this year. After discussion and amendment, there it came before the House of Commons, and after its formal introduction, was referred to a special committee, of which J. E. Armstrong, was appointed chairman. The non-contentious sections were first dealt with, and the committee is now dealing with the contentious sections.

Aerial Transportation for Canada.

A. Thompson, M.P. for Yukon, in speaking in the House of Commons recently, said a new system of transportation had been developed in the world since the war began. The war had practically created aerial navigation. Three types of air ships are used, first, the lighter than air machines; second, the land plane, and third, the sea plane. By means of this method of transportation, he believes, safe and rapid transport can be given to an enormous section of country which lies undeveloped. There is a tract of virgin soil 1,600 miles long and 1,000 miles deep reaching from Hudson Bay to the Alaska boundary. In that vast tract there are not many more than 1,000 people, certainly not 10,000. It is an empire in itself, with great possibilities, and is owned by the Dominion. In that tract there may be minerals enough to pay the national debt a dozen times. An article written for the Geological Survey of Canada describes this area of 900,000 square miles, as having underlying it the pre-Cambrian rocks, in which occur the copper, nickel, iron, silver and gold in Northern Ontario. About 150,000 square miles of the lower Mackenzie basin have as surface rocks the Devonian strata, and here it is believed is the largest undeveloped oil field in the world. The climate is salubrious; men can live and are living out in the valleys of that country all the year round. It is a well watered country, with plenty of rivers and lakes.

How can it be reached? By means of the aeroplane. The population, such as it is, is capable of being highly developed, but they lack transportation for about seven months of the year. He suggested that the government purchase, or get the British Government to give Canada, an airship—one of the latest dirigibles—the lighter than air machines—such as the R.33, which was equipped with engines of 1,250 h.p., a speed of 70 knots, a range of well over 200 hours, and a carrying capacity of from 27 to 30 tons. Base such an airship on Edmonton, sail it down the Mackenzie River valley to the Arctic Ocean, across the Dawson, up the Yukon River valley to White Horse across the northern part of British Columbia back to Edmonton. Such an airship as the R.53 could make Herschell Island, at the mouth of the Mackenzie river, from Edmonton, 1,300 miles, in 15 hours; thence to Dawson in 6 hours, and could get back again to Edmonton from Dawson in 18 hours. The various trading forts all through that country could be reached in anything from 6 to 19 hours. An airship could be navigated all the year round—there are few storms in the country and it is not very cold. It would be an enormous blessing to the Mackenzie River country and also to the Yukon. It would not be a costly experiment, compared with the building of a railway, and Canada has more than once mortgaged its future to give the country transportation. He commended the proposition to the government's favorable consideration.

Referring to the territory between the Mackenzie river and Hudson Bay, Mr. Thompson suggested that the government get some aeroplanes—recent report stated that the British Government had given the Canadian High Commissioner 15 aeroplanes for Canada. Canadians during the war had developed the highest type of air men that the world has so far

seen. They are now being demobilized and brought home. Canada has the aeroplanes; the trained airmen and the trained miners who could go into this land and find out whether the minerals which geologists say might be found there are there or not. It would not require a large expenditure. The scientists could go in by aeroplanes, be taken from almost any part of the northland into the very heart of the country in a few hours; they could stay there through the summer and come out in autumn. There need be no fear of landing places; the country abounds in lakes and rivers, and an aeroplane can land on a river or lake almost anywhere. It would be possible to go there in the spring, before the ice melted, and if the machines were provided with skids as well as, or instead of, wheels, a landing could be effected on the ice. Then, also, reports could be obtained as to the possibility of utilizing the immense herds of caribous as a source of food supply, which has not yet been tapped.

Further the science of aeroplane photography has been enormously developed during the last few years, so that an aeroplane can fly over a city and mark every street and avenue so that it can be identified, just as was done during the war in France. It is no trick at all to take aerial photographs of this vast area up north and have maps made, so that there would be no difficulty in knowing just where the rivers and lakes were. There are no mountains there, it being practically a level country. Why not have some of our trained airmen patrol the Hudson Bay and report on ice and weather conditions, there and in the straits. An air station could be established on Hudson Bay, and the aeroplanes could communicate by wireless with that station. This is not an impracticable proposition, it is just applied common sense. It might be objected that the weather conditions would be too severe, that the cold would be too intense. He had not the slightest doubt that the airmen who could stand the cold of an altitude of from 25,000 to 30,000 ft., as they did in Europe, would find that temperature colder than anything to be found in the Klondike, or anything found by Nansen on his trip to the North Pole. He further urged the using of the aeroplane in connection with the Royal Northwest Mounted Police work, thereby effecting a considerable saving of transportation expenses, and enabling better work to be done.

There is not the slightest doubt that this year, and perhaps within a few weeks, airships will be crossing the Atlantic. And they will not stop at that, they will fly across Canada, to Siberia, to China, to Japan. Now Canada is on this great highway of aerial commerce which is about to be made, because Canada is nearer to Europe than the United States or any other country south, to Patagonia, and nearer also to Asia than any other American country. Air routes will be outlined, airships will fly across the North Atlantic, across the North American Continent, across the North Pacific, and the route they will take is Siberia, China and Japan will be practically the same, but a little further north than ships are taking today. These airships will cross the very sections of country for which transportation facilities were being asked. They will seek the line of the mountain ranges where the

winds are not great; they will cross the great section of this country between the Alleghanies and the Rockies; this great central plain, they will sail across to the Rockies, north along that great chain, down the Yukon Valley and across over the Aleutian Islands, and thence by way of Siberia and China to Japan. And on this route from the mainland of America to Yokohama, there is not a section of more than 150 miles, perhaps not more than 100 miles, over which they will fly over water. We should do this because we are a progressive people who have led the world in great enterprises, notably steamships, and wireless telegraphy, and were the first people in the British Empire to federate great states, thus establishing a model upon which the other confederations in the empire have been modelled.

Aerial Transportation Notes.

The Canadian Pacific Ry. is making application to the Dominion Parliament for authority to operate services by aircraft between such points and places within and without Canada as may be found advisable.

The C.P.O.S. Atlantic steamship Montcalm, which arrived in St. John, Apr. 8, was fitted with special apparatus for taking soundings in the air for aviation purposes, the work being in charge of Lieut. G. Harris, of the Air Ministry's meteorological department.

For the purpose of carrying official mails and passengers in connection with the peace conference, an aerial service has been inaugurated between London, Eng., and Paris, France. The average time taken by the mail carriers is 2½ hours, between the two cities, but the record one way trip is 1 hour, 50 minutes, and the record round trip 3 hours, 50 minutes. The passenger machines carry two passengers and the pilot.

Manitoba Power Transmission Act.—The Manitoba Legislature has passed an act providing for the transmission of electrical power within the province. Under the terms of the act the government may appoint a board together with such engineers, etc., as may be necessary to co-operate with the Minister of Public Works and the municipalities for the purpose of developing water powers, and the distribution of electrical energy. In the carrying out of these plans the minister may contract with the City of Winnipeg, the Winnipeg Electric Ry., or with any railway company, for the supply of electrical power or energy required to carry out the provisions and purposes of the act, and may make contracts with any railway company for the use of its right of way for the erection of a pole line, and other works.

Mount Royal Incline Ry.—A press report of Apr. 17, stated that the inspectors appointed by the court in connection with the liquidation of the Mount Royal Incline Ry. Co., had under consideration the question of the operation of the incline for the summer. A question relative to the operation of the line was asked at the Montreal City Council's meeting, Apr. 15, but no information appears to have been obtainable. It is said that the Montreal administrative commission has the matter under consideration, as under the charter, the city has a right to operate a service in the event of the company failing to do so.

Railway Rolling Stock Orders and Deliveries.

The G.T.R. is having 200 refrigerator cars repaired and fitted with brine tanks, by Canadian Car and Foundry Co. Canadian National Rys. has ordered 25 Pacific type locomotives, 260,000 lb., with cylinders 23½ x 28 in., from Montreal Locomotive Works.

The Canadian National Rys. will probably be in the market in the near future for considerable more rolling stock, especially passenger equipment.

The G.T.R., since January, has received six 6 wheel switching locomotives from its Point St. Charles shops, Montreal, and has 13 of this type still under construction there.

The C.P.R., between Mar. 19 and Apr. 12, ordered 4 vans to be built at its Winnipeg shops, and received 92 flat cars from its Angus shops, and 6 vans from its Winnipeg shops.

Montreal Locomotive Works is building 20 mountain type locomotives, approximately 200,000 lb., with cylinders 22 x 28 in., and 20 mountain type locomotives, approximately 195,000 lb., with cylinders 22 x 26 in., for the South African Government.

published correctly in Canadian Railway and Marine World for May 1918.

Boiler, pressure	180 lb.
Heating surface, firebox	168 sq. ft.
Cylinders	21 x 26 in.
Driving wheels	51 in.
Boiler, diar.	68 9-16 in. to 76 in.
Heating surface, tubes and flues.....	1836.5 sq. ft.
Heating surface, total	2004.5 sq. ft.
Grate area	50.62 sq. ft.
Wheel base, driving	11 ft. 6 in.
Wheel base, engine and tender.....	45 ft. 11½ in.
Total length, overall	62 ft. 5½ in.
Weight on drivers	170,000 lb.
Weight, including boiler	298,060 lb.
Tractive power	34,398 lb.
Tank capacity	6,000 gal.
Coal capacity	10 tons
Superheater	Schmidt, 28 units

The Canadian Railway War Board's Work.

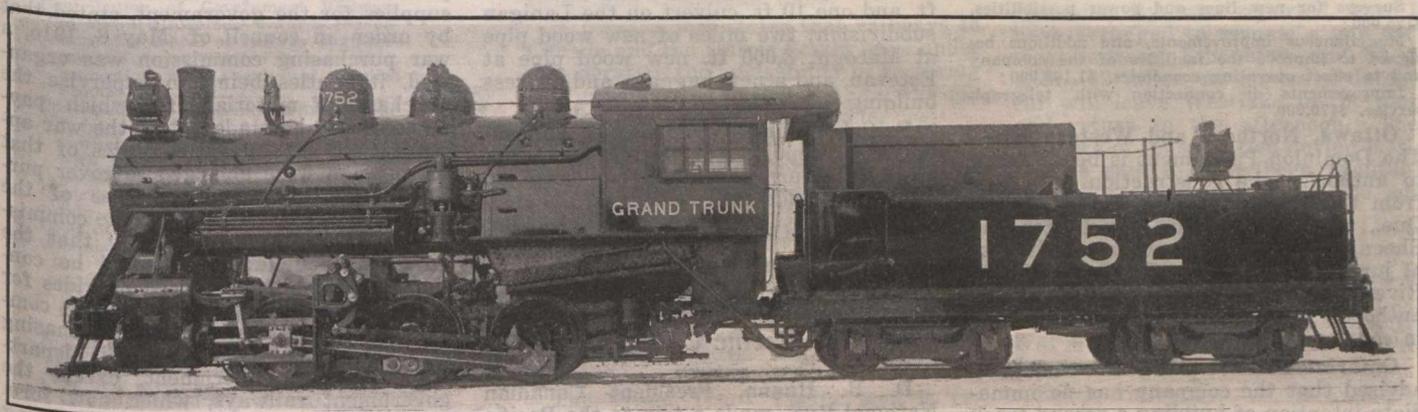
Special Trains Allowed.—Instructions embodied in the board's circular 6, Nov. 1, 1917, and letter of Dec. 14, 1918, prohibiting the operation of special passenger trains, except in cases of extreme urgency, are cancelled. The provision of equipment for, and prompt efficient movement of troops and civilians returning from overseas shall continue to receive first consideration.

Delay to Diverted Tank Cars.—It has been drawn to the board's attention that

agreements are requested to take action to eliminate practices such as those described above, so that bona fide examination on the regulations will be assured. On some railways it is the custom for the examiner to call for oral answers to representative questions, in addition to the written examination. It is suggested that this be done on all lines, as a further test of the employe's knowledge of the rules under which he is required to work, and with which safe operation demands that he be thoroughly familiar.

Suggested Taxation of Alberta Railways.

In the course of a discussion on provincial and municipal finance in the Alberta Legislature recently, W. M. Davidson advocated the taxation of railway lines, and is reported to have said: "In Alberta we have exempted by statute, passed by this legislature all of the lines the bonds of which we have endorsed. We have collected no taxes on those sections of the Grand Trunk Pacific and the Canadian Northern, which we did not guarantee. We are debarred by Dominion law from taxing the C.P.R. main line.



Grand Trunk Railway 6-wheeled Switching Locomotive.

A Winnipeg press dispatch stated recently that the re-lettering of Canadian Northern Rys. cars, by substituting "Canadian National Railways," had been ordered to cease. We are advised that this is incorrect. An order was given to reletter a few cars of a certain series, and this has not been cancelled.

G.T.R. Switching Locomotives.—An error was made in Canadian Railway and Marine World for April, page 188, in reference to the 6-wheeled switching locomotives, of which 25 were ordered to be built in the company's Montreal shops, and of which a number have been delivered. A few days after the May issue was published, G. Cavin, Chief Mechanical Engineer, Canadian Locomotive Co., very courteously called our attention to the error, pointing out that the description published was of the 6-wheeled switching locomotives which were built for the Canadian Government Railways in 1918 by the Canadian Locomotive Co., and we are much indebted to him for doing so, as we are most anxious for anything we publish to be accurate, and as our readers know, we have a standing invitation in each issue asking for the pointing out of errors which may occur. Following is the description of the G.T.R. 6-wheeled switching locomotives which should have been given, and which was originally

diverted tank cars on occasions have met with delays on account of extra haulage, due to agents at destination of transhipped loads failing to show full routing, including junction points, on rebilling covering movement of empty cars, resulting in cars going to wrong junctions. Clause 2 of circular 96, is, therefore, amended to read as follows: "The agent of the terminating line at such destination must, upon release of the car, promptly rebill (showing full routing, including junction points), and forward same to its original destination unless otherwise instructed by the owner or owner's authorized representative."

Examinations in Train Rules and Regulations.—General order 65 issued by the Board of Railway Commissioners for Canada requires that all employes engaged in train or telegraph service, where trains are handled, shall pass an examination in train rules and regulations, according to the forms of examination papers which have been filed with the commission by the railways. It is reported that in some instances the efficacy of the examination is interfered with by employes copying answers to the questions from a catechism of the rules, or similarly obtaining improper assistance in the examination, and that examination papers completed in this manner are sometimes accepted, obviously to the detriment of the service. Railway man-

We have an agreement with the C.P.R. which runs until the end of next year, by which we tax the branch lines of that road at \$100 a mile, which is 1% on a valuation of \$10,000 a mile, which certainly is a most paltry valuation. The railways of this province should bear their fair share of the provincial burdens. They have not been doing so. I believe that between now and the time when the agreement with the C.P.R. expires, the government should investigate thoroughly the question of railway taxation, and I shall be disappointed if, at an early date, the revenue from this item is not ten times the amount of the present paltry revenue of \$110,000. We should be getting a million and a half from this source without doubt.

Light Railways for Soldiers' Settlement Lands.—Major Shore and S. Maber of the Dominion Soldiers Settlement Board, advocated the construction of light railways in connection with the settlement of returned soldiers on the land, at a meeting at Prince Albert, Sask., Mar. 11. A block of land some 60 miles from a railway is being considered in that district for settlement and the suggestion is that light railways such as were used at the battle front in France and Belgium, could be laid to open up the territory.

Canadian Pacific Railway Construction, Betterments, Etc.

Construction work for 1919.—E. W. Beatty, President C.P.R., is reported to have said in Ottawa Apr. 17, that the company proposed to enter actively into construction work this year, and while no new works will be opened immediately, several construction jobs, principally the extension of lines in the west and the general improvement of facilities, will be commenced within the near future.

The directors' report for the year ended June 30, 1918, says that: "Subject to the shareholders' approval, the directors have authorized expenditures on capital account during the present year of \$4,482,000, apportioned to the following works, viz:

Replacement and enlargement of structures in permanent form, \$545,000;

Additional stations, roundhouses, freight sheds, ice houses and extensions to existing buildings, \$525,000;

Additional terminal and side-track accommodation, \$400,000;

Tie plates, rail anchors and miscellaneous roadway improvements, \$1,017,000;

Lining tunnels, British Columbia district, \$185,000;

Automatic block-signal protection, \$112,000;

Surveys for new lines and power possibilities, \$125,000;

Miscellaneous improvements, and additions designed to improve the facilities of the company and to effect operating economies, \$1,103,000;

Improvements in connection with telegraph service, \$470,000."

Ottawa, Northern and Western Ry.—The Dominion Parliament is being asked to authorize the construction of a line from the present terminus at Waltham, Que., through Waltham, Chichester and Sheen, Tps., across the Ottawa River to a junction with the C.P.R. at Chalk River, Ont. The company also asks authority to increase its bonding powers in connection with this line.

Ontario District.—We are officially advised that the company has no immediate intention of building a second track on its Toronto-Windsor line between Guelph Jct. and London, Ont., as stated in a recent press report.

A. Bridgeburg, Ont., press report of Apr. 2 credited the C.P.R. with having secured 5,000 acres of land on Grand Island, Niagara River, opposite Bridgeburg, and suggested it had been acquired in connection with a proposed new bridge, for the erection of which a company has been formed in Canada and the State of New York, in which the Toronto, Hamilton and Buffalo Ry., the C.P.R., and the New York Central Rd. are interested. A Montreal press report, Apr. 4, stated that C.P.R. officials know nothing of the matter.

Western Branch Lines.—The directors' report for the year ended June 30, 1918, contains the following: "Your directors are of the view that the construction of additional branch line mileage in the west will be necessary in the near future, and your authority will be asked for proceeding with the construction of the following lines when conditions warrant such construction, and for the issue and sale of a sufficient amount of 4% consolidated debenture stock to meet the expenditure, viz.:—Empress to Mildred branch, 132 miles; Empress to Acme branch, 132 miles; Vidora East branch, 35 miles; Russell North branch, 15 miles; Lanigan North branch, 150 miles."

We are officially advised that location surveys for the Empress to Mildred

branch are being made; that surveys for the Empress-Acme branch have been completed; that a preliminary line has been run for the Russell North branch, and that engineers are running the preliminary lines for the Vidora East branch and the Lanigan North branch. We are further officially advised that until the Dominion Parliament authority is obtained for the building of the lines, and until the shareholders give authority for the expenditure necessary, no decision will be reached as to what construction will be undertaken. The shareholders' authority is, of course, a mere formality and a foregone conclusion.

The Manitoba and North Western Ry. is applying to the Dominion Parliament for authority to build a line from its Shell River branch in Tp. 21, Range 28, west of the 1st Meridian, northerly to Tp. 23, Range 28, west of the 1st Meridian.

Saskatchewan District.—Tenders were received to Apr. 15, by W. A. Mather, General Superintendent, Moose Jaw, Sask., for the following works: One 15 ft. and one 10 ft. culvert on the Lanigan subdivision; two miles of new wood pipe at Macoun; 3,000 ft. new wood pipe at Estevan, and a new baggage and express building at Saskatoon.

British Columbia District.—A Vancouver press report, Apr. 16, states that a gang of returned soldiers has been organized to undertake repairs on the crib-work on the line through the Kicking Horse Pass. The work is expected to last all summer. (Apr., pg. 189).

President D. B. Hanna's Trip to the Pacific Coast.

D. B. Hanna, President Canadian National Rys., made a trip to the Pacific coast towards the end of March and early in April, being accompanied throughout by M. H. MacLeod, Vice President, in charge of operations and from Winnipeg westerly, by B. T. Wiley, one of the western directors. Operating, and other officials joined the party at various points, travelling through their respective territories. On the western journey, Winnipeg was reached Mar. 27, Regina, Mar. 28, and the party, after touching at other points, arrived at Vancouver, Mar. 31 and Victoria Apr. 1. Several days were spent in Vancouver on the return trip and they left there Apr. 6; Edmonton was visited Apr. 9, and they again reached Winnipeg Apr. 12; Port Arthur, Apr. 14 and Toronto, Apr. 17.

In the course of interviews at different points during the trip, Mr. Hanna is reported to have said that while tenders for the construction of a number of branch lines had been called for, they did not include all the work contemplated. At Vancouver, one official had a conference with the mayor in regard to the development of False Creek, in connection with which some revision of the terms was discussed, and at Victoria, there was a conference with the B.C. Premier, upon the question of the Songhees Indian reserve and construction matters generally.

Messrs. Hanna, Wiley and MacLeod were guests at a dinner given by the Vancouver Board of Trade, Apr. 5. In a

review of the Canadian Northern Ry. and its prospects under government ownership, Mr. Hanna is reported to have said: "As I look into the future, I think more than ever that we should never let the work end for today, but build for years into possession of a property that, mile for mile, is laid in such territory as will in time produce a maximum of traffic—given the same time as the C.P.R.—the gross earnings of which, west of the Great Lakes, will be greater than the C.P.R." He added that the directors are contemplating the establishment of a Montreal-Vancouver steamship service, and it is also hoped to branch out in other directions with a view to getting a share of the Japanese and Chinese trade. It is proposed to use the Dominion Government dock on Burrard Inlet, and something will probably be done in the way of further developments on English Bay. Mr. MacLeod is reported to have said that the company had in mind a line round Point Grey into the Songhees reserve.

Dominion Government Purchasing Department.—The president of the Privy Council in introducing in the House of Commons on Apr. 4 a bill respecting the purchasing of departmental and other supplies for the government, stated that by order in council of May 8, 1915, a war purchasing commission was organized, its duties being to supervise the purchase of materials for which payment was to be made out of the war appropriation. In 1918 the duties of that commission were enlarged to cover purchases for the other branches of the public service. The work of the commission had been so satisfactory that the government believed it should be continued. The bill introduced provides for the appointment of a purchasing commission, which shall do the purchasing of all supplies required by all departments of the government, except the government railways, which now form part of a larger system, and are being operated under a board of directors. The purchasing board is to consist of three commissioners who shall be appointed for 10 years, and shall be eligible for reappointment, but shall not hold office after reaching 70 years of age; they shall be removable at any time by Parliament. A director of the purchasing commission may be appointed, and members of the present war purchasing commission may be appointed at their present salaries to this commission, and employees of the war purchasing commission may be transferred to it.

Greater Winnipeg Water District Ry. Operation.—The question of the future of the railway built by the Greater Winnipeg Water District Commission to aid in the construction of the water supply system from Shoal Lake, is being given a good deal of attention in Winnipeg now that the water system is completed. The railway is 97 miles long and opens up a large area of territory, and its operation up to the present has been of benefit to the settlers along the route. The matter was taken up by the Winnipeg Board of Trade, April 17, when a resolution was submitted, favoring the taking over of the line by the city. After some discussion, an amendment was submitted by J. H. Ashdown, favoring the operation of the line for five years at least by the commission. No decision was reached, and the question will be further considered.

Railway Department Estimates for 1919-1920.

The estimates for the year ending Mar. 31, 1920, submitted to the House of Commons recently, contained the following items, among others, chargeable to capital account:—

Canadian Government Rys. construction and betterments.....	\$11,121,681
Hudson Bay Ry. Port Nelson terminals	100,000
National Transcontinental Ry., to pay claims for right of way.....	125,000
Miscellaneous railway equipment, to acquire directly or indirectly, or to assist in acquiring during the current fiscal year, railway equipment and materials, for the purposes and upon the terms (save as herein varied) mentioned in chap. 38 of the statutes of 1918. The assistance herein provided for may be by way of advances to any Canadian railway or Canadian rolling stock company, or by way of equipment or materials acquired by the minister.....	35,000,000
	<u>\$46,346,681</u>

The following items are chargeable to

income:—	
Arbitrations and awards.....	\$ 20,000
Board of Railway Commissioners for Canada, maintenance and operation of, including \$800 for Clyde Leavitt as Chief Fire Inspector.....	190,150
Board of Railway Commissioners for Canada, to pay expenses in connection with cases before the board.....	15,000
Contribution of Government Railways to McGill University towards foundation of a school of railway engineering and transportation in general in connection with Faculty of Applied Science	2,500
Contribution of Government Railways to Polytechnic School, Montreal, for advancement of learning in connection with railway engineering and transportation in general.....	2,500
Contribution to International Association of Railways Congress.....	97
Costs of litigation.....	3,000
Commissioner of Highways, to provide for the organization and payment of staff of Commissioner of Highways, including A. W. Campbell, C.E., as Commissioner of Highways at \$5,000 a year.....	25,000
Governor General's car, attendance, repairs and alterations.....	5,000
Loan not exceeding \$35,000,000, repayable on demand with interest payable half yearly at 6%, to be used to meet expenditures made or indebtedness incurred in paying interest on securities in excess of amount available from net earnings, or paying maturing loans of Canadian Northern Ry. or any company included in Canadian Northern Railway System, and for construction and betterments; said loan to be secured by mortgage upon the undertaking of the Canadian Northern Ry. System, containing such terms and conditions as the Governor in council may approve.....	35,000,000
Miscellaneous works not provided for....	2,500
Printing and stationery, outside service	7,000
Surveys and inspections, railways, including salaries and expenses of experts employed temporarily.....	55,000
To provide for audit on behalf of Government, of any railway company in Canada	15,000
	<u>\$35,342,747</u>
Salaries of Board of Railway Commissioners	\$ 55,000

The following items are chargeable to collection of revenue:—

Canadian Government Railways; towards working expenses.....	\$6,000,000
This is a decrease of \$31,000,000 from 1918-1919.	
Canals, staff and repairs.....	1,800,000
Canals, statistical officers.....	42,500

MISCELLANEOUS.

Allowance to Stephen Holmes, father of Miss Myle Holmes, to cover cost of artificial limb, and doctors fees and expenses, etc., incurred as result of accident at Aitkens crossing, Pirate Harbor, Jan. 17, 1918.....	500
Allowance to widow and children of Amedee Belanger, who was killed while in discharge of duty in employ of Canadian Government Rys. near L'Islet station, April 7, 1918.....	2,000

Allowance to Mrs. Agnes Alma Steadman, mother of Leslie Steadman who was killed while in discharge of duty as brakeman on Canadian Government Rys. at St. John, N.B., Mar. 12th, 1917	2,000
Allowance to Mrs. G. Peterkin, mother of Herve Bazinet, who was drowned in discharge of duty while in the employ of department, on the Lachine Canal, May 9, 1918.....	2,000
	<u>\$7,849,000</u>

Freight and Passenger Traffic Notes.

Up to Mar. 31 of the winter traffic season C.P.R. ocean steamships and trains handled 32,727 passengers at St. John, N.B.

The London, Eng., Times, commenting on G.T.R. earnings, expresses the opinion that traffic is being carried under its cost.

The Grand Trunk Pacific Ry. announces that summer tourist fares to Pacific coast ports and to California will be given over its line from June 1 to Sept. 30, with first time limit to Oct. 31.

Motor cars leave Penticton and Oroville, B.C., each way daily, at 9.30 a.m. and 3 p.m., and a motor launch is run in connection on Lake Shaka between Penticton and Okanagan Falls.

A press report states that railways in Canada and the United States have under consideration the advisability of restoring to a considerable extent the pre war excursion and special rate tickets.

The Victoria & Sidney Ry., a subsidiary of the Great Northern Ry. (United States), which operates on Vancouver Island, will, a press report states, discontinue its service in the near future.

The Canadian National Rys. Western Lines have sent circulars to station agents respecting prizes for keeping and beautifying station grounds. Flower seeds, etc., will be distributed to the agents.

The Grand Trunk Pacific Ry., is reported to have put into force a train service on Mondays, Wednesday and Fridays each way, between Regina and Weyburn, Sask., in place of the former twice a week service.

F. W. Peters, General Superintendent British Columbia District C.P.R., is reported to have stated recently, that a daily passenger train service will be inaugurated on the Kettle Valley Lines, on June 1, in lieu of the present tri-weekly service.

Representatives of the British Columbia Manufacturers' Association, and Vancouver Board of Trade and the Central Ratepayers Association, met in Vancouver, Apr. 1, to discuss the revival of a freight transportation bureau for the city.

The Canadian National Rys. report that for the week ended Mar. 31, 562 loaded cars covered by revenue war bills were taken across the Quebec bridge, 404 being from the bridge station to Chaudiere Jet., and 158 from Chaudiere Jet. to the bridge station.

The Alberta and Great Waterways Ry., according to a press report, Apr. 14, has placed a general embargo on freight traffic on its line, pending the making of some repairs to the track, and the establishment of better conditions along the line.

Canadian Pacific Ocean Services Ltd. will resume its freight service from Montreal to Antwerp, May 14, with the

s.s. Dunbridge. It is expected that a fortnightly service will be arranged. About 70% of the cargo space is reserved for government purposes according to press reports.

The Canadian National Rys. has been ordered by the Board of Railway Commissioners to stop its train 8, on flag, at Richmond, Ont., on Monday mornings, to accommodate the additional passenger traffic for Ottawa offering on those mornings, as a result of the week end travel from Ottawa to Richmond.

The Quebec Public Utilities Commission heard applications recently from Price Bros. and Co., against proposed increase by Canada and Gulf Terminal Ry., of freight rates between Matane and Mont Joli, and of W. Hurd, against proposed increase of rates on ties from 10c to 19c, by the Quebec Central Ry., between Lake Frontenac and Levis.

J. H. Walsh, General Manager Quebec Central Ry. is reported to have said Apr. 20, that an arrangement had been made with the United States Federal Railways to operate a sleeping car between New York and Levis, Que., which service will be augmented during the summer by a similar service by a through sleeping car to Boston and another to Portland, via the White Mountains.

The Edmonton, Dunvegan and British Columbia Ry. was reported Apr. 16 to have arranged to resume a gas car service between Edmonton and Westlake, Alta., 52 miles, at an early date. The car will leave Westlake in the morning and return in the afternoon. The experience of its operation during last summer is said to have been profitable to the railway, as well as to the advantage of the public.

Railway Finance, Meetings, Etc.

Grand Trunk Ry.—The ordinary general meeting of shareholders was held in London, Eng., Apr. 28.

Kettle Valley Ry.—At the annual meeting of shareholders held in Montreal, May 7, authority will be asked to issue bonds and other securities for the completion of the company's undertaking.

Lacombe and Blindman Valley Electric Ry.—H. A. Warner, an engineering member of the Alberta board, managing this steam operated railway, laid before the public accounts committee of the legislature, Apr. 11, a statement showing the results of operation for 1918. The total revenue was \$18,543.87 and the working expenses \$18,680.64, leaving a deficit of \$136.77.

Railways and Canals Department Salaries.—The Dominion Government estimates for the year ending March 31, 1920, presented to the House of Commons recently, provide \$189,300 for salaries for the Railways and Canals Department against \$203,112 for the previous year. The Deputy Minister's salary is increased from \$5,000 to \$6,000, but the item of \$5,000, voted in previous years for Assistant to the Minister, has been struck out, that position having been abolished. The following advances in salary have also been made: Chief Engineer, W. A. Bowden, from \$5,000 to \$5,500; Assistant Chief Engineer, L. Sherwood, from \$4,000 to \$4,500; Electrical Engineer, Jno. Murphy, from \$4,000 to \$4,500; Inspecting Engineer, Alex. Ferguson, from \$4,000 to \$4,500. The Solicitor, E. E. Fairweather, remains at his former salary of \$5,000.

The Edmonton, Dunvegan and British Columbia Railway's Position.

R. L. Richardson, M.P., for Springfield, Man., asked if the government's attention had been drawn to the Alberta Legislature's proceedings of April 1, which were reported as follows: "During the general discussion of the estimates, Dr. G. D. Stanley, High River, again asked the Premier concerning his previous statement in the house that the Edmonton, Dunvegan and British Columbia Ry. might be taken over by the Dominion Government; that negotiations were pending between J. D. McArthur, the railway promoter, and the Dominion Government, for such a consummation, and that the completion of the deal awaited only the signature of the Minister, presumably Sir Robert Borden. The Premier replied that the extent of his knowledge was that negotiations of this nature were pending; he could give no information as to their progress. In answering another question relative to the government having paid the interest on the bonds of this railway to prevent default, the Premier stated that the procedure had been to give the company authority to make the payments; there was, however, no difference in the cheques."

Mr. Richardson continued: "There have been remarks about the house to the effect that the Dominion Government might take this railway over, and it has been reported that very strong pressure was being brought to bear upon the government to do so. I would like very much to know if the government has any information that it cares to impart to the house, because it is very important to know what has been done with regard to the railway in question."

Sir Thos. White, acting Prime Minister, replied: "While the Edmonton, Dunvegan and British Columbia Ry. has been brought to the government's attention for some three or four years past in connection with matters relating to subsidy, no arrangement such as is suggested with regard to the taking over of the road has been completed, nor are there any negotiations at present looking to that end. It is, of course, open to those connected with this railway to bring to the government's attention from time to time anything that would be of public interest relating to its affairs."

It has been currently reported for some time that J. D. McArthur has been endeavoring to get the Dominion Government to take over his lines and that they will probably be added to the Canadian National Rys. System.

Central Railway Company of Canada's Affairs.

The Board of Railway Commissioners decided recently that the company had failed to make out its case upon an application to have the franchises, assets, etc. of the Ottawa Valley Ry., the Carillon and Grenville Ry. and the Ottawa River Navigation Co. vested in it, according to agreements, and that it would be manifestly against public interest and contrary to the spirit, if not the letter, of the Railway Act, for the commissioners to recommend the Dominion Government to sanction the ratification of the agreements. The Central Ry. Co.

of Canada is the survival of a pre-confederation project, initiated for the purpose of taking advantage of a Dominion land grant for the building of a line from Montreal to Georgian Bay. A short line was built many years ago, to which was awarded some part of the land, but this line was subsequently sold to the C.P.R. Some years ago the Ottawa Valley Ry. was incorporated, with which C. N. Armstrong of Montreal became associated, and this branched out until the Central Ry. of Canada became its title. The existence of the old land grant was made use of in the flotation of bonds in England, and this fact led to the cancelling of the grant. The company made agreements to take over the Ottawa River Co.'s project, the old Carillon and Grenville Ry., and the Ottawa Navigation Co., the two latter being worked in conjunction. As a railway company, some construction work was done in the vicinity of Hawkesbury, but financial stringency came, and the company and its contractors took legal action with the result that there were proceedings of various kinds—creditors' meetings arrangements with bondholders, etc., in the course of which the right of way of the Carillon and Grenville Ry. was bought by the Canadian Northern Ry. The company applied to the Dominion Parliament in 1912, 1913 and 1914 for approval of the agreements referred to, but the bills failed to pass. A bill asking for an extension of time for construction of the company's projected railway from Montreal, via Ottawa to Georgian Bay, is before the Dominion Parliament, but in passing through the House of Commons, the power of the company to build any additional lines was done away with, and the bill left in such a form, as the Minister of Railways explained, would leave the bondholders to sell everything connected with the company to which any value could be attached. The company has an interest in two sections of line, viz.: from South Glen Roberts to Hawkesbury, a total of 35 miles, which are leased to the Grand Trunk Ry. and it also owns the right-of-way from South Indian to Hawkesbury, and from St. Andrews to St. Agathe.

In connection with the action of the City Safe Deposit and Agency Co. against the Central Ry. of Canada, the Exchequer Court of Canada has directed that all persons having claims against the company shall file them with the Registrar of the Court at Ottawa on or before Sept. 9. F. S. Williamson, 103 St. Francois Xavier St., Montreal, is the Receiver.

Public Works Department Salaries.—The estimates for the year ending Mar. 31, 1920, submitted to the House of Commons recently, provide for \$575,537 for salaries in the Public Works Department, against \$574,955 for the year ended Mar. 31, 1919. The salary of the Deputy Minister, J. B. Hunter, is raised from \$5,000 to \$6,000, and that of the Assistant Deputy Minister, A. St. Laurent, from \$4,000 to \$4,500.

G.T.R. Ambulance Center.—This branch of the St. John's Ambulance Association has elected the following officers: Patrons, W. M. McPherson, and E. J. Chamberlin; President, H. G. Kelley; Vice President, W. D. Robb; Hon. Treasurer, F. S. Scott; Hon. Secretary, F. A. Bourne; representatives to general council of Canadian branch, Dr. J. H. Hutchinson and Dr. H. B. Carmichael.

The Grand Trunk Pacific Railway Receivership.

The following circular has been issued:

Grand Trunk Pacific Railway System.
"W. P. Hinton, Minister of Railways
& Canals Receiver.
"Winnipeg, Man., Mar. 25, 1919.

"To all concerned:—With the Receiver's approval, an office has been arranged for in the Department of Railways and Canals, at Ottawa, to facilitate the handling of the work connected with the receivership of the railway.

"H. H. Hansard, Solicitor for the company, has been delegated to act as Solicitor to the Receiver, to assist the Receiver in all legal matters pertaining to the receivership.

"S. P. Porter, Executive Agent of the company, will represent me at Ottawa, during my absence, as my assistant in all matters pertaining to the receivership.

"All correspondence in connection with the receivership at Ottawa should, therefore be addressed to, 'S. P. Porter, Ass't. to General Manager, Grand Trunk Pacific Ry. System, Department of Railways and Canals, Ottawa, Ont.'

"In order not to create confusion, or delay, all official Receiver's correspondence to the company will be directed and addressed to, 'The Secretary, Grand Trunk Pacific Railway Co., Montreal, Que.', or, 'The Vice President and General Manager, Grand Trunk Pacific Railway Co., Winnipeg, Man.' as the case may be.

"All orders on supply houses for materials, etc., and all communications with outside individuals, firms, or companies, involving financial transactions should be stamped with rubber stamp, as below: 'Minister of Railways and Canals Receiver.'

"Transfers, deeds, leases, agreements, contracts and other documents should be prepared and handled as usual and sent to the Vice President and General Manager for execution on behalf of the company. These documents will require the Receiver's approval and signature, to be endorsed thereon before delivery, but should first be signed by the proper officers and then sent to the General Manager's branch office, Ottawa, for the Receiver's approval and signature, and then returned to the Secretary for sealing and delivery.

"These instructions cover not only the Grand Trunk Pacific Ry., but all Grand Trunk Pacific subsidiary companies.

"W. P. Hinton, General Manager."
"Approved, J. D. Reid, Receiver."

Railway Troops.—In "Canada's Part in the War," a booklet issued by the Dominion Government, it is stated that "Canadian Railway Units were attached to all the British armies. Canadian Railway troops were responsible for the whole of the construction of light railways and 60% of the standard gauge railways in the area occupied by the British forces."

The Alberta Government and Railway Bonds.—In speaking on the Lacombe and Northwestern Ry. bill in the Alberta Legislature, Apr. 9, the Provincial Premier stated that the government had no intention of going into the railway business and that as long as he is the head of the government there will be no more guarantees of railway companies' bonds given.

Electric Railway Department

Increases in Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry.—See under British Columbia Public Utilities Act, on another page of this issue.

The Cape Breton Electric Co. is reported to have decided to sell 10 school childrens' tickets for 30c. The Nova Scotia Public Utilities Commission in its recent judgment, recommended the issue of such tickets, leaving it to the company to fix the rate and the manner of issue.

Edmonton Radial Ry.—The Edmonton, Alta. City Council is reported to have decided to advance fares on the Edmonton Radial Ry. which is owned and operated by the city, as follows, from Apr. 21:—Cash fares, 7c; ticket, good until midnight, 4 for 25c; limited tickets, good until 8.30 a.m., 5 for 25c. After midnight, 10c cash, or 2 tickets. No change was made in childrens' fares.

London and Port Stanley Ry.—The Dominion Parliament has ratified an agreement made Jan. 20, 1919, between this company, which it operated by the London Railway Commission, of which Sir Adam Beck is Chairman, and the City of London, varying an agreement of Nov. 28, 1913, and increasing the excursion rate between London and Port Stanley. The clause in the new agreement, which replaces a clause of the original agreement, is as follows:—That semi-weekly excursion trains from London to Port Stanley and return on the same day, will be run in each week from May 24 to Sept. 10 in each year during the term of 99 years. The fare from London to Port Stanley and back on such trains, shall not exceed 50c for each person 12 years of age or upward, and 25c for each person under 5, accompanied by a parent or other person having them in charge, such children to travel free, and such fare shall entitle the passengers to be carried to the termini at the beach south of the present picnic grounds at Port Stanley.

London St. Ry.—After having been under discussion for nearly a year the London, Ont., City Council, on April 7, voted on the question of an increase of fare on the London St. Ry. The company's application for power to charge increased fares came before the council's no. 1 committee, which referred it to a special committee. This committee discussed it at length, and reported against it, and this recommendation was adopted by no. 1 committee, the section of the report dealing with the matter, and passed on to the Council for consideration being as follows:—

"That inasmuch as the communication from the London St. Ry. offers a suggestion as to the improvements in service conditional on increased fares, that the company be advised that the city cannot give the communication further consideration.

A copy of this resolution having been supplied to the company the mayor was advised that if the increased fares asked for were granted the company would at once put into effect and maintain the service called for in the city's bylaw passed in Aug., 1918. This communication was considered by the council on Apr. 7 at the same time as the report of no. 1 committee with the result that it was re-

solved on motion of Alderman Cunningham, seconded by Alderman Colbert, by 6 votes to 5 "That without prejudice to the city's right under bylaw 916, and agreements relating thereto that the following be the fares: 5c cash, 6 unlimited tickets for 25c, and 7 limited tickets for 25c; the latter to be good until 8.30 a.m. and that bylaw 916 be amended accordingly, and that if necessary, application be made to the Ontario Legislature, now in session, by the city solicitor, to confirm the same.

The company inaugurated the desired service on Apr. 9, but the City Solicitor, subsequent to the passing of the resolution, authorizing increased fares, advised the council that it was too late to apply for confirmation of the amendment to the bylaw, at the then current session of the legislature, so the company is still selling tickets at the old rate.

Following is a comparison of the old fares and of the new ones authorized by the city council, but not yet ratified by the legislature:

	Old.	New.
Cash fare	5c	5c
Unlimited tickets	7 for 25c	6 for 25c
Limited tickets	9 for 25c	7 for 25c

The city council extended the time within which limited tickets may be used in mornings by half an hour, viz. to 8.30 a.m., instead of to 8 a.m. as under the previous arrangement.

Among those who voted for the increase of fares was Alderman J. Colbert, President of the Street Railway Men's Union. A couple of days later the Independent Labor Party declared in a statement that he was unworthy of the political support of organized labor.

New Brunswick Power Co.—See under "Commission's Report on New Brunswick Power Co.'s Franchise, Rates, Etc.," on another page of this issue.

Nipissing Central Ry.—Canadian Railway and Marine World for Apr. contained full particulars of local passenger tariff C.R.C. 20, issued Feb. 22, by this company, which is owned by the Ontario Government, and operated by the Timiskaming & Northern Ontario Ry. Commission, and which increased passenger fares about 25 per cent. The Board of Railway Commissioners passed order 28190, Mar. 29 on the complaint of Haileybury Town, Bucke Tp. and B. B. Caibbe, suspending the tariff, pending hearing of complaints on date to be fixed by board.

Ottawa Electric Ry.—The board of railway commissioners passed order 28, 230, Apr. 14, allowing the Ottawa Electric Ry. Co. to appeal to the Supreme Court of Canada, upon questions of law, against two orders passed by the board, viz. 27,830, of Nov. 6, 1918, impeding the company's tariff c. 6, c. 5, and 28,120, of Feb. 25, 1919, disallowing the said tariff. Both these orders were published in full in Canadian Railway and Marine World for Dec., 1918, pg. 557, and Mar., 1919, pg. 137. The order of April 14, states that the questions for the consideration of the Supreme Court are:

"1. Whether upon the proper construction of the agreements with the City of Ottawa and the Village of Hintonburg, the statutes relating to the Ottawa Electric Ry. Co. and the relevant

provisions of the Railway Act, the board was right in disallowing the tariff of the company filed, providing for payment of additional fare for carriage upon the extension from Holland Ave., notwithstanding that the board has found as a fact that the company did not require additional revenue.

"2. Also, whether, upon the proper construction of the said agreements and statutes for the purpose of computing the toll to be charged to passengers upon the said extension, the point of commencement of the said extension should be considered to be at Holland Ave. or at the former westerly limit of the Village of Hintonburg, now the City of Ottawa.

"3. Has the board the right to treat the company's operations as a whole and continue the existing tariff; or must the board permit the filing of tariffs on a mileage basis covering services on the Britannia line without reference to the larger part of the system covered by municipal agreements?"

It is probable that case will be heard at the Supreme Court's sittings, beginning on May 6.

The Proposed Purchase of the Ottawa Electric Ry. is Off.

The petition of the Ottawa City Council for authority to purchase the Ottawa Electric Ry., came before the Ontario Legislature's standing committee at the end of March, and the committee reported to the legislature Apr. 1 that among other things the petitioner desired to be authorized to enter into a provisional agreement with the Ottawa Electric Ry. Co., and with the Ottawa Traction Co., or that if they should approve of the same, to carry the same into effect, and in such an event that the petitioner be authorized to provide by bylaw, to be passed without obtaining the approval of the ratepayers of the city thereto, for issuing city debentures to such an amount not exceeding \$6,500,000, as might be required to provide for the payment of the sum agreed upon as the purchase price of the Ottawa Electric Ry.'s real and personal property, assets and franchises, whereas the notice said that the bylaw providing for the issue of debentures for raising the before mentioned sum should be subject to the obtaining of the assent of the electors. The committee was informed that a portion of the paragraph in the petition relating to the issue of the debentures was omitted and that the paragraph appearing in the petition did not convey the petitioner's intention. The committee recommended that the private bills committee's attention be directed to the difference between the notice and the petition, with regard to the assent of the ratepayers being required to the bylaws, and that the bill be made to conform in this particular with the notice as published.

The Ottawa City Council discussed the whole situation Apr. 7, when the board of control recommended among other things, that the council inform the company that the city was not prepared to purchase the railway at the price named. The coun-

cil decided unanimously to withdraw the bill.

In the course of the discussion it was stated that the city would have to obtain power from the Quebec Legislature, and from the Dominion Parliament to deal with the matter, as well as from the Ontario Legislature.

British Columbia Public Utilities Act.

The B.C. Legislature has passed an act providing for the appointment of a public utilities commission for the province. The 1st section contains the interpretation clauses; the 2nd sets forth the duties and restrictions imposed on public utilities companies; the 3rd deals with the supervision of the commission over such companies; the 4th deals with the commission, and its procedure. The commission is to consist of one member to hold office during good behaviour for 10 years, who shall be eligible re-appointment; devote the whole of his time to the duties and shall reside in such place as the government may from time to time determine. The salary of the commissioner shall not be less than \$7,000 nor more than \$8,000 a year. An acting commissioner may be appointed in cases of illness or absence, or in case the commissioner may be interested in any case coming before it and him. Provision is made for the appointment of a secretary and such staff as may be required, and a report is to be presented annually by the commissioner to the legislature. The Minister of Railways' power in respect of any public utility company or its service, is transferred to the commissioner, who may act without the consent of the government, and may vary existing orders of the Minister of Railways, upon any matters coming within the commissioner's jurisdiction. The commissioner is given certain Supreme Court powers and is to make decisions on the merits and justice of the cases submitted, and shall not be bound to follow strict legal precedent. Appeals may be made from the commissioner's findings on questions of jurisdiction and law, upon permission to do so being obtained from the Court of Appeal, within 28 days after the decision has been made.

The important sections affecting electric railways, and the British Columbia Electric Ry. in particular, are the three dealing with rates. Sec. 9 provides that no public utility shall make any unjust, unreasonable, unduly discriminatory or unduly preferential rate for any service furnished by it, or any rate otherwise in violation of the law; sec. 10 prohibits the granting of reduced rates or rebates, and sec. 11 provides that there can be no changes of rates, or the establishment of any new rates, except with the approval of the commissioner. Subsec. 2, of this section, provides that the burden of proof as to the desirability of any change in rates from those in existence or legally chargeable at the time the act came into force, shall be upon the company; subsec. 3 preserves the right of application for a change in rates, while subsec. 4 makes special provision in respect to the British Columbia Electric Ry. The effect of this subsection is that beginning on Apr. 9, the company has to keep a record of all fares in excess of 5c, but not exceeding a 6c fare within or without the City of Vancouver, showing the amount of excess collected, and shall keep the same deposited in a special

trust account, until the commissioner shall fix a rate for such service, which he shall proceed to do with due diligence. In the event of the rate so fixed being less than the rate charged from Apr. 9, the amount held in the special trust account in excess of the rate fixed shall be paid to the Vancouver General Hospital, and the balance, if any, shall belong to the company, but if the rate fixed by the commissioner is equal to or in excess of the rate charged from Apr. 9, then the company shall be entitled to the whole of the amount in the special trust account. The effect of this section is that the British Columbia Electric Ry. will continue to collect 6c fares in Vancouver, New Westminster and North Vancouver, until the commissioner decides otherwise.

It is provided that no public utility shall capitalize any franchise or right to be a corporation, or capitalize any franchise in excess of the amount actually paid to the province or a municipality as the consideration for the same; or capitalize any contract for consolidation, amalgamation or lease, or issue any security or evidence of indebtedness against or as a lien upon any contract for amalgamation, merger or lease. All amalgamations shall be subject to the commissioner's approval, and unless he approves, no public utility company can acquire shares in any other public utility company.

The commissioner is given power to ascertain the value of the property of any public utility company and may order the costs of such appraisal to be paid by the company as the work proceeds.

During the passage of the bill through the legislature, there was considerable discussion upon the question of fares, with the result that an amendment having for its object the re-establishment of a 5c fare in Vancouver, was defeated. Another amendment, which was defeated, was one asking to have it specifically defined just what businesses should be considered public utilities.

A Victoria dispatch of Apr. 17 stated that the B.C. Government had decided to appoint R. H. Gale, Mayor of Vancouver, as commissioner under the new act. This news was not favorably received in Vancouver, particularly by the Great War Veterans' Association, which had been advocating the appointment of Lt.-Col. L. L. Retallack. His appointment was also recommended by the British Columbia Technical Union. The G.W.V.A., at a meeting on Apr. 17, protested against the appointment of Mayor Gale, and arranged for a deputation to go to Victoria to interview the government. A Victoria press dispatch, Apr. 21, stated that Mayor Gale's name had been withdrawn, and that Lt.-Col. Retallack had been appointed. He was formerly in the Royal Northwest Mounted Police, and during the war served with the Canadian Railway troops in France and Belgium.

Proposed purchase of Sandwich, Windsor and Amhurstburg Ry.—A Windsor, Ont. press report of April 13, states that an agreement has been reached between Windsor and the other four border municipalities with respect to the joint purchase of the electric railway system in the border municipalities, and that negotiations to determine the price to be paid are to be opened immediately by the Hydro-Electric Power Commission of Ontario.

Street Railway Operating Questions in Regina.

The Regina, Sask., city council, on Mar. 28, discussed a report relative to the operation of the municipal railway, proposed by City Commissioner Thornton in reply to a series of questions submitted by Alderman Rope, and covered the question of advertising schedules; provision of signposts at railway stations; of meeting trains; provision of rear vestibule doors on cars; use of automatic trolleys; appointment of a special inspector, and suggestions by W. R. Reilly as to looping all lines downtown, instead of running them through as at present. Commissioner Thornton points out that schedules, if used, would be beneficial from a revenue standpoint, and that the advertising agent is working on an advertising booklet which will contain schedules of all lines. As to signs of railway stations, there is a board at Rox and South Railway Sts., and a similar board might be placed on C.P.R. property if permission could be obtained. It has been found impossible to make the car schedules conform to train arrivals, and experience has shown that even the meeting of excursion trains from the beaches has frequently not been justified by the patronage received. The commissioner says it would cost about \$4,000 to equip the cars with rear vestibule doors, and under present circumstances, this expenditure is not considered justifiable, particularly in view of the fact that the equipment may in the near future be converted for the operation of one-man cars. The use of automatic trolleys is not essential for the operation of two-man cars, but they will have to be provided at a cost of approximately \$15 each for one-man cars when adopted. As to the employment of an additional inspector, the commissioner says such an officer would certainly ensure a closer supervision over traffic, both special and at transfer points, but suggests the appointment of an assistant to the superintendent, whose duties, among other things, would be that of traffic manager. The suggestion as to looping all lines downtown, Commissioner Thornton says would, under present conditions, result in additional expense without any appreciable increase in traffic. The consensus of opinion among street railway operators is, he says, decidedly in favor of the radial system of routing as opposed in the belt system. He recommends the provision of a waiting room at the corner of Hamilton and Eleventh Sts.

The council spent about four hours discussing the report and adjourned its further consideration to a future meeting. The aldermen, with the exception of Alderman Rose, who had raised the various questions, were favorably disposed to the suggestions made by the commissioner.

The Edmonton, Alta., City Council, on Mar. 10, gave consideration to several matters affecting the Edmonton Radial Ry. employes. The council restored all men who participated in the walk out of 1917, to the standing which they would have had if there had been no strike or no war. Five of the employes taken on at the time of the strike are reported to be affected by this settlement. Men who had enlisted were being placed on the list next to the men they had followed at the time of enlistment.

Double Truck Motor Cars for Winnipeg Electric Railway.

The Winnipeg Electric Ry. is adding 10 double truck, single end, semi steel, arch roof, motor cars to its equipment, the following being the principal dimensions, etc.:

Length of car body	33 ft. 3 in.
Length of front vestibule	5 ft. 0 in.
Length of rear vestibule	7 ft. 6 in.
Length over bumpers	45 ft. 8 in.
Width over all	8 ft. 6 in.
Distance between bolsters	21 ft. 6 in.
Weight of car body	19,000 lb.
Seating capacity	46 persons

The bottom frame and sides are of steel with side sill made up 5 x 3 x 1/2 in. angle, rivetted to side plate 18 x 5-16

Front and rear vestibule doors are 2 leaf folding out and back, controlled by motorman and conductor, with which are operated a folding step, provided with Ottawa Car Mfg. Co.'s anti-slip tread.

A Keystone illuminated sign box is placed in the front vestibule right hand window, and Keystone side window signs are installed on each rear window. The interior lighting arrangements include 5 shaded lights in the center of arch roof, with through selector switch on rear platform over conductor's position.

The seats are light weight pressed

on door frames, with electric light in front of motorman. A signal bell system is installed to operate car push buttons, direct from trolley circuit of 500 volts.

Draw bars are provided at each end, with Winnipeg Electric Ry. standard draw head and Ottawa Car Mfg. Co. improved spring case. Side sash are arranged to lift up with an automatic cam lock. The advantage obtained by the use of lift up sash is that the absence of lower pockets makes the car more sanitary, because the chance for careless patrons to use the pockets as a place into which to drop rubbish is done away with.

The interiors are finished in cherry inlaid, including doors, sash linings and mouldings.

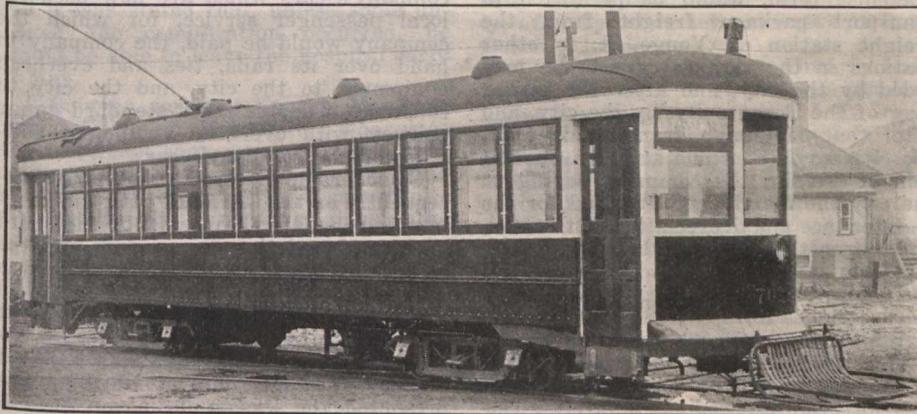
Sanitary hand straps are used over longitudinal seats, 21 being installed. The ventilators are exhaust, 4 on each side of roof, with grills on inside. The headlining is painted light cream color with railway enamel. Removable window guards, in 4 sections, are placed on devil strip side and made interchangeable. This arrangement makes the cleaning of windows easy. Hand brakes are provided.

One special feature of these cars is the coloring of all bronze trimmings to an antique green, a serviceable and lasting color compared with highly polished bronze, which tarnishes after a car has been running two or three weeks. The painting of the cars is Winnipeg Electric Ry. standard light cream color above belt rail, below belt rail is painted a solid cherry, sash and doors natural cherry.

The car bodies were built by the Ottawa Car Mfg. Co., the Winnipeg Electric Ry. supplying and installing the trucks, motor equipments and air brakes.

The trucks have 26 in. wheels, on which are mounted 4 C.G.E. ball bearing motors.

Higher Electric Railway Fares in Scotland.—Municipal and company owned tramway managements, at a meeting



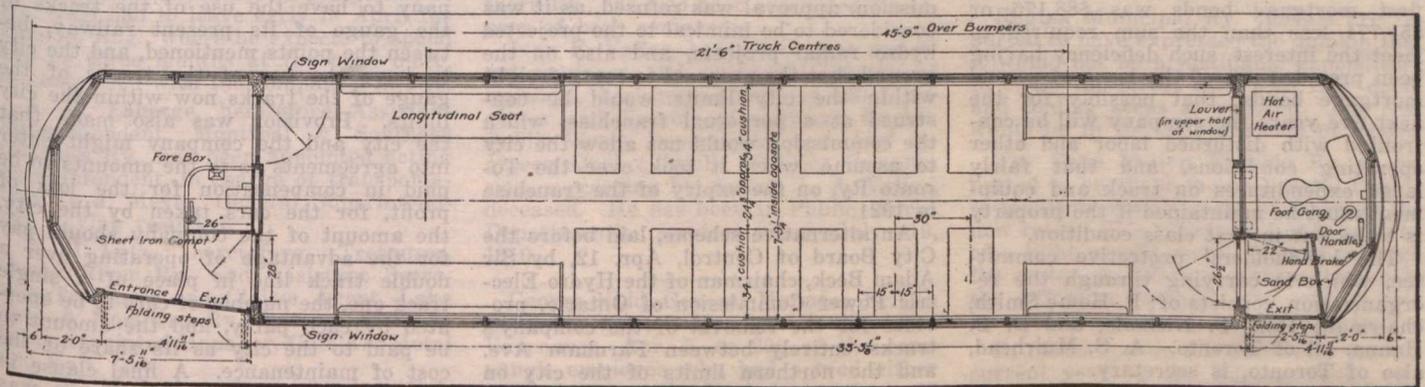
Double Truck Motor Car, Winnipeg Electric Railway.

in., cross members are of 4 x 5-16 in. plates, also 4 in. channel at 7.25 lb., reinforced with oak cross sill, headstock made up of 10 x 1/2 in. steel plate, with two 4 x 3 x 1/2 in. angle rivetted together.

Bolsters are made up of channel, top 12 in. at 25 lb., bottom 10 in. at 20 lb. with cross channel at center. Front vestibules, center and side knees are of channel 6 in. at 8 lb., running through to bolster, bumpers 6 in. at 13 lb., with 3-16 in. cover plate for toe board. Rear vestibule center knees 6 in. channel, running through to bolster, side knees are of

steel fittings, with Ottawa Car Mfg. Co. spring upholstered cushion and back, covered with rattan. Motorman's seat is the Electric Service Supply Co.'s, and conductor's seat is the Ottawa Car Mfg. Co. standard drop seat. The heating arrangements are for hot air.

The rear bulkhead has swinging door, with door-check arranged to swing in for entrance side, full panelling and sash at center, sliding door for exit, front bulkhead has door mounted on double acting spring hinges on right hand side for exit, panelling and two sash, with louver, in upper half of left hand sash.



Plan View of Double Truck Motor Car, Winnipeg Electric Railway.

4 in. channel, made up in counterlever style, toe board also of 3-16 in. plate.

Above side plate and below belt rail, 16 gauge panels are used between side post, with 1/8 in. strap covering joint. This arrangement facilitates repairs. Belt rail is 2 x 1/2 in. steel strap bolted to post, with beaded bar rivetted to top of side plate with 4 x 1/2 in. reinforcing plate inside.

The body posts are of white ash, straight and grooved for sash. The wood belt rail is covered with no. 16 gauge steel.

A protective compartment is installed in rear vestibule for conductor and provided with raised floor about 4 in. high, also heater and seat. A winter partition is also arranged for motorman in front vestibule.

A sand box is installed in front bulkhead, with O. B. sander valve, arranged to sand both rails. Front vestibule windows have double glass, with extra storm sash fastened from inside, to protect the motorman from frosted windows.

The rear vestibule doors are fitted with electric signal, and arranged with switch

in Edinburgh recently, adopted the following resolution:—"That the responsible officials of the Scottish tramways industry pledge themselves to call meetings of their directors and committees, and to advise and do everything in their power to induce these bodies to take united action until the responsible government departments admit, and take immediate steps to put into effect, the principle of allowing tramway undertakings to increase their present scales of tolls and charges by not less than 50%, and not more than 100%.

Buffalo, Lockport and Rochester Railway Reorganization.

In connection with the recent sale, under foreclosure, of the property, franchises and other assets of the Buffalo, Lockport and Rochester Ry., to the bondholders, we are officially advised that the plans for reorganization of the company are being carried out, and that a new board of directors will be elected at an early date. The reorganization plan provides for the purchase of the property at the foreclosure sale by a committee representing the reorganization committee, and then turned over to a new corporation to be formed by the committee, which corporation is to issue the proposed new securities in payment for the property.

The securities dealt with by the reorganization committee consist of \$2,799,000 first mortgage 5% gold bonds, and \$200,000 second mortgage 6% gold bonds, the preferred and common stock not participating. The new company is to issue \$1,499,500 of 6% cumulative preferred stock and \$2,199,250 of common stock, being part of a total capital authorized of \$1,500,000 preferred stock, and of \$2,200,000 common stock subject to the approval of the Public Service Commission of the State of New York. The new stock to be issued will be distributed as follows: To holders of first mortgage bonds, \$500 preferred and \$750 common stock in respect of cash \$1,000 held; and to holders of second mortgage bonds \$500 preferred and \$500 common stock in respect of each \$1,000 held, and they will also receive the new securities underwritten by them as provided in the underwriting agreement. This agreement provided that bondholders signing it would provide pro rata for the cash requirements of the plan in respect of such holders of first mortgage bondholders as did not deposit their bonds thereunder.

The reorganization relieves the company of any fixed annual interest obligations. The reasons given for the adoption of this plan are that for the six years ended June 30, 1918, the average amount available to pay interest on the first mortgage bonds was \$88,176 or \$51,774 less than the sum required to meet the interest, such deficiency having been provided out of the issue of second mortgage bonds; that possibly for the next five years the company will be confronted with disturbed labor and other operating conditions, and that fairly large expenditures on track and equipment must be maintained if the property is to be put in first class condition.

The bondholders' protective committee, which is carrying through the reorganization, consists of: R. Home Smith, chairman; Hon. F. Nicholls, and D. B. Hanna, all of Toronto. A. S. Muirhead, also of Toronto, is secretary.

Winnipeg Electric Ry.—The Winnipeg City Council on Mar. 11, considered a suggestion from the Manitoba Premier to the effect that the present 5c fare be allowed to stand for two years. The suggestion was made in connection with the work of paying for the valuation of the company's property which is now being made, the payment for which the company desired should be spread over a lengthened period. The company paid \$3,000 for the first month's work of the valuation, but declined to pay the \$6,000 asked for the second month's work. Further construction was postponed.

The Toronto and York Radial Railway and the City of Toronto.

Canadian Railway and Marine World for March contained details of a proposed agreement under which the city was to take over the portion of the Toronto and York Radial Ry. Metropolitan Division on Yonge St., within the city limits, on payment of \$590,000. It was also provided that the company might establish a freight receiving station on Yonge St. at the city boundary, and certain other receiving station within the city, on a rental basis, and that the Toronto Ry., during the balance of its franchise term, would be permitted to transport package freight from the freight station on Yonge St. to other stations in the city, in cars to be provided by the city, and after the taking over of the Toronto Ry. by the city, and after that company's franchise in 1921, the city would continue such transportation of freight, the company paying to the city the freight charges, and for the maintenance and depreciation of the cars, and interest at 6% on their cost, with platform wages for the car crews, and the actual cost of power used, no charge to be made for power used between 12 midnight and 6 a.m.

This agreement was arrived at after considerable negotiation, and as a result of arbitration proceedings before the Ontario Railway and Municipal Board, and was considered to provide a reasonable solution of the grievances which the city claimed to be suffering under, owing to the company's operations within the city limits.

Under another agreement, in common with other municipalities, respecting the proposed construction of hydro radial railways, with the Hydro-Electric Power Commission of Ontario, the city is not permitted to enter into any agreement for the acquisition, operation of, or the granting of any franchises to any other railway company, without the commission's approval, and on the submission of this proposed agreement, to the commission, approval was refused, as it was considered to be inimical to the projected hydro radial projects, and also on the ground that the proposal to carry freight within the city limits would be construed as a perpetual franchise, which the commission would not allow the city to assume, when it took over the Toronto Ry. on the expiry of the franchise in 1921.

An alternative scheme, laid before the City Board of Control, Apr. 12, by Sir Adam Beck, chairman of the Hydro-Electric Power Commission of Ontario, provides for the removal of the company's tracks entirely between Farnham Ave. and the northern limits of the city on Yonge St., now situated on the west side and the laying of a double track in the centre of the roadway, thus making it possible to pave the whole street. This, it is estimated, will increase the accommodation so far as the company is concerned, and make possible the operating of the city system as far as Farnham Ave. to connect with the company's city lines until 1921, when a through city service will be operated. It is presumed that dual service of the city and the company on Yonge St. will affect the local passenger service company and an act was drafted by the commission's solicitors to provide for the build-

ing of tracks for the dual system; the city to provide for the whole of the road from Farnham Ave. to the northern city limits on Yonge St., and making possible a better operation of the company's cars on the double tracks than it now has with a single track. It would also enable the city to operate its cars between Farnham Ave. and the northern city limits until the city's contemplated lines up Mount Pleasant Road on the east and Avenue Road on the west, are constructed. It proposed that the city absorb the company's cars which are now used for local passenger service, for which the company would be paid, the company to hand over its rails, ties and overhead equipment to the city, and the city to construct a double track standard gauge railway with overhead equipment suitable for the company's cars.

Considerable discussion took place subsequently on the merits of both this original and the later proposals, by the board of control and the city council, and the scheme proposed by Sir Adam Beck was adopted.

A bill was prepared and submitted to the Ontario Legislature, Apr. 16, to ratify the arrangement, but was rejected owing to the late date at which it was presented, the session closing on the following day. The provisions of the bill were to empower the city to lay two double track lines of different gauge (city lines 4 ft. 10 $\frac{1}{2}$ ins., T. & Y.R.R. standard), approximately on the same location, on the center of Yonge St., between the terminus of the Toronto Ry. and the northern city limits, each of the double track lines of different gauge to be installed as near as practicable on the same center line and parallel thereto; to remove the existing rails, etc., from the west side of the street; to take over the company's existing local service cars now operating over this section, solely for traffic between Farnham Ave., and the northerly city limits. The company to have the use of the tracks of the gauge of its present railway, between the points mentioned, and the city to have the use of the tracks of the gauge of the tracks now within the city limits. Provision was also made that the city and the company might enter into agreements as to the amounts to be paid in compensation for the loss of profit, for the cars taken by the city, the amount of the company should pay for the advantage of operating over a double track line in place of a single track one, the number of cars to be operated by each party, and the amount to be paid to the city as its share of the cost of maintenance. A final clause in the bill stated that nothing in it was to be deemed to confer upon the company the power to continue the operation of its cars on that portion of Yonge St., beyond the period within which it is now empowered to operate cars thereon.

The Toronto Railway Employees Union has asked the Ontario Government to amend the Hydro Electric Power Commission Act, so as to provide for five commissioners instead of three, one at least of the five to be a labor representative.

Henry Ford is said to be working on plans for a street car, to be driven by an internal combustion motor.

Mainly About Electric Railway People.

Capt. F. D. Burpee, Superintendent, Ottawa Electric Ry., who returned recently from overseas service, has been elected a member of the Canadian Electric Railway Association's executive committee, succeeding the late Jas. D. Fraser, formerly Secretary-Treasurer, Ottawa Electric Ry.

J. L. Baird, Assistant Secretary and Treasurer and Auditor, Windsor, Essex & Lake Shore Rapid Ry., Kingsville, Ont. underwent a serious internal operation at Harper Hospital, Detroit, Mich., Apr. 8. On Apr. 18 he was reported to be progressing as well as could be expected, and it was stated that, unless some unlooked for complication occurred, he should be able to leave the hospital early in May.

J. Buntzen, formerly General Manager, British Columbia Electric Ry., who, since his retirement some years ago, has been acting as an advisor to the directors, and has lived in Copenhagen, Denmark, is expected to visit Vancouver during the summer.

Capt. F. R. Glover, who has resumed his duties as general executive assistant, British Columbia Electric Ry. at Vancouver, went overseas with the 72nd Seaforth Highlanders as honorary captain and paymaster, and on returning late in 1917, was appointed superintendent of military police for British Columbia, under the Military Service Act.

R. N. Godin, has been appointed acting Superintendent, in charge of car barns, power and distribution system, Montreal & Southern Counties Ry., G. J. Meyer, Chief Engineer and General Superintendent, having resigned.

Geo. Kidd, General Manager, British Columbia Electric Ry., entertained at a complimentary dinner at Vancouver, on April 5, all the men in the company's employ who had returned from overseas service. Invitations were issued to 209 on the mainland portion of the system. There are a large number more to return, but the dinner could not be postponed, as Mr. Kidd had to leave early in April for London, Eng., where he expects to spend two or three months at the head office, in connection with the company's affairs.

A. F. Laberge, heretofore Assistant Superintendent, Montreal & Southern Counties Ry., has been appointed acting Superintendent, in charge of transportation, G. J. Meyer, General Superintendent, having resigned.

W. H. Lutz, heretofore Treasurer, Grand River Ry., and Assistant Secretary-Treasurer and Claims Agent, Lake Erie & Northern Ry., has resigned, on being appointed Manager, Galt Art Metal Co., Galt, Ont.

T. H. McCauley, Superintendent Calgary Municipal Ry., spoke at the Calgary, Alta., Board of Trade's luncheon recently, on the city's electric railway.

Sir Wm. Mackenzie, President, Monterey Ry., Light & Power Co., and Toronto Ry., returned to Toronto, Apr. 4, with F. H. Phippen, K.C., Miss Mackenzie and Mrs. Frank McCarthy, after a short trip to Monterey, Mexico, and Hot Springs, Arkansas.

G. J. Meyer, Chief Engineer and General Superintendent, Montreal & Southern Counties Ry., has resigned, and has returned to Chicago.

Geo. A. Mills, Electrical Engineer, Win-

nipeg Electric Ry., has resigned, and is returning to the United States.

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry., returned to Vancouver early in April, after having spent two months in Southern California, where he had gone under his doctor's orders, on account of his health.

Miss C. Nevin, who returned recently from overseas, where she had been doing war work, has been appointed Assistant to Treasurer, Grand River Ry. and Lake Erie & Northern Ry.

Lt. Col. G. C. Royce, General Manager, Toronto Suburban Ry., and Mrs. and Miss Royce, returned to Toronto recently, after spending several weeks at Palm Beach, Florida.

H. C. Small, Secretary, Ontario Railway & Municipal Board, is a beneficiary under the will of his brother, J. T. Small, K.C., who died suddenly on the golf links at Pinehurst, N.C., Jan. 30, leaving an estate valued at \$101,121. He left his Toronto house to H. C. Small, under certain conditions, also a fourth of the residue of the estate, after providing for certain other legacies, succession duties, etc.

Warren Y. Soper, Vice President, Ottawa Electric Ry., and Gordon Gale, Vice-President & General Manager, Hull Electric Co., were among the members of the Royal Ottawa Golf Club's committee, which received the Governor General and other guests, at the club's reopening, Apr. 14.

David A. Starr, M.I.E.E., formerly of Halifax, N.S., and who has been General Manager of the Clyde Valley Electrical Power Co., at Glasgow, Scotland, for several years, left there early in December, on an extended leave of absence, to recuperate after an attack of pneumonia. He went via New York to Florida, Cuba, and Jamaica, thence to New York again, and after visiting Toronto, Ottawa, Montreal and Halifax, sailed towards the end of April for Glasgow, to resume his duties.

M. Milne Todd, Vice President, Grand River Ry. and Lake Erie & Northern Ry., has also been appointed Treasurer of both companies.

Ivan E. Vallee, heretofore first assistant engineer and assistant director of railways, has been appointed chief engineer and director of railways, Quebec Public Works Department, and chief engineer, Quebec Public Utilities Commission, succeeding his father, L. A. Vallee, deceased. He has been in Public Works Department's service since July 19, 1910.

George Kidd, General Manager British Columbia Electric Ry., gave a dinner at Vancouver, Apr. 5, to 200 of the company's employes who had served either in the army or the navy during the war. In addressing them, he said 570 of the employes had served in the war, of whom a number had been killed or had died; 125, who had served, had returned to the company's service, and over 300 men were yet to return.

The Toronto Ry. is increasing the number of prepayment cars on its various routes throughout the city. Several of the cars on the Dundas St. route have been remodelled and equipped with the National Pneumatic Co.'s pneumatic door control, in accordance with the plans adopted on other of its cars, and fully described in previous issues.

Electric Railway Notes.

The Quebec Ry. Light and Power Co. has asked for tenders for 10 double end cars for its city division.

The City of Toronto has been authorized by the Ontario Legislature to expend \$200,000 on new cars for the Toronto Civic Ry.

Regina, Sask., City Council proposes to submit to the ratepayers, at an early date, a bylaw authorizing the operation of one man cars on the municipal railway.

The Hamilton, Ont., City Council has agreed to the cutting out of about 30 stops on the Hamilton St. Ry. lines to expedite the service. Cars now stop at the near side of crossings.

A deputation representing Liverpool, Eng., city council, is expected to arrive in New York about May 1, to inspect street railway and other public utilities in the United States and Canada. Toronto and Montreal will be visited.

Winnipeg City Council has referred to the assessment commissioner a petition of residents and property owners on Morley Ave. and Bartlett St., asking for a bus service on Morley Ave., and a petition from River Ave. residents asking that the Winnipeg Electric Ry. tracks thereon be taken up and a bus service substituted.

The Regina, Sask., city council decided Apr. 18, on the recommendation of City Commissioner Thornton, to submit a bylaw to the ratepayers at the earliest convenient date under the provisions of the recent amendment to the Saskatchewan Railway Act, for the purpose of authorizing the operation of one-man cars on the municipal railway.

The Edmonton Radial Ry's Superintendent, J. H. Moir, in his annual report to the commissioners, suggests the replacement of the heavier cars by lighter ones, fitted with safety devices for one man control. He is reported to have said that a 10 minute service could be given in place of a 15 minute one, and that the cost of operating would be reduced.

Regina Municipal Ry. officials are reported to have expressed the opinion that it would not be a justifiable expenditure to equip the street cars with rear doors and folding steps at present. The cost would be in the neighborhood of \$4,000.

The Cape Breton Electric Ry. is reported to be about to issue metal tickets to facilitate the payment of fares on the new rates. The tickets will, it is said, be of a light weight metal, pierced through the center, in different designs, to denote the difference in fares, and will be sold by conductors in any quantity desired.

In discussion on the estimates for the current year by the Regina, Sask., city council, Apr. 14, Alderman McKinnon is reported to have said he believed the utilities with a capitalization of \$5,000,000, were of sufficient importance to warrant them being placed in the charge of one man who would devote his sole time to making them pay. He was convinced if this were done, that the deficit would be reduced to a minimum. The utilities owned by the city are the electric light plant, the waterworks plant and the electric railway, on which the actual deficits for 1918 were \$96,656.04, reduced to \$76,081.28 by a loan of \$20,574.76 from property sales account to the street railway sinking fund.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies.—

	8 mons. to Feb. 28, 1919		8 mons. to Feb. 28, 1918	
Gross	\$645,415	\$501,150	\$4,740,999	\$3,984,379
Expenses	431,163	369,210	3,532,729	3,081,480
Net	214,252	131,940	1,208,270	902,899

Cape Breton Electric Co.—

	2 mons. to Feb. 28, 1919		2 mons. to Feb. 28, 1918	
Gross	\$42,963.90	\$36,294.55	\$95,154.14	\$77,722.78
Expenses	33,900.00	28,999.16	70,857.50	62,255.81
Net	9,063.90	7,295.39	24,296.64	15,466.97

Calgary Municipal Ry.—We are advised recently in reference to the reported deficit of \$34,000 for 1918, that there were several adjustments to be made, which will reduce this, and which include \$16,000 spent on Bowness Park, \$2,000 on reconstruction of cars, and certain amounts chargeable to depreciation, as well as other items.

Edmonton Radial Ry.—Superintendent Moir's report for 1918, has been submitted to the city commissioners. During the year the cars ran 1,972,462 miles against 1,860,883, in 1917; carried 9,909,529 passengers, against 10,086,213; earned \$507,185.82 against \$487,778.22, and cost for operation, \$395,927.43, against \$396,481.41. The increased revenue is attributed to the increase of fares, which went into effect in May, 1918, and it is estimated that about \$27,000 of revenue was lost during the influenza epidemic. During the year, \$1,500 was paid to employes for wages during absence through illness, and \$2,593.62 was paid in settlement of damage claims. Including debt and interest charges, the deficit up to Dec., 1918, was \$143,732.11.

Oshawa, Ry.—There have been filed with the Secretary of State at Ottawa, copies of the following documents:—Discharge of a mortgage made Oct. 18, 1895, to C. B. Powell and J. C. Browne, trustees; discharge of a mortgage dated Apr. 26, 1895, to T. Aherrn and W. F. Soper, Ottawa, and subsequently assigned to the Rathbun Co.; partial discharge of a mortgage dated Nov. 15, 1895, to the Grand Trunk Ry.

Regina Municipal Ry.—The deficit for 1918, according to a report presented to the Regina, Sask., City Council, Mar. 28, was \$67,844.21, as against the estimate, made at the beginning of the financial year of \$46,824.82. The detailed statement of receipts shows a falling off in the number of passengers carried of 524,452 during the last four months of the year, due very largely to the influenza epidemic. The car schedule was reduced materially during the harvest period in order to permit all the men possible to go on the farms. Despite these periods of reduced revenue, there was a surplus of \$30,178.67 on operation, or about \$2,000 less than the operating surplus for 1917. The number of passengers carried was 4,926,676 against 5,112,460 for 1917, and 4,671,406 for 1916. The estimated loss of revenue for 1918 due to the two causes mentioned above is \$25,278. The estimated deficit for the year, is \$22,526.23.

Earnings, etc., for three months ended Mar. 31, 1919:—

Passenger earnings	\$74,304.35	\$62,048.55
Passengers carried	1,539,965	1,423,417

The 5c straight fare, became effective during Mar., 1918. The average fare per passenger for the three months ended Mar. 31, 1919, was 4.82c.

Sandwich, Windsor and Amherstburg Ry.—The Windsor, Ont., City Council, passed a resolution, Mar. 31, to arrange for a joint meeting of representatives of municipalities through which the line runs, to discuss its purchase as recommended by the Hydro Electric Power Commission of Ottawa.

Sudbury-Copper Cliff Suburban Electric Ry.—The Ontario Legislature has authorized the company to increase its capital stock from \$250,000 to \$500,000 and to sell the unissued shares at a discount, upon such terms as the shareholders may authorize, provided that stock authorization shall be given at a meeting, specially called for that purpose, and that the resolution shall be sanctioned by the vote of at least two-thirds of the company's subscribed stock.

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

	2 mons. to Feb. 28, 1919		2 mons. to Feb. 28, 1918	
Gross	\$1,015,797	\$981,933	\$2,122,637	\$2,050,252
Expenses	620,200	548,486	1,255,493	1,139,143
Net	395,597	433,447	867,144	911,109

Winnipeg Electric Ry. and subsidiary companies.—

	2 mons. to Feb. 28, 1919		2 mons. to Feb. 28, 1918	
Gross	\$371,162	\$298,899	\$761,701	\$633,541
Expenses	263,908	227,496	554,924	483,346
Net	107,254	71,403	206,777	150,195

The net result after providing for fixed charges, for February, is \$47,765.11.

Sunday Electric Railway Services in Ontario.

The Ontario Legislature has, by an announcement to the Ontario Railway Act, authorized the operation of cars on the London St. Ry. Springbank line on Sundays, subject to the approval of the London City Council and the London Public Utilities Commission. For the operation of the L.S. Ry.'s other lines on Sundays, the London City Council passes a bylaw annually, providing for such operation from May 1 to Apr. 30. A committee of the council on Apr. 16, recommended present Sunday car bylaw for a month, so that the question of the operation of cars on Sundays on the Springbank line could be considered along with it. A press report of Apr. 15 stated that the company might insist on a straight 5c fare for all Sunday traffic. The company has never been very favorable to the Sunday operation of cars, and C. Currie, President, is reported to have said in an interview on Apr. 10: "The Sunday service on the city lines yields us nothing, and we can foresee no better results from Sunday operation of the Springbank line."

The Kitchener Board of Trade passed a resolution Apr. 9 in favor of Sunday operation of the Grand River Ry. between Kitchener and Galt.

Nova Scotia Tramways and Power Co.'s Directorate.—At the annual meeting in Halifax, N.S., recently, O. E. Smith and H. H. Smith of Halifax, and E. A. Robert, S. H. Wilson, J. W. McConnell, and W. G. Ross, of Montreal, retired, and the following directors were elected: W. H. Cavers, K.C., and H. R. Mallison, Halifax; F. B. Adams, New York; F. P. Royce, M. L. Sperry, L. B. Buchanan, W. C. Crawford, M. M. Phinney, and Roger Ernst, Boston.

British Columbia Electric Railway Aids Office Employees to Secure Houses.

In order to assist the company's office employees to build or acquire homes during the present scarcity, Geo. Kidd, General Manager, B.C. Electric Ry. Co. has placed \$50,000 at the disposal of the company's employees' association to be loaned at 6% over a term of 12 years. The scheme is believed to be one of the first of its kind to be launched in B.C., if not in Canada, and has been gladly accepted by the employees. In announcing the matter Mr. Kidd said: "My reason for making the proposal is to relieve, as far as possible, our employees from the pressure of high rents, give them homes of their own, and thereby induce thrift and interest in their community. Many of them have been inconvenienced, as are others, by having the houses they rent sold over their heads. Many others feel that paying out rent, year after year, without a permanent interest in their homes, is not desirable. Some of our employees already have lots, but have not the wherewithal to build on them, unless at high rates of interest, when the monthly charge for principal and interest would be much heavier than rent. It is these that we hope to help and in view of the need for more houses, we expect that it will induce some of our employees to build."

The disposal of the fund has been placed in the hands of a joint committee, composed of representatives of the office employees' association and the company's management, and the \$50,000 has already been allotted by the committee. The employees' committee consists of A. E. Chamberlain, president of the association; J. Munro, vice president; F. G. Graham, secretary; J. V. Armstrong, treasurer, and J. McNee, J. Freemont and H. G. Findlay.

The St. John River Steel Arch Bridge

—The New Brunswick Government on Dec. 24, 1912, made an agreement with the St. John Ry. under which the government agreed to retain space on the steel arch bridge to be erected over the St. John River to replace the suspension bridge suitably equipped for laying street railway tracks thereon, and the company agreed to pay, therefore, \$3,000 a year for five years, \$4,000 a year for the next 10 years, and \$5,000 a year thereafter so long as the company used the bridge. The bridge was completed Jan. 1, 1916, and the company laid its tracks over the bridge. In 1917 the N.B. Legislature confirmed the agreement for the transfer of the property, etc., of the St. John Ry. to the New Brunswick Power Co. A new agreement for the use of the bridge upon the terms above mentioned was made Mar. 27, 1919, between the government and the N.B.P. Co., and the New Brunswick Legislature has been asked to ratify the same.

Seattle Acquires Street Railways.—The Puget Sound Light and Power Co. has transferred its electric railway lines in Seattle, Wash., to the city for \$15,000,000 in bonds. The interest and redemption charges are to be paid from the revenues of the system. The company agrees to sell current to the city at 1c. per kilowatt until the city is ready to supply its own current. Some 2,000 company employees will be put on the city payroll.

Electric Railway Projects, Construction, Betterments, Etc.

The Berlin and Northern Ry. Co. has been authorized by the Ontario Legislature to change its name to the Waterloo-Wellington Ry. Co., and has been granted an extension of time for three years within which to extend its line from Bridgeport, its present terminus, to Elora and Fergus, Ont. (Apr., pg. 208).

Calgary Municipal Ry.—At a meeting of the Tuxedo Park and District Ratepayers' Association, Apr. 1, the question of the extension of the Calgary Municipal Ry. line on Center Ave., up to 16th Ave., was discussed. It was stated that if the extension were made the rails now used on the Tuxedo Park line serving the Sarcee Reserve military camp would have to be moved. It is considered likely that the camp will be required again this year, hence there is no desire to take up the track. However, the matter is under consideration. (Feb., pg. 85).

Grand River Ry.—We are officially advised that the company is constructing a 2-mile revision of line between Preston and Hespeler, Ont., to prevent damage to the roadbed by spring floods, and to enable a more frequent service to be given. The character and extent of the work to be done was fully described in Canadian Railway and Marine World for March, pg. 143. The company has also in contemplation the relaying of 7.5 miles of track between Preston and Kitchener with 80-lb. second-hand rails, replacing the 64 and 70-lb. rails laid in 1902. (Mar., pg. 143).

Hamilton St. Ry.—The Hamilton, Ont. City Council's street railway committee on Apr. 15, directed the city engineer to report as to the cost to the city of the proposed extension of the Hamilton St. Ry.'s York St. line to the extreme western end of the cemetery. If the cost is not excessive, the committee will recommend the council to ask the company to build the extension at an early date.

Hamilton, Ont.—The sections of the City of Hamilton's bill before the Ontario Legislature recently providing for the building of certain railway lines were withdrawn after a discussion with Sir Adam Beck, chairman of the Hydro Electric Power Commission of Ontario, and other sections were substituted. The new sections provide that the Hydro Electric Power Commission of Ontario may build a line from the Toronto, Hamilton and Buffalo Ry., near Red Hill, Saltfleet Tp., northerly and across the Hamilton and Burlington tracks to near Burlington Pt., on the G.T.R.; a line from the crossing of such line by the G.T.R. line east of the city westerly through Hamilton and Saltfleet Tp. to the T.H. and B. Ry., near the cemetery; to construct terminals, etc., and to enter into agreements with other railways for running rights. The City of Hamilton is authorized to enter into agreements with the H.S.P.C. of Ontario for the construction, equipment or operation of such railways; and such agreement may provide for the incorporation of any such lines in a system of radial railways to be constructed under the Hydro Electric Railways Act of 1916. The H.S.P.C. of Ontario is given, for the purposes of building and operating the lines, all the rights and powers conferred upon it by the Hydro Electric Ry. Act of 1914 and amendments thereto, and the City of Hamilton is authorized to is-

sue, with the consent of the ratepayers, debentures to raise the amounts necessary to carry out the work. (Apr., pg. 190).

Levis Tramways Co.—The Quebec Legislature has incorporated a company with this title to take over the Levis County Ry. and to extend the service in the counties of Levis, Bellechasse, Dorchester and Beavie, subject to agreements with municipalities. The new legislation means a reorganization of the present Levis County Ry. Co. with more extensive powers and a new title. (Mar., pg. 143).

London and Port Stanley Ry.—A press report states that a contract has been let to John Hayman and Sons, for the erection of a new station at St. Thomas, Ont., at an estimated cost of \$15,687, and that the contract for similar station at Port Stanley has not yet been awarded. (Apr., pg. 208).

Niagara, St. Catharines and Toronto Ry.—A press report states that orders have been received at St. Catharines, Ont., from the Canadian National Rys. management, for the carrying out of a number of betterments on the line. These are said to include the relaying of several miles of track within the City of St. Catharines, the laying of new pavement between the rails, new overhead work on the line between St. Catharines and Thorold; the enlarging and transforming of the park at Port Dalhousie, into a pleasure ground, and the provision of a bathing house there. (Jan., 1918, pg. 32).

Quebec Ry. Light and Power Co.—The Mayor of Quebec informed a deputation from Limoilou ward recently, that a settlement was near at hand with the company with respect to the building of extensions in the district.

Quebec Ry., Light and Power Co.—A Quebec press report states that as the result of a conference between representatives of the company and the Quebec City Council, Apr. 14, it was arranged that the company, without prejudice to the terms of the original contract with the city, will for the present extend the service on 8th St., over to and along to 10th St., cross the Beauport Road, and within 300 ft. of the railway tracks, proceed along 10th St. track and over the Dronin Bridge, thus laying a trackage for street car service, approximately three times the present distance covered and that the company will later complete its contract by extending the trackage to La Canardieri. It is added that W. J. Lynch, General Manager, assured the Mayor that work will be commenced as soon as the frost is out of the ground, and that the car service extension will be in operation in Aug.

St. Thomas Municipal Ry.—A press report states that the ratepayers will be asked at an early date to vote on the proposed assure of \$50,000 of debentures for general improvements on this railway. The work to be done includes the reconstruction of the line on Talbot St., and the improvements of the car barn. It is also proposed to improve the cars and to purchase some additional only. (Apr., pg. 208).

Sudbury-Copper Cliff Suburban Electric Ry.—The Ontario Legislature has extended for three years the time within which the company may complete the

construction of its proposed extensions. The company has 7.9 miles of line in operation in Sudbury, Ont., and from Sudbury to Copper Cliff, and has power to build other lines to serve the surrounding country, of which a line to Murray Mine is the one which is likely to be built at an early date.

Toronto Ry.—We are advised by a city official that the company has signified to the city council its intention of reconstructing 6.324 miles of existing tracks as follows: Broadview Ave. Line—Queen St. to Danforth Ave., 2.339 miles of single track. Gerrard St. Line—Broadview Ave. to Carlaw Ave., 0.98 mile; Carlton St. Line—Sherbourne St. to Parliament St., 0.456 mile. Spadina Ave. Line—Queen St. to College St., 1.185 miles. Front St. Line—From Yonge St. to York St., 0.532 mile. Parliament St. line—From Queen St. to Gerrard St., 0.812 mile. How much of this work will be done this year it is impossible to say, as everything depends upon the delivery of the steel, and on the reconstruction of the track allowances by the city. \$390,000 has been provided in the city estimates on account of this, and general repair work throughout the city for the current financial year. (Feb., pg. 88).

Winnipeg Electric Ry.—A press report states that the Winnipeg Board of Trade has asked that access to the Winnipeg Stockyards be made possible by an extension of the Ry. (Oct., 1918, pg. 453).

Restrictions on Granting Franchises on Highways Near City.

G. H. Gooderham, M.L.A., introduced a bill in the Ontario Legislature, at its recent session, to amend the Municipal Franchise Act, R.S.O. chap. 197, sec. 3, by adding the following as sec. 9A: z

"The council of a local municipality shall not grant any franchise upon any highway of the municipality within a radius of five miles of the boundary of any city of 200,000 inhabitants and upwards without notice to and the approval and consent of the council of such city, expressed by bylaw and the assent of the municipal electors of such local municipality as provided by the preceding section."

The bill was passed without amendment.

Proposed Purchase of Detroit United Railways Defeated.

The ratepayers of Detroit, Mich., voted Apr. 7 upon the adoption of an agreement made between the Detroit United Rys. and the city council, for the purchase of the company's city lines and franchises, subject to certain limitations, a summary of which agreement was given in Canadian Railway and Marine World for Apr., pg. 206. Of the total votes polled, 63,883 were for the approval of the agreement, and 70,271 against. In order to approve an agreement of this kind, the state constitution requires that there shall be three-fifths of the vote cast affirmative. The total number of votes cast was 134,154, and the three-fifths of affirmative votes required would have been approximately 80,500 votes. At a meeting of the city council, Apr. 17, it was decided to call a conference of the Mayor, the members of the Street Railway Commission, and representatives of the Detroit United Ry., for May 9, to discuss the matter.

Electric Railway Employes' Wages, Working Conditions, Etc. Municipal Railway Operating Results, Etc.

Calgary Municipal Ry.—The Calgary city commissioners on Mar. 26, withdrew their recommendations to the city council as to the wage schedule for the municipal railway employes for 1919, and the matter is expected to go to arbitration. In the course of the negotiations, the commissioners conceded the 8-hour day, the 44-hour week, an increase of 8c an hour, and a guarantee of 7 hours a day for spare men. The men asked for an increase of 15c an hour.

Edmonton Radial Ry.—The non-union employes notified the city clerk, Apr. 7, that application has been made to the Labor Department for the appointment of a board of conciliation under the Industrial Disputes Act. According to press reports, there are rumors of a strike by the union employes, with whom there is a special agreement with the council, unless the bylaw governing employment on the railway is repealed. Questions of wages, hours of labor, and conditions of employment are involved.

Hamilton St. Ry.—Employes were reported Apr. 16 to be considering the question of asking the company for shorter hours. Under the present agreement, which has one more year to run, provision is made for a 10-hour day, but the men are now working 9½ to 9¾ hours as a rule, although at times they work more than 10 hours, for which they receive time and a half for all extra time.

The Hull Electric Co.'s employes, whose agreement expires Apr. 30, applied recently for considerable advances in wages of men in all departments, and this was followed by an application for a board of conciliation.

London and Port Stanley Ry.—At a meeting of the London Railway Commission, Apr. 5, it was stated that the wage increase, announced recently, were the result of a conference between Sir Adam Beck, chairman, and J. E. Richards, manager of the L. and P. S. Ry., and the employes. The amount involved is approximately \$10,000 a year. The provision as to hours, according to a press report, is that the men are guaranteed a 55-hour week at 8 hours a day, but that the 10c an hour extra payment for overtime shall not begin to run until after 2 hours beyond the 8 shall have been worked.

London St. Ry.—On Apr. 1 the employes asked for an increase of 10c an hour for conductors and motormen and of from 10c to 25c for the shopmen. After considerable negotiations, the company's management entered into an agreement with the men's committee to increase wages of conductors, motormen, barnmen and other employes, 3c an hour, and this was ratified at a men's mass meeting Apr. 19. The new rates for conductors and motormen are: 1st year, 33c an hour; 2nd year, 36c; 3rd and subsequent years, 38c. Overtime beyond schedule working hours per day is to be paid at the rate of 12c an hour, instead of 10c as previously. Spare men did not have a 10c overtime rate previously, but under the new agreement, they do. Heretofore, regular conductors and motormen were paid for Sunday work the same as their regular schedule for a week day called for. This is done away with in

the new agreement, and regular conductors and motormen, together with spare men, and all other employes working on Sundays, are to receive 12c an hour in addition to their regular rates for Sunday work.

Montreal Tramways Co.—Toward the end of March, the Minister of Labor appointed a board of conciliation to deal with the employes' requests for wage increases, and the members being Jos. Quintal, President, Montreal Chamber of Commerce, representing the company; J. T. Foster, President of Trades and Labor Council, representing the men, and Jas. Perrault, architect, appointed chairman by the Minister of Labor.

Ottawa Electric Ry.—A press report of Apr. 26, states that the O.E.R. employes are preparing to ask for a substantial increase in wages. The present agreement expires June 1.

Sandwich, Windsor & Amherstburg Ry.—The conductors and motormen asked recently for 50c an hour for the first 6 months, and 65c an hour thereafter. The present wages are: 1st 6 months, 35c; 2nd 6 months, 37c; 2nd year, 38c; 3rd year, and thereafter, 40c. They also asked 3c an hour extra in lieu of uniforms, the company to supply caps and badges. The request included a minimum working day of 8 hours, with one hour leeway for completing runs; work over 8½ hours to be paid as overtime; all runs to be completed within 12 consecutive hours; runs on Sundays and holidays to be paid as overtime. All conductors and motormen, who are eligible, to become members of union. On the men's application a board of conciliation was appointed, consisting of F. H. McGuigan, Toronto, representing the company; A. Hooper, Windsor, representing the men, and Judge Wallace, of Oxford County, as chairman, the latter in place of Judge Bowles of Simcoe County, who was unable to act owing to illness.

Winnipeg Electric Railway.—The conductors and motormen, whose agreement will expire shortly, applied recently for the following wages: 1st 6 months, 60c an hour; 2nd 6 months, 65c an hour; 2nd year and thereafter, 70c; Sunday work, 10c an hour extra. The present rates are: 1st 6 months, 39c; 2nd 6 months, 41c; 2nd year, 44c; after 2nd year, 47c. The following requests were also made: Motormen operating cars to which trailers are attached, to receive 5c an hour extra for each trailer; 8 hours to constitute a day's work, overtime to be paid time and a half. Extra conductors and motormen reporting regularly to be paid minimum wage of \$25 a week. All conductors and motormen to join employes' union.

Montreal and Southern Counties Ry. Franchise.—The Montreal Administrative Commission has under consideration a proposition for the renewal of the company's contract, by which it obtains an entrance into the city over the Victoria bridge.

Complaint has been made to the Edmonton, Alta., City Council, of the passing of electric current from the Edmonton Radial Ry., at the street railway crossing of 124th St., and the electrifying of the rails of a Canadian Northern Ry. spur, thereby endangering the public.

Calgary Municipal Ry.—T. H. McCauley, Superintendent, in a report on the railway's finances for 1918, is reported to have stated that the total deficit was \$34,680.21, which may possibly be decreased when certain credits, etc., have been adjusted. The earnings for the year were the largest the railway has experienced since 1913, although the influenza epidemic and continued fine weather through the winter reduced the daily receipts. While receipts have increased, operating expenses have also gone up, and the 4% tax which was levied June, 1918, by the council totalled \$24,667, a considerable portion of the deficit.

Daily receipts increased from \$1,594 in 1917 to \$1,954 in 1918, although in the same period daily operating expenses increased from \$1,590 in 1917 to \$2,163.14, an increase of 2.488c a mile, or seven-eighths of a cent a mile.

The line carried 677,781 less passengers in 1918 than in 1917, although, due to an increase of 1/9% in the fares, the total earnings surpassed those of 1917 by \$107,124, the largest increase in five years, the total for 1918 being \$635,677 and for 1917, \$582,553. Against that, operating expenses jumped from \$356,096 in 1917 to \$441,623 last year. The estimated deficit for 1919 is \$10,000.

Port Arthur Civic Ry.—In a report on the public utilities of Port Arthur, Ont., prepared for the Board of Trade by M. M. Inglis, Manager of the city's public utilities, the following particulars are given:—

"The street railway comprises 19.75 miles of track completed as single track within the city limits, and operation extends over the city of Fort William system also. The system has been in operation since 1891, and the following equipment is in use:—22 motor cars, 3 trailers, 1 baggage car, 2 snow ploughs and sweepers. The industrial activity during the past year is reflected in traffic conditions, and more especially when compared with previous years.

	1916	1917	1918
Transfers	341,023	248,970	241,789
Military	159,219	19,569	6,524
Ordinary	101,774	349,271	1,571,057
Work	557,300	335,478	1,398,059
School	71,066	116,195	154,783
City	22,881	27,276	28,293
Dead Head.....	7,589	1,137	5,169
Cash	1,487,361	213,588	713,653
Total	2,748,213	3,246,953	4,119,332

"The average fare per revenue passenger for 1918 was 3.87c, and the total car mileage 648,369 miles.

"In making comparisons it should be noted that the fares collected at the boundary of the two cities are included in the above distribution from July 25, 1917, when the new rates of fare came into operation."

The capitalized assets of the public utilities are placed at \$3,705,863.86, the street railway representing \$956,255.87.

Regina Municipal Ry.—The following figures were reported by the city commissioners of Regina, Sask., to the council, Jan. 31:—

	1917	1918
Regular tickets	\$107,090	\$ 55,668
Labor tickets	17,231	7,798
Child's tickets	4,137	4,519
Book tickets	18,861	16,303
Employes' tickets	1,006	223
Hospital sold tickets.....	.....	975
Total tickets	\$148,325	\$ 85,486
Cash fares	66,749	145,542
Total	\$215,074	\$231,029
Increase .....	.....	15,955

Commission's Report on New Brunswick Power Co's Franchise, Rates, Etc.

The New Brunswick Legislature in 1918 authorized the appointment of a commission to investigate matters relating to the New Brunswick Power Co, which operates a street railway in St. John and furnished heat light and power to the public. On June 5, 1918, the Government appointed G. W. Currier, Boston, Mass.; H. Holgate Montreal, and Prof. A. S. Richey, Worcester, Mass., as a commission. The commissioners in their report presented recently, say that they appointed Lybrand, Ross Brothers and Montgomery, a firm of accountants, skilled in public service corporation affairs to examine the company's books. After an examination of the accountants' report the commissioners made an interim order increasing the rates for street railway, gas and electric service. These increased rates have been reflected in the company's gross income, but have not been in force for a sufficient time to enable the commissioners to determine with any accuracy the net income which they will produce.

The commissioners, after reviewing the evidence offered by the company and the city, and a careful study of accountants' report, and other reports, arrived at the following conclusions: The original cost of the property of the company which on Jan. 1, was used in the production of railway, gas, electric light and power service was \$2,800,000. This does not include \$118,000 apparently invested in undeveloped water powers. The present bond issue, \$1,750,000 face value, the present issue of first preferred stock, \$1,000,000 face value, and the present issue of second preferred stock should be permitted to remain as at present, but the present \$2,000,000 of common stock should be reduced to an aggregate par value not exceeding \$500,000, which, however, should not be entitled to dividends until a surplus revenue fund of \$300,000 has been built up. The control of the company should be vested in a board of directors, 4 to be elected by the company and 3 to be appointed by the New Brunswick Government, the directors to be paid \$1,000 a year each, the public directors to be paid by the City of St. John. The directors should fix such rates for railway, electricity and gas service as will meet, but not exceed, the cost of service, as found by a special auditor who should report every six months. The rates fixed by the interim order are to remain in force until July 1, and thereafter until revised by the directors. The public directors may appeal to the Public Utilities Commission against any rate fixed which is not in accord with the principle of service at cost as laid down. The directors are to determine the extent and character of the services required, and in the case of differences the question should be settled by the Public Utilities Commission, except that in case of a capital expenditure of \$25,000 which might endanger the minimum return the company may appeal to the government. The company is to create a depreciation fund of \$200,000, at the rate of \$75,000 a year, and afterwards at a rate of 7% of the rate base, against which should be charged all renewals, retirements and replacements other than maintenance. The return to

the company is to be not less than 6% nor more than 9% on the fixed valuation. The principles upon which this return is to be ascertained are explained in tables appended to the report. The commissioners recommend that no special taxes of any kind should be assessed against the company, and that the acceptance of an act embodying these recommendations should be made to constitute an agreement on the part of the company to sell to the province, or any political subdivision thereof, all its property which may have been included in the rate basis, and its franchise, as a going concern, for an amount of cash equal to the base as determined plus 10% and plus any premium required to retire the bonds. The report adds: "As the company's income will be strictly limited to a reasonable return on its investment, it is not fair, nor is it in the public interest, to expose the company to the hazard of competition, the possibility of which would impair its credit."

A bill was introduced in the New Brunswick Legislature to bring the commission's recommendations into effect. The St. John City Council expressed itself strongly against some of the commission's findings, and consequently to the terms of the bill. The amendments prepared by the council, and laid before a committee of the legislature by a deputation, affected a number of points, the chief being: The bill based on the commission's report fixes \$2,800,000 as the rate base and provide that the company shall be entitled to a return of 7% thereon, while the city is given the option of acquiring the company's property at that figure. The city wishes the rate base reduced to \$1,850,000, plus 10%, with the option of purchase. The city asks further that the three public directors be appointed by the city council instead of by the N.B. Government; that the clause as to exemption from taxation be eliminated; that snow cleaning be paid for by the company on a basis of \$500 a mile of single track a year, and that the company pay a portion of the cost of street surface or pavement maintenance. The bill was discussed at considerable length, but at the time of writing, the question of its amendment had not been settled.

The Ontario West Shore Railway Fiasco.

The Ontario Legislature in 1902 incorporated the Huron, Bruce and Grey Electric Ry. Co. to build a railway, railways or a radial railway system, from Goderich, to serve the three counties named. In 1903 the company's title was changed to the Ontario West Shore Ry. Co., and it was authorized to build additional lines and to issue a portion of its capital as preferred stock. The company has from time to time been granted extensions of time for construction. After some years of negotiating, the local promoters of the company entered into an agreement with a company of which J. W. Moyes, then of Toronto, but whose present whereabouts are unknown, was president, for the building of a line from Goderich to Kincardine. Towards the building of this line the municipalities guaranteed bonds as follows:—Goderich, \$150,000; Kincardine,

\$50,000; Ashfield Tp., \$150,000; Huron Tp., \$75,000. The total bond issue was for \$600,000, and the sale of the guaranteed bonds realized \$385,000. Construction was started and up to 1911 there had been laid 16 miles of track, from just outside Goderich toward Kincardine, and materials were on hand for the completion of several additional miles. The construction company could not raise any more money, and the municipalities were called upon to pay interest on the guaranteed bonds. The line was taken possession of subsequently in the interests of the municipalities, and several unsuccessful efforts were made to sell it. There was a government investigation into the financial situation, during which J. W. Moyes disappeared, which resulted in a report showing overpayments on account of construction. The local municipalities made efforts to recover some of this overpayment and to make a sale of the rails, etc. Under this plan there has been realized \$135,000, which stands to the credit of T. Stothers, the trustee appointed by the Ontario Legislature for the municipalities in 1913, with the Toronto General Trusts Corporation.

Ontario Legislature Refuses to Penalize London Street Railway.

The Ontario Legislature, in 1918, among other amendments to the Ontario Railway Act, R.S.O., chap. 185, added a section, 260 (a), which is given below. At the legislature's recent session, S. Eilber, M.L.A., introduced a bill to amend section 260 (a), which is reproduced below, both in its original form and as it was proposed to amend it, the proposed amendment being shown in bold faced type.

"260a (1)—The board (Ontario Railway and Municipal Board), for the purpose of enforcing compliance with any order heretofore or hereafter made by it, requiring any railway company, operating a railway or street railway in whole or in part upon or along a highway under an agreement with a municipal corporation, to furnish additional cars or equipment for its service, or to comply with any regulation contained in any bylaw of a municipal corporation, or to comply with any order or direction of an engineer of a municipal corporation given under the provisions of any bylaw of a municipal corporation, may order such company to pay to the corporation of the municipality in which the company so operates, a penalty not exceeding \$1,000 a day for non-compliance with any such order."

The City of London claimed that when the company reduced its cost service July 1, 1918, that it did so in violation of the city's official requirements, regarding such service, and it would, therefore, seem that the amendment was aimed to enforce such service, the city apparently not wishing to ask for enforcement of the penalties provided for in the bylaws affecting the company. Counsel of the London St. Ry. opposed the bill before the legislature's private bills committee and it was thrown out.

The British Columbia Electric Ry. is applying to the Dominion Government for the approval of plans for the laying of a submarine cable across Victoria harbor, for supplying electrical energy for industrial purposes on the old Songhees Indian reserve.

Marine Department

Canadian Government Merchant Marine, Ltd., Shipbuilding, Operation, Etc.

Orders for Steel Cargo Steamships.—Complete particulars of all orders placed by the Marine Department are given in a full page table on pg. 271 of this issue.

Contracts Signed.—Since Canadian Railway and Marine World for April was published, we have been advised of the signing of two contracts between the Marine Department and the Nova Scotia Steel & Coal Co., for two, 2,800 ton d.w. steel cargo steamships, department contracts 40 and 41, builder's yard nos. 5 and 6 respectively.

Keels Laid.—Since the publication of the table in Canadian Railway and Marine World for April, we have been advised of the laying of keels as follows:—

Contract 17, builder's yard no. 459, Davie Shipbuilding & Repairing Co., Lauzon, Que., 5,100 tons, Mar. 11.

Contract 18, builder's yard no. 460, Davie Shipbuilding & Repairing Co., Lauzon, Que., 5,100 tons, Mar. 28.

Contract 19A, builder's yard no. 41, Port Arthur Shipbuilding Co., 3,400 tons, Mar. 31.

Contract 20A, builder's yard no. 42, Port Arthur Shipbuilding Co., Port Arthur, Ont., 3,400 tons, Mar. 31.

Contract 22, builders yard no. 2, Halifax Shipyards Ltd., Halifax, N.S., 8,100 tons, Mar. 15.

Contract 44, builders yard no. 4, British American Shipbuilding Co., Welland, Ont., 4,350 tons, Mar. 29.

Launchings of Vessels.—Two more of the steel cargo steamships under contract were launched during April, as follows:—Apr. 5, department contract 4, builders' yard No. 100, 4,300 tons d.w. capacity, Canadian Volunteer, by Wallace Shipyards, Ltd., Vancouver, B.C., and Apr. 19, department contract 24, builders' yard No. 68, 8,100 tons d.w. capacity, Canadian Ranger, by Canadian Vickers, Ltd., Montreal.

The s.s. *Canadian Voyageur* arrived at New York, Apr. 4, with a cargo of sugar from Barbados, and, after discharging, loaded a general cargo and sailed from New York, Apr. 17, for St. Kitts, Antigua, Guadeloupe, Martinique and Barbados. From the latter place she will proceed to Cardenas and Matanzas to load a cargo of sugar for Montreal.

British American Shipbuilding Co., Welland, Ont., laid keel for department contract 44, builders yard no. 4, of 4,350 tons, Mar. 29. It expects to lay keel of department contract 45, builders yard no. 5, of 4,350 tons, about the middle of May.

The Canadian Vickers, Ltd., Montreal. The third of the steel cargo steamships to be built by this company for Canadian Government Merchant Marine Ltd., department contract 24, builders' yard no. 68, was launched Apr. 19, and named *Canadian Ranger*, the ceremony being performed by Mrs. Orr Lewis, wife of the company's president. The *Canadian Ranger* has a cargo carrying capacity of 8,100 tons d.w., and her dimensions are, length overall, 400 ft., breadth moulded, 52 ft., depth moulded, 31 ft. She is equipped with triple expansion engines of 3,000 i.h.p., for a speed of 11

knots an hour at sea. She is of the 2 deck type, with poop, bridge and fore-castle. The contract was signed Oct. 11, 1918, the keel being laid on Nov. 30, 1918, for delivery about June 1. She has been built under special survey, to meet the requirements of Lloyd's 100 A1 classification certificate.

J. Coughlan and Sons, Vancouver, B.C., expect to launch the last steamship for which they have contracts for the British Government during May, and then to lay the keel of one of the four 8,100 ton steamships ordered by the Marine Department for Canadian Government Merchant Marine Ltd.

Davie Shipbuilding & Repairing Co., Lauzon, Que., which has contracts, from the Marine Department, for 2 steel cargo steamships, of 5,100 tons d.w. each, laid the keels as follows: department contract 17, builders yard no. 459, Mar. 11; department contract 18, builders yard no. 460, Mar. 28.

Halifax Shipyards Ltd., Halifax, N.S., laid the keel for department contract 22, builders yard no. 2, of 8,100 tons, Mar. 15. This makes two keels laid, the first, for department contract 21, builders yard no. 1, 8,100 tons, having been laid Feb. 24.

Nova Scotia Steel & Coal Co., New Glasgow, N.S., which has contracts from the Marine Department for 2 steel cargo steamships of 2,800 tons each, department contracts 40 and 41, builders' yard nos. 5 and 6, laid the keels for both toward the end of March, and expects to complete both ships this year. They will have the following dimensions: Length between perpendiculars, 270 ft.; beam, 38 ft.; depth moulded, 20½ ft.

Port Arthur Shipbuilding Co., Port Arthur, Ont., which laid two keels for 3,400 ton vessels in December, as mentioned previously, laid two more keels, for 3,400 ton vessels, Mar. 31, viz.; Marine Department contract 19A, builder's yard no. 41, and department contract 20A, builder's yard no. 42. It is expected that keels for department contracts 32 and 33, builder's yard nos. 43 and 44, of 4,300 tons each, will be laid early in August. This company has contracts for the Marine Department for four steamships of 3,400 tons and 2 of 4,300 tons.

Wallace Shipyards Ltd., Vancouver B.C.—The fourth of the steel cargo steamships under contract at various yards throughout the Dominion for Canadian Government Merchant Marine Ltd., was launched at this yard Apr. 5, and named *Canadian Volunteer*, by Lady Hibbert Tupper. The contract for this vessel was signed Mar. 15, 1918, the keel was laid Oct. 1, 1918, the approximate date for delivery being Mar. 31, 1919. The chief delay was occasioned by the British Government requisitioning the boiler furnaces, and had this not occurred, it was the intention to launch the vessel completely equipped, but notwithstanding this, all the machinery was aboard and the pipe connections made. She has a deadweight capacity of 4,300 tons, and is of the single deck type, with poop, bridge and fore-castle, built to Lloyd's classification, and for a speed of 11 knots

at hour at sea. Full details of the dimensions, etc. of this type of vessel, will be found elsewhere in this issue, in tabular form. Immediately after the launching of this vessel, work was commenced on the keel laying for the *Canadian Aviator*, 5,100 tons d.w. capacity, department contract 6, builders' yard no. 101, the approximate date for delivery being July 31. The *Canadian Trooper*, department contract 5, builders' yard no. 106, is well on towards completion, and the launching is expected to take place at an early date. The approximate date for delivery being May 31.

The Status of Dominion Steel Corporation's Chartered Vessels Under Requisition.

At the outbreak of war a number of steamships, which were then under charter for varying periods, were requisitioned by the British Government for war purposes. Since the cessation of hostilities, and the consequent releasing of such vessels by the government, the question has arisen whether the requisitioning of the vessel by the government for war purposes, put an end to its charter, or merely suspended it. As a charterer of numerous vessels, the Dominion Steel Corporation took action recently in England against the British and Chilean Steamship Co., Liverpool, Eng., as owners of the s.s. *Wabana*, seeking a declaration that the charter-party relating to that vessel, of Oct., 1909, and corrected Jan., 1910, was a valid and subsisting document, and that the owners were under an obligation to place her at the plaintiff's service. The point at issue was whether the charter was brought to an end by the doctrine of commercial frustration, as alleged by the defendant. The s.s. *Wabana* was under charter for seven consecutive seasons, for the coal traffic on the St. Lawrence, with an option for an extension of three seasons, which option the plaintiff claims to have exercised. At the conclusion of the St. Lawrence navigation season of 1914, the vessel was delivered to the defendant, in accordance with the terms of the charter. She was requisitioned in Apr., 1915, and was released from requisition in Feb., 1919. The defendant claims that the charter-party was no longer in force and that all rights thereunder ceased by reason of the requisition. It was also claimed that the increase in operating costs had destroyed the basis on which the parties had contracted, and changed the circumstances in their contemplation at the date the charter-party was entered into.

The judgment declared that there had been no frustration of the adventure, and the court made the declaration asked for, and granted the plaintiff an injunction. The plaintiff gave an undertaking that no proceedings with regard to the question of the government hire, as against the charter-party hire, would be taken in any Canadian or U.S. courts, the matter being decided in the British courts.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. Where a contract date is not given the contract had not been signed at the time of our latest official advice.

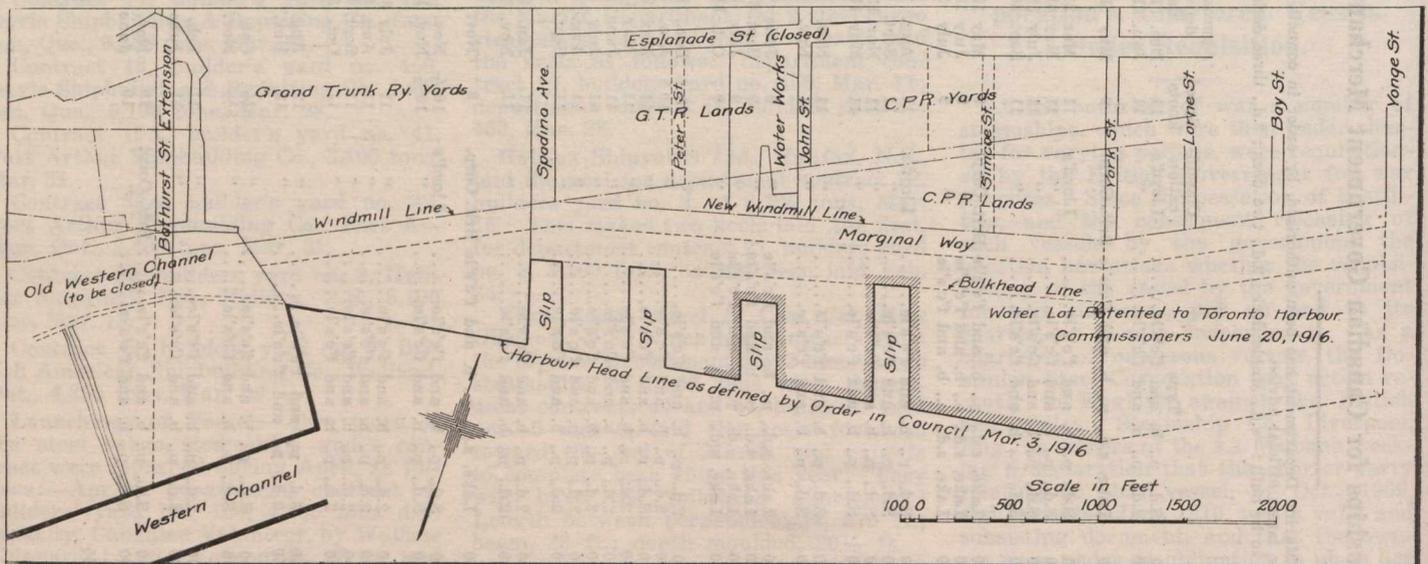
The following contractions are used in the column giving the type of the vessels to be built:—s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p., poop; b., bridge; f'c's'le, forecastle.

Contract no.	Contract date	Builder	Yard no.	Tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed, knots	Approximate delivery date	Keel laid	Launched	Name
1	Mar. 4, 1918	Canadian Vickers Ltd., Montreal	66	4,300	\$207.	\$890,100	S.d., p., b. and f'c's'le.....	Lloyd's	11	Dec. 31, 1918	June 10, 1918	Nov. 23, 1918	Canadian Voyager
2	May 22, 1918	" "	67	8,100	180.	1,458,000	2.d., p., b. and f'c's'le.....	"	11	Jan. 31, 1918	July 17, 1918	Dec. 3, 1918	Canadian Pioneer
3	May 18, 1918	Collingwood Shipbuilding Co., Collingwood, Ont.	61	3,750	205.	768,750	Lake, s.d., p., b. and f'c's'le	Brit. Corp.	9	May 1, 1919	.....	Dec. 21, 1918	Canadian Warrior
4	Mar. 15, 1918	Wallace Shipyards Ltd., Vancouver, B.C.	100	4,300	207.	890,100	S.d., p., b. and f'c's'le.....	Lloyd's	11	Mar. 31, 1919	Oct. 1, 1918	Apr. 5, 1919	Canadian Volunteer
5	Nov. 25, 1918	" "	106	4,300	217.	933,100	S.d., p., b. and f'c's'le.....	"	11	May 31, 1919	Nov. 15, 1918	.....	Canadian Trooper
6	Nov. 25, 1918	" "	101	5,100	210.	1,071,000	S.d., p., b. and f'c's'le.....	"	11	July 31, 1919	.....	.....	Canadian Aviator
7	Nov. 25, 1918	" "	102	5,100	210.	1,071,000	S.d., p., b. and f'c's'le.....	"	11	Sept. 30, 1919	.....	.....	Canadian Scout
10	July 5, 1918	Collingwood Shipbuilding Co., Collingwood, Ont.	62	3,750	205.	768,750	Lake, s.d., p., b. and f'c's'le	Brit. Corp.	9	May 15, 1919	June 3, 1918	.....	Canadian Recruit
11	Oct. 17, 1918	" "	63	3,750	205.	768,750	Lake, s.d., p., b. and f'c's'le	"	9	July 15, 1919	.....	.....	Canadian Signaller
12	Oct. 17, 1918	" "	64	3,750	205.	768,750	Lake, s.d., p., b. and f'c's'le	"	9	July 1, 1919	.....	.....	Canadian Gunner
13	Aug. 9, 1918	Tidewater Shipbuilders Ltd., Three Rivers, Que.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le.....	Lloyd's	11	Aug. 1, 1919	Jan. 8, 1919	.....	.....
14	Aug. 9, 1918	" "	6	5,100	200.	1,020,000	S.d., p., b. and f'c's'le.....	"	11	Sept. 1, 1919	Jan. 10, 1919	.....	.....
15	Jan. 24, 1919	" "	7	5,100	200.	1,020,000	S.d., p., b. and f'c's'le.....	"	11	Nov. 15, 1919	.....	.....	.....
16	Jan. 24, 1919	" "	8	5,100	200.	1,020,000	S.d., p., b. and f'c's'le.....	"	11	May 15, 1920	.....	.....	.....
17	Sept. 4, 1918	Davie Shipbuilding & Repairing Co., Lauzon, Que.	459	5,100	200.	1,020,000	S.d., p., b. and f'c's'le.....	"	11	Nov. 1, 1919	Mar. 11, 1919	.....	.....
18	Sept. 4, 1918	" "	460	5,100	200.	1,020,000	S.d., p., b. and f'c's'le.....	"	11	Nov. 8, 1919	Mar. 28, 1919	.....	.....
19	Sept. 4, 1918	Port Arthur Shipbuilding Co., Port Arthur, Ont.	39	3,400	205.	697,000	Lake, s.d., p., b. and f'c's'le	"	9	June 1, 1919	Dec. 9, 1918	.....	Canadian Trader
19a	Mar. 1, 1919	" "	41	3,400	210.	714,000	Lake, s.d., p., b. and f'c's'le	"	9	Sept. 30, 1919	Mar. 31, 1919	.....	.....
20	Sept. 4, 1918	" "	40	3,400	205.	697,000	Lake, s.d., p., b. and f'c's'le	"	9	July 1, 1919	Dec. 10, 1918	.....	Canadian Sailor
20a	Mar. 1, 1919	" "	42	3,400	210.	714,000	Lake, s.d., p., b. and f'c's'le	"	9	Oct. 31, 1919	.....	.....	.....
21	Sept. 13, 1918	Halifax Shipyards Ltd., Halifax, N.S.	1	8,100	195.	1,579,500	2.d., p., b. and f'c's'le.....	"	10	Dec. 19, 1919	Feb. 24, 1919	.....	.....
22	Sept. 13, 1918	" "	2	8,100	195.	1,579,500	2.d., p., b. and f'c's'le.....	"	10	Apr. 1920	Mar. 15, 1919	.....	.....
23	Oct. 11, 1918	Canadian Vickers Ltd., Montreal	73	4,300	215.	924,500	S.d., p., b. and f'c's'le.....	"	11	May 27, 1919	Aug. 26, 1918	.....	Canadian Navigator
24	Oct. 11, 1918	" "	68	8,100	188.	1,522,800	2.d., p., b. and f'c's'le.....	"	11	May 1, 1919	Nov. 30, 1918	Apr. 19, 1919	Canadian Ranger
25	Oct. 11, 1918	" "	69	8,100	188.	1,522,800	2.d., p., b. and f'c's'le.....	"	11	June 1, 1919	Dec. 2, 1918	.....	Canadian Seigneur
26	Oct. 11, 1918	" "	70	8,100	188.	1,522,800	2.d., p., b. and f'c's'le.....	"	11	July 1, 1919	.....	.....	Canadian Miller
27	Oct. 11, 1918	" "	71	8,100	188.	1,522,800	2.d., p., b. and f'c's'le.....	"	11	Aug. 1, 1919	.....	.....	Canadian Spinner
28	Oct. 11, 1918	" "	72	8,100	188.	1,522,800	2.d., p., b. and f'c's'le.....	"	11	Sept. 1, 1919	.....	.....	Canadian Planter
29	Jan. 24, 1919	Victoria Machinery Depot, Victoria, B.C.	1	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Jan. 31, 1920	.....	.....	.....
30	Jan. 24, 1919	" "	2	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Nov. 30, 1920	.....	.....	.....
31	Dec. 11, 1918	Collingwood Shipbuilding Co., Kingston, Ont.	15	3,750	205.	768,750	Lake, s.d., p., b. and f'c's'le	Brit. Corp.	9	Nov. 1, 1919	.....	.....	Canadian Beaver
32	Mar. 1, 1919	Port Arthur Shipbuilding Co., Port Arthur, Ont.	43	4,300	215.	935,250	S.d., p., b. and f'c's'le.....	Lloyd's	10½	Nov. 1, 1919	.....	.....	.....
33	Mar. 1, 1919	" "	44	4,300	215.	935,250	S.d., p., b. and f'c's'le.....	"	10½	Nov. 15, 1919	.....	.....	.....
34	Nov. 22, 1918	J. Coughlan & Sons, Vancouver, B.C.	11	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	July 31, 1919	.....	.....	.....
35	Nov. 22, 1918	" "	12	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Aug. 31, 1919	.....	.....	.....
36	Nov. 22, 1918	" "	13	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Sept. 30, 1919	.....	.....	.....
37	Nov. 22, 1918	" "	14	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Oct. 31, 1919	.....	.....	.....
38	Dec. 10, 1918	Halifax Shipyards Ltd., Halifax, N.S.	3	10,500	197½	2,073,750	3.d., p., and f'c's'le.....	"	12	Aug. 1, 1920	.....	.....	.....
39	Dec. 10, 1918	" "	4	10,500	197½	2,073,750	3.d., p., and f'c's'le.....	"	12	Nov. 1, 1920	.....	.....	.....
40	Mar. 31, 1919	Nova Scotia Steel & Coal Co., New Glasgow, N.S.	5	2,800	210.	588,000	S.d., p., b. and f'c's'le.....	"	8½	Oct. 1919	Mar., 1919	.....	.....
41	Mar. 31, 1919	" "	6	2,800	210.	588,000	S.d., p., b. and f'c's'le.....	"	8½	Nov. 1919	Mar., 1919	.....	.....
42	Feb. 21, 1919	Prince Rupert Dry Dock and Engineering Co., Prince Rupert, B.C.	1	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Feb. 1920	.....	.....	.....
43	Feb. 21, 1919	" "	2	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	June 1920	.....	.....	.....
44	Jan. 23, 1919	British American Shipbuilding Co., Welland, Ont.	4	4,350	215.	935,250	S.d., p., b. and f'c's'le.....	Brit. Corp.	10	Nov. 1919	Mar. 29, 1919	.....	.....
45	Jan. 23, 1919	" "	5	4,350	215.	935,250	S.d., p., b. and f'c's'le.....	"	10	June 1920	.....	.....	.....
				263,850		\$52,691,450							

Toronto Harbor Improvements for 1919.

The amount involved in the Toronto Harbor Commissioners' improvement programme for this year is approximately \$3,300,000, of which, about \$2,000,000 will be expended, provided satisfactory arrangements can be made for the disposal of the commissioners' bonds.

It is intended to continue the industrial harbor development easterly from where it now ends between John St. and Spadina Ave., through to York St., and to reclaim about 90 acres of additional property for industrial purposes, and possibly some park reclamation work will be undertaken. This latter work is to a great extent dependent on the completion of the breakwater, which is being undertaken by the Dominion Government, but it is the intention to top dress and complete the park area between Sunnyside and the Humber River, as far as possible.



Toronto harbor improvement, location plan, harbor headwalls.

It is expected that the Dominion Government will complete about 4,400 ft. of cribwork on the western breakwater, and also the turning basin in the eastern section of the harbor, which will provide for about 4,000 ft. of dock wall, with concrete superstructure, and it will also finish what is known as the circulating channel, which will provide for dockage construction for another 1,800 ft. of sea wall.

The Harbor Commissioners have awarded three contracts, to Russell and Roddick, R. Weddell and Son, and Port Arthur Construction Co., jointly, for the construction of approximately 5,200 lin. ft. of harbor head wall, which is to form the piers and slips of the new harbor development from Peter to York Sts., as shown by the shaded lines on the accompanying plan. The type of construction will be rock filled timber cribs and concrete superstructure. The work will be started as soon as the material can be procured, and is expected to be completed in about eight months of working weather and will represent an approximate expenditure of \$900,000.

A 125-ft. barge has been built as an experiment, in which all the plates were joined by electric-welding, a saving of about 20% resulting, over riveted barges.

Coasting Privileges for Canadian Vessels Rescinded by United States.

W. F. Nickle, M.P., asked in the House of Commons April 3, if the Government's attention had been directed to the fact that the United States authorities have discontinued the practice of granting licenses to Canadian vessels to engage in coasting trade within the U.S., and, if so, what steps the Government were taking in the matter?

The acting Minister of Trade and Commerce replied: "Yesterday the member for Kingston transmitted to me a telegram from one of the Dominion Marine Association's officials indicating that licenses had been refused permitting Canadian steamships to engage in the coasting trade in the U.S. In order that I might learn the actual facts I immediately transmitted the following message to the Chairman, United States Shipping Board:

him, authorize collectors of customs to issue licenses permitting vessels of the U.S. of America to engage in the coasting trade of Canada.'

"Inasmuch as the U.S. now declines to confer the privileges upon Canadian vessels engaged in their coasting trade, it is contemplated that no further licenses be granted to U.S. shipping for coasting trade in Canadian waters except under very exceptional circumstances. This will place our policy in this regard on a parity with that of the U.S."

In reference to the foregoing we are advised that licenses were refused this year to Canadian ships applying to the United States for permits to coast, and on enquiry at Washington, it was stated that the Lake Carriers' Association (a U.S. organization), considering that its members could handle the traffic themselves, had recommended, accordingly and that the Shipping Board had endorsed the recommendation with the result named. The Dominion Marine Association then made representations to Ot-

"Will be obliged if you will inform me officially by wire of reasons why applications made by Canada Steamship Lines for permission Canadian steamships J. H. G. Hagarty and W. Grant Morden engage in U.S. coasting trade Great Lakes refused.' The department has not yet received any reply to this communication. If it should transpire that Canadian shipping has been refused permission to engage in the coasting trade of the U.S., it will be quite proper for Canada to immediately cancel the like privileges granted to U.S. shipping in Canadian waters."

On April 8, the acting Minister of Marine said: "I have received the following message from Washington: 'Advices from our lakes representative indicates apparent scarcity business on lakes for American ships for this season. Coastwise permits are now almost invariably declined on Atlantic and Pacific coasts, only exceptional situation warranting departure from this policy.'

"By order in council the Minister of Customs is permitted to grant coasting privileges to U.S. shipping in Canadian waters. The order in council, which is dated the 5th February, 1918, provides that 'during the period of the war, until otherwise ordered the Minister of Customs may, under conditions specified by

tawa, resulting in enquiries by the government to the authorities at Washington, and a report in reply on the line above mentioned, with the result that the Dominion Government decided upon the measure of reciprocity possible under the circumstances. Accordingly, permits are to be refused to ships applying for leave to carry coastwise in Canada. At least one application has been refused already. The Dominion Marine Association had not the slightest objection to a continuance of the reciprocal arrangements extended by both nations and the present action results entirely from the unexpected move in the U.S., which seems to have surprised the Dominion Government as much as it did the Dominion Marine Association.

The Ottawa Salvage Co., Ltd., has been incorporated under the Dominion Companies Act, with \$50,000 authorized capital and office at Ottawa, Ont., to rescue persons endangered through distress of weather or vessel, by wreck or other calamity, and to rescue from danger, or salve when wrecked, vessels and their contents, on waters in the Dominion and elsewhere, and to salve vessels and other materials abandoned in such waters or having no known owner.

Cargo Steamship Building in Canada for British Government.

Steamships Launched and Under Construction.—We were officially advised Apr. 15, that no launchings had taken place since Mar. 15, a complete list of which was given in our last issue. At that date, there had been launched, 32 steel steamships, 157,100 tons, and 45 wooden steamships, 138,600 tons, a total of 77 steamships, with an aggregate tonnage of 297,700.

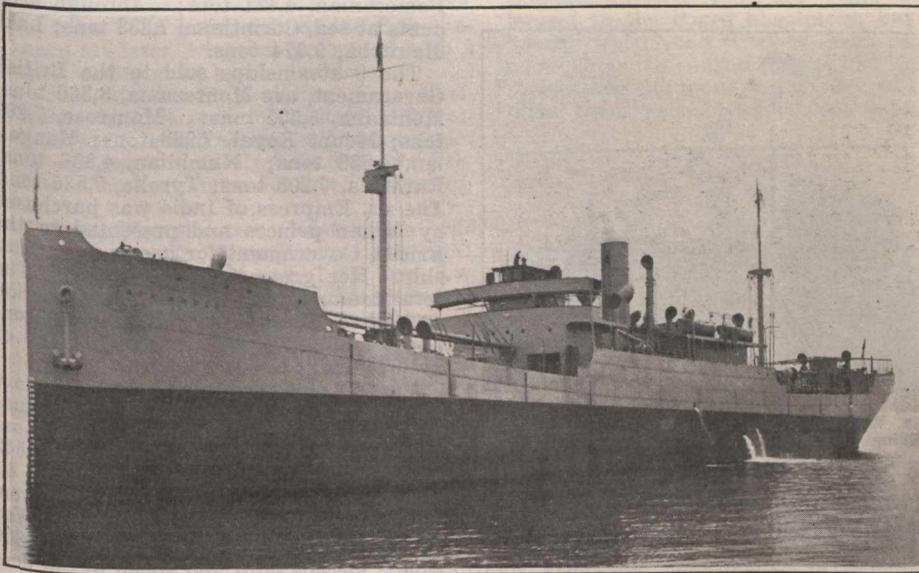
Following is a list showing the other vessels in process of construction, giv-

to return requisitioned vessels to their owners, also brings into effect the decision to sell such vessels as had been built on government account.

The s.s. War Selkirk, built by Western Canada Shipyards, Vancouver, and the War Yukon, built by Cameron Genoa Mills Shipbuilders, Victoria, B.C., are reported sold to the London Transport Co., London, Eng. They are both wooden ships. The s.s. War Convoy, built by J. Coughlan & Sons, Vancouver, is reported

ada to the United Kingdom, that have put into port for repairs. Owing to the early close of navigation in the St. Lawrence last year, it was necessary to send several wooden ships to Halifax in an incomplete condition. These vessels have been completed and all except two have already arrived at British ports and the remaining two will sail next week. It is noted, however, that these ships did not come to Halifax for repairs, but to be completed, thus saving time, which would have been lost, if the work had been done in the St. Lawrence. Of the two vessels at St. John's, one sailed from Quebec and put into that port with slight boiler defects. This vessel should have sailed along with the others, except for the wretched laboring conditions existing, and contrary to the misstatement of the correspondent, excellent reports regarding the construction of this vessel have been received from the St. John's Lloyd's surveyor and the drydock officials. Regarding the second vessel, the statement is that she took 17 days for the voyage from Halifax to St. John's. She was well on her way across the ocean, but returned owing to a steering chain breaking in heavy weather, which might have happened to any ship. With regard to the correspondent's suggestion that these vessels are not suitable for trans-Atlantic trade, they were not intended for it when designed, but for short voyages between British and French ports, for which purposes they are very well suited. The statement that the first vessel had to have her cargo unloaded at Halifax is incorrect. The suggestion that three of them have foundered is also incorrect, as all have arrived safely in England, after a North Atlantic passage in the worst time of the year, and have continued in service since.

"The statement of Capt. Martin, of the War Ontario, an old Donaldson Line skipper, is of interest in reference to the voyage across of these vessels. He states that never in all his experience has he encountered such heavy weather. For



Steel Cargo Steamship, War Convoy, 8,800 tons d.w., built for British Government by J. Coughlan & Sons, Vancouver, B.C.

ing the builders' names, the names which will be given the various vessels, and the deadweight capacity of each:

Builder.	Steel Steamships.	Tons d.w.
British American Shipbuilding Co. Welland, Ont.—	War Racoon	3,500
Canadian Allis-Chalmers, Ltd., Bridgeburg, Ont.—	War Vixen	3,500
"	War Wallaby	3,500
"	War Wombat	3,500
J. Coughlan & Sons, Vancouver, B.C.—	War Chariot	8,800
"	War Column	8,800
"	War Company	8,800
Midland Shipbuilding Co., Midland, Ont.—	War Magic	3,400
"	War Fury	3,400
Polson Iron Works, Ltd., Toronto, Ont.—	War Algoma	3,500
"	War Halton	3,500
	11 steel steamships	54,200

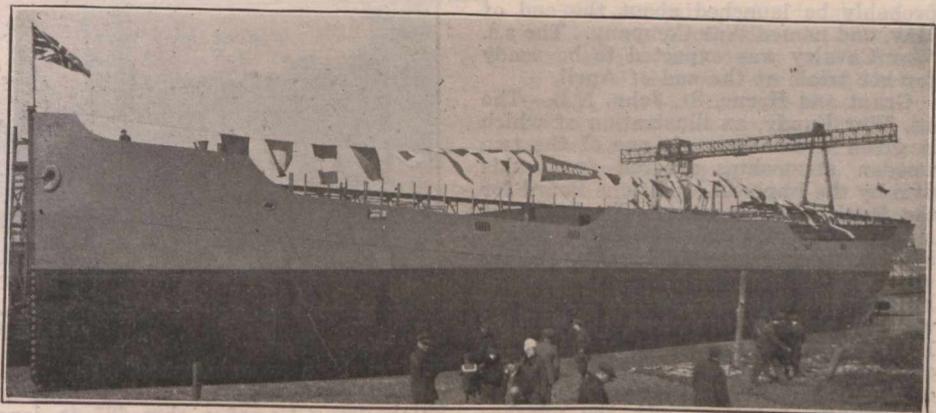
Wooden Steamships.

Grand & Horne, St. John, N.B.—	War Moncton	3,080
Total—11 steel steamships, 1 wooden steamship, 57,280 tons.		

Sales of Vessels.—Several of the steamships which have been built in Canada, under orders from the Imperial Munitions Board, for the British Government, are reported to have been sold to various parties, chiefly in Great Britain, and at least to one in the U.S. While we have received no official confirmation of such sales, they are in general conformity with the policy announced by the British Government. Had the war continued, it was the intention to continue the policy of assigning these vessel to various companies for operation on the government's behalf, but the cessation of hostilities, and the government's decision

to have been sold to G. T. Williams and associates, of New York, for over \$1,500,000. She was launched Dec. 18, 1918, and underwent her trial trips Mar. 17, 1919, maintaining a speed of 12.50 knots over a 6 mile course. She is of steel, with a deadweight capacity of 8,800 tons.

"Lame Ducks" Story Contradicted.—



Steel cargo steamship, War Leverst, 3,500 tons d.w., for British, immediately after launching by Canadian Allis-Chalmers Ltd., at Shipyard, Welland County, Ont.

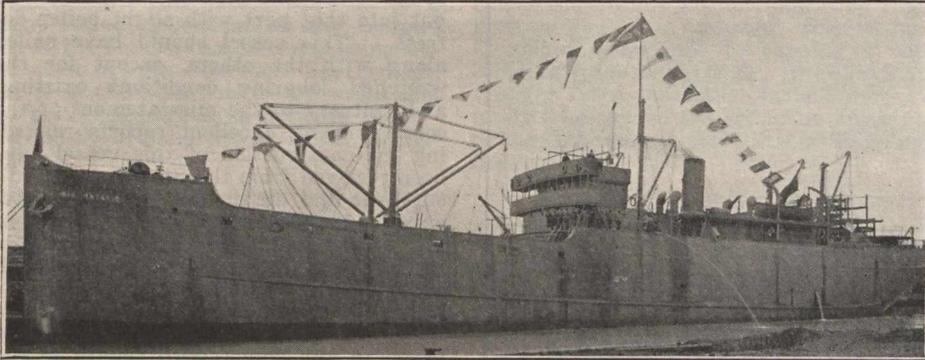
With reference to a dispatch from St. John's, Nfld., to the effect that that port was a haven for "lame ducks" built through the Imperial Munitions Board for the British Government overseas traffic, an official of the board is reported to have made the following statement at Halifax, Apr. 4:—"The Imperial Munitions Board has approximately 100 steel and wooden ships during the past year in Canada. The two wooden ships mentioned are the only ones on voyage from Eastern Can-

three days he was hove to in a south-east hurricane, with mountainous seas, while the weather throughout the voyage was exceedingly severe. Notwithstanding this condition the vessel made the passage to Queenstown in 16 days, and he further states that he did not ship a cup of water during the whole time. In view of these facts it does not seem justified that the two vessels should be singled out for mention on which to hang a tale of woe, concerning one of

Canada's native industries, that of wooden shipbuilding."

"There are five vessels at Quebec completed, ready to sail, and will do so as soon as the ice is cleared. There is also one at St. John's, which will be ready about July and one at Toronto. These ships will complete the entire wooden shipbuilding programme of the Imperial Munitions Board in Canada."

Canadian Allis-Chalmers Ltd., Bridgeburg, Ont., which has orders for 4 steel cargo steamships, of 3,500 tons each, for the British Government, launched the first one, War Leveret, Mar. 3. An illustration of her is given in this department.



Wooden Cargo Steamship, War Ontario,
3,080 tons d.w., built by Toronto Shipbuilding Co. for British Government.

The second one, to be named War Vixen, was expected to be launched in April. Work has started on the two last, which will be named War Wallaby and War Wombat. Considerable difficulty is reported in dealing with the labor situation, owing to lack of housing, in the vicinity of the yards, and the Ontario Housing Commission is reported to have been appealed to for assistance in the matter.

J. Coughlan and Sons, Vancouver, B.C.—The seventh of the 9 steel steamships of 8,800 tons d.w. capacity, built for the British Government under orders from the Imperial Munitions Board, was expected to be launched about Apr. 26, and named War Column. The eighth will probably be launched about the end of May, and named War Company. The s.s. War Cavalry was expected to be ready for her trials at the end of April.

Grant and Horne, St. John, N.B.—The s.s. War Fundy, an illustration of which is given in this issue, is one of the two wooden steamships ordered from this firm by the Imperial Munitions Board for the British Government. The keel was laid Aug. 13, 1917, but owing to delays in getting suitable timber, the frames were not all erected before the end of November. All the main deck beams were in place by the beginning of Mar. 1918, and the deck was laid by the middle of April. The hull was complete, including the hatches, main deck houses, and bridge, together with the winches and some of the machinery, when she was launched on Aug. 24. The boilers and engines were installed by the Union Foundry Co., under the superintendence of an official of the board. The trial trip was made Feb. 17, 1919, a run of 4 knots being made just outside the harbor in 22 minutes, indicating a speed of 10.9 knots, currents being negligible. In running over a land measured course of 15 knots, a speed of 10.5 knots through the water was attained, allowing for an average current of 1½ knots, the estimated speed from engine revolutions being 11.1 knots. The vessel was handed over to

the owners Feb. 28, for loading with cargo for a British port.

Southern Salvage Co., Liverpool N.S.—The s.s. War Halifax, which was launched Sept. 21, 1918, loaded lumber at Halifax, early in April, for Great Britain.

Canadian Pacific Railway's Atlantic and Pacific Fleet.

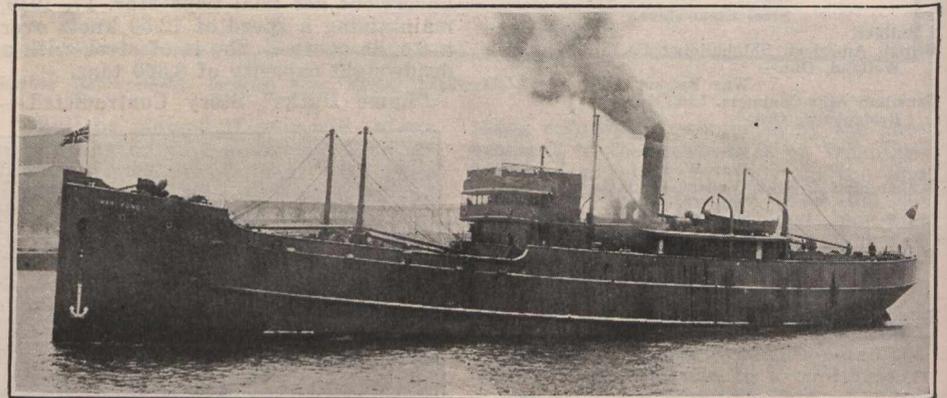
The C.P.R. directors' report, for the year ended Dec. 31, 1918, contains the following paragraph: At the outbreak of hostilities your company had in commission in Atlantic and Pacific service,

of about 80,000 tons. On their delivery the total tonnage of the fleet will be slightly in excess of aggregate tonnage of the vessels in commission on Aug. 3, 1914.

The 15 steamships mentioned in the report as having been lost through enemy action, or accidents at sea, are as follows: Through enemy action,—Calgarian, 17,515 gross tons; Carthaginian, 4,444 tons; Ionian, 8,268 tons; Hesperian, 10,920 tons; Lake Michigan, 9,288 tons; Milwaukee, 7,323 tons; Montreal, 8,644 tons; Mount Temple, 9,792 tons; Montford, 6,578 tons; Missanabie, 12,469 tons; Medora, 5,135 tons; Miniota, 4,928 tons; Pomeranian, 4,421 tons; through accidents at sea, Corinthian, 7,333 tons; Lake Manitoba, 9,674 tons.

The 9 steamships sold to the British Government, are Montezuma, 8,360 tons; Montcalm, 5,505 tons; Montrose, 7,207 tons; Mount Royal, 7,998 tons; Mongolian, 4,838 tons; Numidian, 4,836 tons; Ruthenia, 7,208 tons; Tyrolia, 7,535 tons. The s.s. Empress of India was purchased by Indian princes and presented to the British Government for use as a hospital ship. Her gross tonnage is 5,934. The total tonnage lost through enemy action and other causes, is 126,552, and the tonnage sold is 59,421, a grand total of 185,973 gross tons.

Vessels purchased during the war are as follows: Botsford, 4,782 tons; Dunbridge, 6,650 tons; Holbrook, 6,655 tons; Montezuma, 5,038 tons; Montcalm, 6,542 tons; Medora, 5,135 tons; Mattawa, 4,874 tons; Miniota, 4,928 tons; Methven, 4,852 tons; Mottisfont, 5,692 tons; War Beryl, 10,800 tons; War Peridot, 10,800 tons. Vessels built and added to the fleet during the same period are: Missanabie, 12,469 tons; Metagama, 12,420 tons; Melita, 13,967 tons; Minnedosa, 15,000 tons. The total tonnage of vessels purchased was 76,748 tons, and of those built, 53,856 tons, a grand total of 130,-



Wooden cargo steamship, War Fundy, 3,080 tons d.w., built for British Government by Grant & Horne, St. John, N.B.

having been requisitioned. The construction at the yards of the Fairfield Shipbuilding Co. of a ship 625 ft. long between perpendiculars, having a gross tonnage of 21,000 tons, is to be proceeded with, pursuant to the authorization previously given, and three passenger ships, of what is known as the intermediate class, for Atlantic service, two of which have been previously authorized, will be put under construction as soon as possible at the yards of John Brown & Son and the Fairfield Shipbuilding Co. At the end of the fiscal year your company had in ocean service 28 steamships having a gross tonnage of 264,000 tons, and 6 steamships under order or purchased but not delivered having a gross tonnage

604 gross tons. There are now 4 steamships under construction, with a gross tonnage of 67,000.

Editor's Note.—It will be noticed that the name Montcalm appears both in the list of vessels sold and purchased. They are two distinct vessels.

Alex. Johnston, Deputy Minister of Marine, before leaving Vancouver, for the east, Apr. 10, is reported to have stated that there is no reason why Vancouver, as a port, cannot capture a large portion of the business now going to U.S. ports, and that he would urge on the government the importance of immediate action in the development of the port.

General Shipbuilding Matters Throughout Canada.

Fraser, Brace Shipyards Ltd., Montreal, which has a contract for 8 wooden steamships for the French Government, laid the keels as follows: 3 on Oct. 3, 1918; 3 on Nov. 9, 1918; 1 on Dec. 3, 1918, and 1 on Jan. 22, 1919. One hull was launched Feb. 19, two others Feb. 28, and they expected to launch the remaining five in May.

Foundation Co., Victoria, B.C.—The third of the twenty, 3,000 ton d.w. wooden steamships which this company is building for the French Government was launched Apr. 10, and named Mulhouse, by Mrs. John Hart, wife of the B.C. Finance Minister, who was presented with a gold vanity case, by the builders.

Jos. McGill Shipbuilding Co., Shelburne, N.S., is reported to have four vessels under construction, a beam trawler to cost approximately \$300,000, two fishing schooners, and a 300-ton freight vessel.

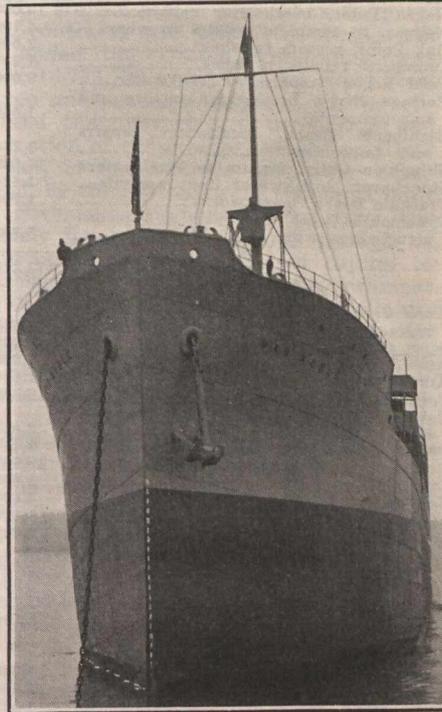
New Westminster Construction and Engineering Co., New Westminster, B.C.—The third of the five 1,500 ton d.w. wooden steamships which this company is building for the French Government, was expected to be launched about the end of April, or early in May. The first two vessels, named respectively Victoria and Frontenac, are expected to be ready for sea early in May, provided delivery of certain equipment can be obtained in time.

Nova Scotia Shipbuilding and Transportation Co., Liverpool, N.S., launched the schooner Faustina Apr. 8, for J. F. Creaser Co., La Have, N.S., and John Penny, Newfoundland. The keel was laid early in January. Her dimensions are, length, 117 ft. overall; breadth, 26 ft.; depth of hold, 12½ ft.; net tonnage, 150.

Polson Iron Works Ltd., Toronto—As stated in Canadian Railway and Marine World for April, the Ontario Supreme Court made an order Mar. 19 to wind up this company, and appointed G. T. Clarkson, of Toronto, as liquidator. On Apr. 9, Mr. Clarkson notified the creditors that the company entered into a contract in Nov., 1917, with Christopher Hannevig of Christiania, Norway, and New York, N.Y., to build 2 steel cargo steamships during 1918 for \$735,000 each, but if they were not delivered until 1919 the price would be reduced to \$665,000 each. Little or no work, except the laying of the keels, has been done on these ships, but the company has on hand materials therefor which cost about \$335,000, viz.: steel bought for ships, \$150,000, other steel allocated to them, \$35,000, engines, boilers and other equipment in process of manufacture, \$150,000. Steel has dropped in price about 30% since the purchases referred to were made, and it is questionable whether more than \$180,000 could be obtained from the products on sale. Against the materials bought, Mr. Hannevig has advanced \$568,000 to the company, an over payment of \$233,000. Mr. Hannevig having expressed his willingness to release all claims against the company's estate, if it will transfer the materials on hand, including the keels, to him, the liquidator recommended that the offer be accepted, stating that if this was not done and the estate retained the materials, there would be little or no chance of completing the ships in 1919, and Mr. Hannevig would have an additional and substantial claim for damages. The estate, with its encumbrances

and liabilities, is not in a position to finance for the completion of the ships, and to do so under present conditions, including those of labor, might mean a risk which would be costly to the creditors. It was decided at a creditors' meeting on Apr. 12 to act on the liquidator's recommendation.

At the same meeting, it was reported that the company had contracts from the Imperial Munitions Board for 6 steel cargo steamships for the British Government, one of which had been delivered. Counsel advised that the other 5 belonged to the board absolutely, but the board, which had already paid almost as much as the contract price, had agreed to advance the money necessary to complete them probably \$600,000, to waive



Steel Cargo Steamship, War Noble, 8,800 tons d.w., built for British Government by J. Coughlan & Sons, Vancouver, B.C.

any claim for damages and to rank with the unsecured creditors for any money it might be necessary to advance.

The liquidator submitted the following statement of the estate's position, consequent on the acceptance of Mr. Hannevig's offer.

Liabilities.	
Trade	\$ 400,000
Damages, etc.	75,000
Imperial Munitions Boards, say.....	600,000
	<u>\$1,075,000</u>
Assets.	
Real estate, plant and general assets	\$1,000,000
Less.	
Bonds	\$292,000
Preferred claims.....	100,000
Taxes and rent.....	25,000
	<u>\$417,000</u>
	<u>\$583,000</u>
Probable dividend, about 54%.	

Prince Rupert Drydock and Engineering Co., Prince Rupert, B.C.—Newman Erb, of New York, president of this company, who visited Prince Rupert during April, to inspect the plant, is reported to have said that work on the two 8,100-ton steel steamships for the Canadian Government Merchant Marine Ltd., will be pushed

along, as soon as the material, which has been ordered, is received, and this should necessitate the employment of a considerable number of men for 18 months or two years. As the business develops, it is the intention to enlarge the shipbuilding plant considerably.

W. D. Sweeney, Yarmouth, N.S., launched the s.s. Glenholme, Apr. 16, for the St. John Steamship Co. Her dimensions are, length, 188 ft., overall; 96 ft. on keel; breadth, 30 ft. 5 ins.; depth, 12 ft., approximately 140 tons. She is intended for coastal service in the Bay of Fundy, between St. John and Minas Basin.

N. Tessier, Hull, Que., is building a steamboat for the Chats Falls Navigation Co., Ottawa, for service between Britannia on the Bay, and Fitzroy Harbor, as mentioned in our last issue. She will be 90 ft. long, 19 ft. beam, with a hang-over of 1 ft. on each side. The engine and boiler were installed during April, and it is expected that she will be ready for operation by June.

The Future of Shipbuilding in Canada.

Since the signing of the armistice treaty, and the practical cessation of hostilities, the principal item of general discussion has been, the resumption of the normal, at least so far as business and general trading are concerned. On account of the comparatively great expansion of shipbuilding in the Dominion, this particular business is receiving a great amount of attention, and various modes of treatment are being recommended in order to foster the growth of the industry, which, it must be admitted, is carried on to some disadvantage, as compared with some other countries. The following statement by one of the leading Canadian shipbuilding firms, puts the matter succinctly, and gives scope for argument as to the means to achieve the desirable end:

"The general opinion in circles where the experts foregather is that Canada can, should and must, build ships. It is argued that she can build them profitably, that she should build them to foster the new industry in which millions of dollars of capital and approximately 25,000 persons are interested, and that she must build ships to hold her place as a great manufacturing and agricultural country with a huge surplus to export every year. It is not generally realized that something like four-fifths of the shipping using Canadian ports is owned outside of this country; and built outside of it. That means that the money spent in building vessels, and the money they earn after they are built, all goes out of Canada. As to the argument of cheaper production, that is entirely exploded, when the question of the operation of the ships and the retention of the earnings in this country is taken into consideration. It is reported that it is not possible to place a contract in any British yard for delivery during 1919."

The Dominion Marine Association has added to its membership recently, the Webster Steamship Co., Montreal; the Geo. Hall Coal Co. of Canada, Montreal, and the Union Steamship Company of British Columbia, Vancouver.

Harbor, River and Graving Dock Estimates for 1919-1920.

The Public Works Department estimates for the year ending Mar. 31, 1920, submitted to the House of Commons recently, contain the following items, among others, chargeable to capital:—

HARBOR AND RIVERS.

Port Arthur and Fort William—harbor and river improvements.....	\$ 300,000.00
St. John harbor—improvements.....	750,000.00
Toronto harbor—improvements.....	500,000.00
	\$1,550,000.00

The following public works items (Marine Department) are chargeable to capital.

River St. Lawrence, ship channel.....	\$ 478,000.00
Construction and completion of dredging plant for St. Lawrence River from Montreal to Father Point.....	68,900.00

The following items for harbors and rivers are chargeable to income:—

NOVA SCOTIA.

Arichat, sand groyne.....	\$ 800
Arisaig, repairs to wharf.....	3,000
Bailey's brook, repairs to pier.....	1,300
Barrington Passage, repairs to wharf.....	3,000
Boisdale, wharf.....	1,800
Chimney Corner, breakwater wharf.....	6,200
Cribbin's Point, repairs to wharf.....	2,000
Deep Brook, repairs to wharf.....	1,000
Delaps Cove, repairs to wharf.....	2,000
Devil's Island, repairs to breakwater.....	10,000
Digby Pier, renewals.....	3,000
East Bay Beach, wharf extension.....	650
East Chezzetcook, repairs to wharf.....	3,500
Ecum Secum, completion of wharf.....	1,700
Feltzen South, repairs to wharf.....	1,200
Fox Island, repairing breakwater approach.....	1,270
Fourchu, wharf extension.....	1,200
Gabarus, extension of beach protection.....	1,000
Great Village, repairs to wharf.....	1,000
Harbors and rivers generally, repairs and improvements.....	60,000
Irish Cove, wharf extension.....	2,800
Inverness, harbor improvements.....	18,000
Little Bass River, repairs to protection work.....	1,000
Livingstone's Cove, to repair and strengthen wharf.....	4,600
Malignant Cove, repairs to wharf.....	1,250
Margaretville, repairs to breakwater.....	1,500
Meteghan River, breakwater repairs and improvements.....	2,000
McNair's Cove, repairs to wharf.....	3,300
Neil's Harbor, repairs to breakwater wharf.....	1,100
North Gut, extension of wharf.....	1,200
North West Cove Tancook, repairs to wharf.....	4,000
Petite Riviere, repairs to breakwater.....	1,000
Port Hood, wharf repairs and extension	7,000
Port Wade, repairs to wharf.....	4,000
Sambro, repairs to wharf.....	1,200
Sandy Cove, to repair and strengthen breakwater.....	5,700
Saw Pit, wharf improvements.....	1,000
Scotch Cove (White Point), breakwater extension.....	8,400
South Side, breakwater extension.....	2,100
Spry Bay, Josies, wharf extension.....	5,760
Sydney Harbor, repairs to quarantine wharf.....	1,000
Three Fathom Harbor, repairs to breakwater.....	2,800
The Points, West Bay, repairs to wharf	1,500
Tiverton, repairs to breakwater.....	1,000
Trout Cove, removal of stone and gravel.....	2,500
West Chezzetcook, repairs to breakwater	1,600
West Head, breakwater improvements	3,000
West Ship Harbor, repairs to wharf.....	900
Yarmouth Bar, repairs and improvements.....	4,500
	\$201,330

PRINCE EDWARD ISLAND.

Bay Fortune, repairs to breakwater.....	\$ 1,600
Belle River Harbor, repairs and improvements to breakwater.....	900
China Point, repairs to pier.....	1,200
Greek River, repairs to wharf.....	500
Harbors and rivers generally, repairs and improvements.....	14,000
Jude's Point, repairs to wharf.....	700
McPherson's Cove, repairs to wharf.....	1,400
Miminigash Harbor, reconstruction of breakwater.....	2,350
New London Harbor, repairs and improvements.....	3,100
North Cardigan, repairs to wharf.....	1,300
North Rustico, repairs to breakwater.....	1,700
Pinette, reconstruction of wharf.....	2,200
Souris, to repair and strengthen breakwater.....	35,000

South Cardigan, repairs to wharf.....	500
Wood Islands, repairs to breakwaters.....	1,000
	\$ 67,450

NEW BRUNSWICK.

Back Bay, wharf repairs and improvements.....	4,700
Bathurst, repairs to wharf.....	2,000
Beaver Harbor, repairs to wharf.....	1,200
Buctouche, repairs to wharf.....	2,000
Campbellton, repairs to wharves.....	7,000
Cape Bald, repairs to breakwater pier.....	3,200
Chockfish, to repair breakwaters.....	1,200
Dalhousie, repairs to wharf and breakwater.....	750
Fort Dufferin, reconstruction of breastwork.....	18,000
Grand Anse, repairs to breastwork and groyne.....	1,500
Harbors and rivers generally, repairs and improvements.....	65,000
Leonardville (Deer Island), repairs to wharf.....	1,670
Mizenette, wharf repairs and improvements.....	3,000
Moncton, repairs to wharf.....	1,500
Negro Point, breakwater repairs.....	15,000
Neguac, to complete repairs to wharf.....	4,700
Oak Point, repairs to wharf.....	3,000
Oromocto, repairs to wharf.....	1,300
Petit Rocher, repairs to breakwater.....	9,000
Portage River, breakwater repairs and improvements.....	1,000
Richibucto Beach, breakwater repairs and improvements.....	1,250
Shippigan Gully, repairs to breakwaters	17,000
Stonehaven, breakwater improvements.....	1,600
Tracadie Beach, breastworks.....	1,000
Tynemouth Creek, to repair and reconstruct breakwater.....	5,800
	\$ 173,370

QUEBEC.

Anse a Beaufile, improvement of channel.....	2,500
Anse aux Gascons, wharf.....	36,000
Anse au Griffond, repairs to jetty.....	1,000
Anse St. Jean, repairs to wharf.....	1,500
Baie St. Paul, repairs to wharf.....	2,500
Batiscan, wharf repairs and improvements.....	2,850
Beleoff, repairs to protection piers.....	3,700
Berthier (en bas), repairs to wharf.....	18,600
Cabano, repairs to wharf.....	1,600
Cap St. Ignace, repairs to wharf.....	4,000
Cap de la Madeleine, repairs to wharf.....	1,000
Champlain, repairs to wharf.....	3,000
Cote Ste. Catherine Wharf, repairs and improvements.....	2,000
East Templeton, repairs to wharf.....	900
Esquimaux Point, wharf improvements	2,700
Fabre, repairs to wharf.....	1,100
Father Point, repairs to wharf.....	600
Fort William, wharf repairs and improvements.....	3,000
Garthby, repairs to wharf.....	1,200
Gaspe Basin, wharf improvements.....	3,300
Grondives, wharf repairs and improvements.....	850
Grosse Isle Quarantine Station extension of wharves.....	50,000
Grosse Isle, repairs to wharf.....	6,500
Grosse Roche, repairs to wharf.....	800
Harbors and rivers generally, repairs and improvements.....	75,000
Hudson, to complete reconstruction of wharf.....	1,350
Isle aux Grues, repairs to wharves.....	2,100
Isle Verte, repairs to wharf.....	1,100
Laprairie, rebuilding of ice breaker.....	1,800
Laprairie, protection works, maintenance and repairs.....	11,000
Les Eboulements, repairs to wharf.....	3,800
Les Ecureuils, repairs to wharf.....	1,400
Lotbiniere, repairs to wharf.....	2,900
Magog, reconstruction of wharf.....	22,000
Malbaie (Gaspe Co.), repairs to wharf	2,500
Matane, to complete repairs to wharf.....	1,000
Mont Louis, repairs to wharf.....	700
Montmagny, repairs to wharf.....	2,000
Murray Bay, repairs to wharf.....	2,400
Norway Bay, repairs to wharf.....	1,500
Notre Dame du Portage, repairs to wharf	1,500
Pierreville, repairs to wharf.....	1,300
Piopolis, repairs to wharf.....	1,500
Pointe a Elie, repairs to breakwater-wharf.....	3,600
Pointe aux Trembles, repairs to wharf	7,800
Pointe Fortune, reconstruction of wharf	2,600
Pointe Pizeau, Sillery, repairs to wharf	16,000
Richmond, reconstruction of ice breakers.....	13,300
Rimouski, harbor improvements.....	69,000
Riviere du Loup (en bas), repairs to wharf.....	2,400
Riviere Ouelle, repairs to wharf.....	1,200
St. Alphonse, repairs to wharf.....	3,300
St. Andre de Kamouraska, repairs to wharf.....	1,100
Ste. Anne de Beaupre, wharf repairs	1,000

and reconstruction.....	39,000
Ste. Anne de Chicoutimi, repairs to wharf.....	1,750
St. Emelie, repairs to wharf.....	600
Ste. Famille, wharf repairs and reconstruction.....	17,000
St. Fulgence, repairs to pier.....	1,000
St. Ignace de Loyola (north), repairs to wharf.....	4,400
St. Irene, repairs to wharf.....	2,100
St. Jean d'Orleans, repairs to wharf.....	35,000
St. Jean Port Joli, repairs to wharf.....	1,300
St. Laurent, Island of Orleans, repairs to wharf.....	15,000
St. Michel de Bellechasse, repairs to wharf.....	53,600
St. Paul, Ile aux Noix, repairs to wharf approach.....	1,700
St. Pierre les Bacquets, repairs to wharf	2,000
St. Simeon, wharf repairs and improvements.....	1,300
St. Sulpice, repairs to wharf.....	1,200
St. Zotique, wharf reconstruction and repairs.....	3,100
St. Joseph de Letellier, repairs to wharf	1,200
Stratford Center, repairs to wharf.....	1,200
Sorel, repairs to ice piers.....	4,500
Trois Pistoles, repairs to wharves and breakwater.....	3,700
Vercheres, wharf.....	10,000
Verdun, repairs to wharf approach.....	1,700
	\$ 610,700

ONTARIO.

Bayfield, repairs to pier.....	\$ 3,800
Belleville Harbor, improvements to wharf and warehouse.....	1,000
Burlington Channel, repairs to pier.....	23,900
Burlington, in final settlement of all claims of Hutchison & Latimer in connection with contract for revetment wall.....	2,000
Cobourg, repairs to piers.....	26,800
Connaught Station, wharf.....	4,900
Cornwall, new wharf.....	5,000
Fighting Island, Detroit River, dredging.....	60,000
French River dams, repairs and maintenance.....	3,000
Goderich, repairs to docks.....	2,700
Grand Bend, repairs to piers.....	1,250
Halleybury, repairs to wharves.....	1,400
Harbors and rivers generally, repairs and improvements.....	65,000
Hilton, repairs to wharf.....	1,300
Huntsville, repairs to wharf.....	840
Kagawong, wharf.....	9,000
Kincardine, repairs to piers.....	2,400
Kingston, maintenance and operation of combined roadway wharf and bridges	11,300
Kingston, harbor improvements.....	7,000
Kingston, repairs to R.M.C. dock.....	1,350
Kingsville, repairs to pier.....	850
Leamington, repairs to pier.....	950
Midland, repairs to wharves.....	3,340
Oakville, repairs to pier.....	1,000
Owen Sound, repairs to wharf.....	850
Parry Sound, renewals to breastworks at Two and Seven Mile Narrows.....	1,250
Pelee Island, repairs to piers.....	750
Pembroke, repairs to wharf.....	1,500
Petawawa, repairs to wharf.....	1,900
Port Burwell, repairs to pier.....	5,700
Port Colborne, repairs to breakwaters	52,000
Port Dover, repairs to pier.....	4,500
Port Elgin, repairs to wharf and breakwater.....	5,000
Port Findlay, repairs to wharf.....	1,000
Port Hope, repairs to pier.....	11,500
Port Rowan, repairs to pier.....	1,000
Port Stanley, harbor improvements.....	1,100
Puce, repairs to harbor works.....	850
Sault Ste. Marie, repairs to wharf.....	2,100
Southampton, repairs to harbor works.....	6,000
Thessalon, repairs to wharf.....	11,000
Wheatley, repairs to pier.....	850
	\$ 348,930

MANITOBA.

Dauphin River, wharf.....	\$ 6,700
Delta, closing channel.....	3,000
Harbors and rivers generally, repairs and improvements.....	15,000
Pas, wharf.....	19,000
Little Pembina River, diversion to Pelican Lake.....	19,500
Red River, repairs to channel protection work.....	5,000
	\$ 68,200

SASKATCHEWAN AND ALBERTA.

Harbors and rivers generally, repairs and improvements.....	\$ 20,000
BRITISH COLUMBIA.	
Arrow Park, repairs to wharf.....	\$ 940
Alice Arm, landing float.....	2,000
Chilwick, repairs to wharf and landing.....	2,100
Comox, repairs to wharf.....	20,300
Dewdney, repairs and additions to wharf	800

Fraser River, dredging North Arm.....	100,000
Fraser River (lower), improvements.....	25,000
Fraser River, improvements at Westham Island	1,000
Half Moon Bay, wharf.....	6,500
Harbors and rivers, generally, repairs and improvements.....	95,000
Harrop, repairs to wharf.....	675
New Massett, rebuilding wharf.....	10,500
Okanagan Center, wharf.....	5,800
Okanagan River, reconstructing dam and repairing bank protection works.....	5,800
Old Massett, repairs to wharf.....	4,000
Powell River, addition to wharf and dredging	16,500
Port Clements, repairs to wharf.....	4,200
Port Essington, landing float.....	3,500
Prince Rupert Quarantine Station, repairs to wharf.....	4,500
Queen Charlotte City, repairs to wharf	4,600
Refuge Bay, repairs to wharf.....	4,000
Roberts Bay, repairs to float and approach	4,500
Saanichton, repairs to wharf.....	1,000
Shoal Bay, repairs to wharf.....	1,100
Sidney, repairs to wharf.....	7,000
Skidegate, repairs to wharf.....	6,500
Spiller River, repairs to wharf.....	3,000
Squamish, repairs to wharf.....	675
Stewart, reconstruction of wharf.....	34,000
Tofino, repairs to wharf.....	1,700
Williams Head Quarantine Station, repairs to wharf.....	20,000
Wolfsen Bay, repairs to wharf.....	1,300
	\$ 398,490

GENERALLY.	
Harbors and rivers, generally.....	\$ 30,000
DREDGING.	
Maritime Provinces.....	\$ 350,000
Ontario and Quebec.....	350,000
Manitoba, Saskatchewan and Alberta.....	45,000
British Columbia.....	300,000

The following Public Works Department items are chargeable to collection of revenue:—

SLIDES AND BOOMS.	
Upper Ottawa Improvement Co's. yearly allowance for logs passed through Chenaux boom.....	\$ 1,800
Gatineau River, annual allowance for use of Gilmour & Hughson's booms at Cascades	600
Ottawa district, slides and booms, etc.....	43,500
Saguenay district, booms, piers, etc.....	9,000
	\$ 54,900

GRAVING DOCKS.	
Champlain graving dock.....	\$ 20,000
Lorne graving dock.....	27,300
Esquimalt graving dock.....	22,000
	\$ 69,300

HARBOR AND RIVER WORKS, ETC.	
East River, lock and dam.....	\$ 2,000
Burlington channel bridge.....	5,800
Montreal River, dam at Latchford.....	3,000
River Yamaska lock and dam.....	2,500
Riviere du Lievre lock and dam.....	2,500
St. Andrew's rapids lock and dam, Red River, Man.....	18,500
Selkirk, Man., repair slip.....	5,000
	\$ 39,300

MISCELLANEOUS.	
Maintenance and operation of water storage dams on Ottawa river and tributaries, surveys in connection therewith, and settlement of land damages.....	\$ 125,000
Dry docks generally, inspection, etc.....	4,000
Operation and maintenance of inspection boats	22,000
Compassionate allowance to widow of Neil McLellan who was drowned in the Madawaska River at Arnprior, Ont., April 15, 1918, while at work as assistant to slidemaster.....	2,000
River gauging and metering.....	24,000
	\$ 177,000

AUTHORIZED BY STATUTE.	
Collingwood dry dock no. 1.....	15,000
Collingwood dry dock no. 2.....	9,208
Montreal floating dock.....	105,000
Port Arthur dry dock.....	37,741
Prince Rupert floating dock.....	76,970
	\$ 243,921

Supervision of Lakes and Ocean Freight Rates.—The Trade and Commerce Department's estimates for the year, ending Mar. 31, 1920, submitted in the House of Commons recently, contain \$6,000 for the supervision of lake and ocean freight rates, a precisely similar amount to that voted for the previous fiscal year.

Proposed Plan for Operation of United States Merchant Marine.

E. N. Hurley, chairman of the United States Shipping Board, has proposed a plan for the future control and operation of the ships which have been built under the board's auspices. Briefly, the scheme which he proposes to recommend to Congress contemplates the eventual sale of all the government owned ships to private interests, but the retention of partial government control through a period of years by means of the government holding of a mortgage and the Government issuance of insurance. There is to be established a special fund, under government control, which will be used to foster the development of certain trade routes.

Mr. Hurley states that when the present contracts are completed there will be under the United States flag next year 16,732,700 tons of ocean going steel cargo and passenger ships. He is convinced that government ownership and operation of these ships, except as a last resort, is undesirable. On the other hand, he thinks that were the ships built at government expense to be used now merely for the advantage of groups of ship operators with sufficient capital to purchase the ships from the government he would unhesitatingly advocate the retention of the whole fleet by the government. His plan is intended to provide as soon as possible the necessary development of the U. S. merchant marine, at the same time guaranteeing to the U.S. people as large a return as possible from the war expenditure for ships.

The primary recommendation of the plan is that the ships should be sold at a price which fairly reflects the current war market for similar tonnage. Twenty-five per cent of the purchase price of each ship is to be paid down, the remainder to be paid in annual installments over a period not exceeding 10 years. The government will take a mortgage for this unpaid balance, charging interest, at the customary commercial rate of 5%, but inasmuch as the government ordinarily borrows money at 4%, the 1% difference will be diverted to the merchant marine development fund noted above. At the same time, the purchaser is to be required to insure with a U.S. marine insurance company his equity in the vessel, but the government will carry in its own fund for the purchaser's account the hull and machinery insurance covering that part of the vessel for which payment has not been made. Inasmuch as the government can carry this insurance for a least 1% less than the market rate, this 1%, too, will be diverted to the development fund.

Each purchaser who wishes to operate in foreign trade should be obliged to incorporate under a federal charter, for which legislation will have to be obtained, and provision is to be made that all control shall remain in U.S. hands. One member of the board of directors of each company is to be named by the government, and these directors will be formed into a board of government directors, who will have certain advisory powers in relation to the administration of the development fund. This fund is to be used to relieve such financial difficulties as may be encountered in the development of an adequate and well-balanced U.S. merchant marine. For instance, one sug-

gestion is that if the government thinks that a certain trade route should be opened, a company may buy ships for the express purpose of operating on that route. If operation does not prove profitable at once, it will be necessary to provide for the payment of defaulted interest from the merchant marine development fund in the discretion of the government agency, and when the ships of the route earn their annual interest rate and a profit, one-half the profit earned each year should be paid into the development fund until all moneys drawn from that fund, on account of the vessel in question, shall have been replaced. The other half should go to the stockholders of the company. If the route does not prove profitable, the ships on it may be transferred by the government to other routes and if the government becomes convinced that the vessel has failed to make expenses solely or chiefly because of incapable management, it may foreclose the mortgage which it holds on the vessel.

A final clause in the plan is that, until sold under the terms stated, all vessels should remain the property of and should be operated by the U.S. Government. Mr. Hurley specifically states that the wooden ships are not included in this plan.

Canal Estimates for 1919-1920.

The Railways and Canals Department's estimates for the year ending Mar. 31, 1920, submitted to the House of Commons recently, contain the following items, among others, chargeable to capital account:—

Welland Ship Canal—construction.....	\$3,500,000.00
Trent Canal—construction and betterments	1,000,000.00
Trent Canal—towards construction of high level bridge over Otonabee River at Hunter St., Peterboro, Ont.	50,000.00
	\$4,550,000.00

The following items are chargeable to income:—

Chambly Canal—improvements.....	40,000.00
Carillon and Grenville Canal—improvements	17,000.00
Lachine Canal—dredging.....	25,000.00
Soulanges Canal—improvements.....	152,000.00
Ontario St. Lawrence Canal—improvements	54,000.00
Rideau Canal—to pay claim of John O'Toole and interest at 5% per annum thereon.....	2,646.83
St. Peter's Canal—rebuilding of highway bridge.....	5,000.00
Trent Canal—improvements.....	329,000.00
Welland Canal—improvements.....	175,000.00
	\$ 799,646.83
Surveys and inspections, canals, including salaries and expenses of experts employed separately.....	40,000.00

The Bishop Navigation Co. Ltd., the incorporation of which was announced in a recent issue, is being organized to take over the s.s. Lake Manitoba, owned formerly by the Canadian Pacific Ocean Services Ltd., and which was considerably damaged by fire in Montreal, last year. The vessel has been practically rebuilt, and renamed W. I. Bishop, in honor of Col. W. I. Bishop, V.C., of the Royal Air Force. The vessel was acquired by interests associated with Halifax Shipyards, Ltd., and the Montreal Transportation Co. The organization of the company has not been completed, but it is said that the vessel will be used in overseas trade.

Atlantic and Pacific Ocean Marine.

The Nippon Yusen Kaisha is reported to be building 6 passenger steamships of about 20,000 tons, with speed of 20 knots, for its trans-Pacific service.

The Canadian Pacific Ocean Services s.s. Monteagle, which was reported, in Montreal, to have been burned at Hong Kong, China, sailed from there, Apr. 8, for Vancouver.

The s.s. Turbinia, which was built for the Toronto-Hamilton service and performed it for a number of years, is now carrying troops between France and England.

An order in council has been passed rescinding previous regulations respecting the identification and safeguarding of vessels carrying high explosives while navigating the River St. Lawrence ship channel.

Canadian Pacific Ocean Services will, it is announced, recommence its sailings between Montreal and Antwerp, Belgium, this summer, although it is not expected that the traffic will be of any considerable dimensions for some little time. The service will be fortnightly, should the traffic warrant it. W. D. Grossett, agent at Antwerp, before the war, has resumed his duties there.

The first trans-Atlantic steamship of the St. Lawrence navigation season, the s.s. Queen Elizabeth, arrived at Quebec, April 19, light, and loaded grain at the Harbor Commissioners' elevator, afterwards proceeding to Montreal for general cargo. The first vessel of the 1918 season arrived May 6. The first vessel to arrive by the St. Lawrence route was the British s.s. War Redcap, from New York to Montreal, for cargo.

A steamship service between Canada and South American ports is announced to commence about May 5, under the local management of McLean, Kennedy and Co., Montreal. The first vessel to be operated will be the s.s. Clan Keith of the Houston Line, Liverpool, Eng., and a monthly service will be given, to Buenos Aires and Montevideo, with Montreal and St. John, N.B. as the Canadian summer and winter ports respectively.

Maritime Provinces and Newfoundland.

It is stated that the establishment of a harbor commission for St. John, N.B., will be taken up by the Minister of Marine, now that he has returned to Ottawa, from Atlantic, where he has been recuperating after his serious illness.

The Eastern Steamship Corporation resumed sailings between Boston, Mass. and St. John, N.B., Apr. 14, calling at Lubec and Eastport. The s.s. Calvin Austin sailing from Boston on a bi-weekly schedule. This is the first sailing of this line since Nov. 27, 1917.

The Dominion Steel Corporation's s.s. Cape Breton was wrecked and five men were killed and three injured, by the explosion of the combustion chamber of the port boiler, off Cape Spear, while en route from St. John's, Nfld., to Louisburg, N.S., Apr. 5. The vessel was towed into St. John's by the Reid Newfoundland Co.'s s.s. Argyle.

The s.s. Northumberland started running on the Point du Chene-Summerside route, between the mainland and Prince

Edward Island, Apr. 23, while the car ferry s.s. Prince Edward Island, which runs between Cape Tormentine, N.B., and Port Borden, P.E.I., is undergoing a general overhaul. It is expected that the s.s. Prince Edward Island will return to her service about the end of May.

The Newfoundland Government received tenders Apr. 25, for the service steamships, steel or composite construction, suitable for ice conditions, for use in the postal or other service. These vessels must be about 1,000 tons, 200 ft. long, 31 ft. beam, 16 ft. draft when loaded, and with accommodation for 60 cabin and 90 steerage passengers, to class X 100 A 1 at Lloyd's, and with a speed of at least 12 knots. The service to be supplied in 19 fortnightly trips to the north, and 26 fortnightly trips to the south and west, commencing about May 1, each year, for 10 years.

The owners of the s.s. Premier sued the Crystal Stream Steamship Co., St. John, N.B., recently, for damages sustained by their vessel in a collision with that company's s.s. D. J. Purdy, in the St. John River, Oct. 5, 1918. The judgment delivered by Chief Justice, Sir Douglas Hazen, formerly Minister of Marine, held that both parties were to blame for the collision, but that the Crystal Stream Steamship Co. must pay to the owners of the Premier, one-half of the amount by which the damages to the Premier exceed those sustained by the D. J. Purdy. No claim was made for damages to the latter vessel.

Province of Quebec Marine.

The Quebec Ship Laborers' Society is stated to have made an agreement with the shipping companies at Quebec, for a new scale of wages for this season, providing for a 9-hour day at 57½c an hour, and time and a half for overtime. The original demands were for an 8-hour day and 60c an hour, with time and a half for overtime.

Ontario and the Great Lakes.

Canada Steamship Lines freight steamship service between Montreal, Toronto and Hamilton, was resumed Apr. 22, and the Quebec-Montreal service, Apr. 24.

The Imperial Oil Co.'s s.s. Iocoma opened navigation at Fort William, Apr. 14, the master, Capt. G. Cross, being presented with a silk hat by the Board of Trade. This date is stated to be the earliest on which a vessel from the east has entered the harbor.

A Hamilton press dispatch states that the first section of the harbor improvements to be undertaken by the Dominion Government there, this year, at an approximate cost of \$200,000, will include the first section of the bascule bridge over the Burlington Canal.

Navigation out of Midland, was opened Apr. 5, with the sailing of the Great Lakes Transportation Co.'s s.s. Glenorchy, for Toledo, Ohio, with Capt. F. Burke as master. This is stated to be the earliest date for the opening since 1887, when passengers were carried to a regatta at Penetanguishene, on Christmas Day.

It is reported that another attempt will be made to raise the s.s. Keystorm, which was sunk in the St. Lawrence below Alexandria, several years ago. Several previous attempts have been unsuccessful. The work is being undertaken

by Capt. W. Leslie, Kingston. The Keystorm was owned formerly by the Keystone Transportation Co., Montreal.

The Northern Navigation Co. has announced that it will commence its service, May 1, with the sailing of the s.s. Huronic from Sarnia, the s.s. Hamonic following a few days later. These two vessels will handle the traffic until July 1, when the s.s. Noronic will be placed in

The United States Lake Survey reports the levels of the Great Lakes in feet above mean sea level, for March, as follows: Superior 601.89; Michigan and Huron 580.74; St. Clair 575.39; Erie 572.47; Ontario 246.01. Compared with the average March levels for the past ten years, Superior was 0.31 ft. above; Michigan and Huron 0.81 ft. above; Erie 0.79 ft. above, and Ontario 0.37 ft. above.

Manitoba, Saskatchewan and Alberta.

Capt. Lane, an Arctic explorer, is reported to be in charge of the building of several boats on the Clearwater River at McMurray, Alta., for operation in the neighborhood, in the interests of J. H. Bryan, and also to be building a steamboat for Arctic operation on the Mackenzie River. He has taken in a 20-ton steam boiler for installation in the latter vessel. It is stated that he will build two, or more, auxiliary schooners, equipped with gas engines.

British Columbia and Pacific Coast.

The whaling season in the Pacific opened during the first week of April, with the departure of the Consolidated Whaling Corporation's fleet for the hunting grounds, from Victoria and other points.

The Dominion Public Works tender Gunhild, is being offered for sale by public tender to May 1. She was built at Quartermaster Harbor, U.S., in 1906, and was purchased, prior to the war, for use of quarantine officials at William Head station, off Victoria. Her dimensions are, length, 61 ft.; breadth, 12.7 ft.; depth, 5.1 ft.; tonnage, 27 gross, 18 net. She is driven by a triple expansion engine with cylinders 6, 9 and 15 ins. diam., by 18 ins; stroke, supplied with steam by a Robert tube boiler, at 185 lbs.

The Grand Trunk Pacific Coast Steamship Co. puts its summer schedule in effect between Vancouver, Charlotte Islands, Prince Rupert and Stewart, Apr. 18, the steamships Prince Albert and Prince John, making the trip weekly, leaving Vancouver on Fridays and Prince Rupert on Wednesdays. The steamships Prince Rupert and Prince George commenced their summer service, Apr. 23, between Victoria, Vancouver, Seattle, Anyox, etc., leaving Vancouver on Saturdays and Tuesdays and Prince Rupert, Wednesdays and Saturdays, respectively.

The C.P.R. s.s. Princess May, of the British Columbia Coast Service, is reported to have been sold to shipping interests at Ecuador, for the South American coasting trade. She was built by Hawthorn, Leslie & Co., Newcastle-upon-Tyne, Eng., in 1888, and has borne the names of Ningchow and Hating, and for a time plied in the Chinese coasting trade. She was remodelled for the Alaska service and renamed Princess May. She was in this service for several years, but has been replaced by more up-to-date vessels. She ran on the Sentinel

Reef, in the Lynn Canal, a few years ago, and has since been utilized more as a utility vessel. Her dimensions are, length, 249 ft.; breadth, 33.2 ft.; depth, 17.7 ft.; tonnage, 1,717 gross, 892 net, and she is screw driven by engine of 450 n.h.p.

Mail Subsidies and Steamship Subventions for 1919-1920.

The estimates for the year ending Mar. 31, 1920, submitted to the House of Commons recently, contain the following items among others:—

ATLANTIC OCEAN STEAMSHIP SERVICES.

Between Canadian Atlantic ports and Australia and New Zealand.....	\$ 140,000.00
Between Canada and Great Britain.....	1,000,000.00
Between Canada and Newfoundland....	70,000.00
Between Canada and the West Indies or South America or both.....	340,666.66
Between Canada and South Africa.....	146,000.00
Between Halifax, St. John's, Nfld. and Liverpool	20,000.00

PACIFIC OCEAN.

Between Canada and Australia or New Zealand or both.....	180,509.00
Between Canada, China and Japan.....	253,333.34
Between Prince Rupert, B.C., and Queen Charlotte Islands.....	21,000.00
Between Victoria and San Francisco....	3,000.00
Between Victoria, Vancouver, way ports and Skagway.....	12,500.00
Between Victoria and west coast Vancouver Island.....	5,000.00
Between Vancouver and northern ports of British Columbia.....	16,800.00

LOCAL STEAMSHIP SERVICES.

Between Baddeck and Iona, N.S.....	5,825.00
Between Charlottetown, Victoria and Holiday's Wharf, P.E.I.....	2,500.00
Between Froude's Point and Lockeport, N.S.....	600.00
Between Grand Manan, N.B., and the mainland	10,000.00
Between Halifax, Canso and Guysboro	5,000.00
Between Halifax, N.S., and Newfoundland via Cape Breton ports....	10,000.00
Between Halifax, Mahone Bay, Tancook Island and La Have River ports, N.S.....	4,000.00
Between Halifax and Spry Bay and ports in Cape Breton, N.S.....	4,000.00
Between Halifax, N.S., South Cape Breton and Bras d'Or Lake ports N.S.....	6,000.00
Halifax and west coast Cape Breton, calling at way ports.....	4,000.00
Between Halifax and Sherbrooke, N.S.....	2,000.00
Between Mulgrave and Canso, N.S.....	6,500.00
Between Mulgrave and Guysboro, N.S., calling at intermediate ports.....	5,500.00
Between Newcastle, Neguac and Escuminac, calling at intermediate points on Miramichi River and Miramichi Bay, N.S.....	2,500.00
Between Pelee Island, Ont., and the mainland	8,000.00
Between Petit de Grat and the Intercolonial Railway terminus at Mulgrave, N.S.....	7,000.00
On Petitcodiac River between Moncton, N.B., and way ports, and a port or ports on west coast of Cumberland County.....	2,500.00
Between Pictou and Montague, calling at Murray Harbor and Georgetown, P.E.I.	5,000.00
Schooner service between Pictou, New Glasgow, Antigonish County ports and Mulgrave, N.S.....	1,000.00
From opening to closing of navigation in 1919, between Pictou, Mulgrave and Cheticamp, N.S.....	7,500.00
From opening to closing of navigation in 1919, between Port Mulgrave, St. Peter's, Irish Cove and Marble Mountain and other ports on the Bras d'Or Lakes, N.S.....	6,500.00
Between Quebec and ports on the north and/or south shores of the Gulf of St. Lawrence, and/or between ports in Prince Edward Island, Nova Scotia, Newfoundland and the Magdalen Islands.....	70,000.00
Between St. Catherine's Bay and Tadoussac, Que.....	886.67
Between St. John, N.B., and ports in Cumberland Basin, N.S.....	3,000.00
Between St. John, N.B., and St. Andrew's, N.B., calling at intermediate points	4,000.00
Between St. John, N.B., and Bridgetown, N.S.....	2,500.00
Between St. John, N.B., and Digby,	

N.S.....	20,000.00
Between St. John, N.B., Digby, Annapolis and Granville, N.S., viz., along the west coast of Annapolis Basin....	2,000.00
Between St. John, N.B., and ports on Bay of Fundy and Minas Basin, and Margaretville, N.S.....	8,000.00
Between St. John, N.B., Westport and Yarmouth and other ports.....	10,000.00
During 1919 between St. Stephen, N.B., Ste. Croix River points, Deer Island, Campobello and inner islands, Passamaquoddy Bay and L'Etete or Back Bay.....	6,000.00
During season of 1919, between Sydney, N.S., and Bay St. Lawrence, calling at way ports.....	6,000.00
During season 1919, between Sydney, and Whyoccomagh, N.S.....	3,000.00
From Sydney to Bras d'Or Lake ports, and ports on the east and west coasts of Cape Breton, N.S.....	14,000.00
Expenses in connection with supervision of subsidized steamship services	3,000.00
	\$2,467,120.67

AUTHORIZED BY STATUTE.

Canada, China and Japan.....	121,666.66
	\$121,666.66

Coast, Lake and River Steamship Officers for 1919.

The following appointments, made by navigation companies, engaged in Canadian and Newfoundland navigation for their various steamships and tugs, have been reported to Canadian Railway and Marine World, in addition to those given in the last issue. The first column gives the names of the vessels; the second, those of the captains; and the third, those of the chief engineers.

American Interlake Line.

Sir Trevor Dawson	H. Hinslea	W. W. Norcross
Stadacona	G. H. Page	W. L. Shay
Wyoming	T. B. Greenway	G. Schroder

Bowring Bros., St. John's, Nfld.

Portia	S. Parsons	A. Smith
Prospero	A. Kean	J. McKinlay

British Yukon Navigation Co., White Horse, Yukon.

Casca	J. O. Williams	J. P. Bourme
Dawson	W. Turnbull	P. Larssen
Nasutlin	H. Bailey	R. E. Haws
Selkirk	G. H. McMaster	W. C. Vey
Tarahne	C. Coughlan	F. Vey
Tutchi	J. McDonald	J. Lauderdale

Buffalo and Erie Beach Transportation Co., Buffalo, N.Y.

O. Bedell	J. Fontaine	C. Beach
	Buffalo and Fort Erie Steamship Co., Buffalo, N.Y.	

Orleans

R. Ward	T. Rolfe	
The Canadian Fishing Co., Vancouver, B.C.		
Celestial Empire	D. Barry	T. Yielding
Flamingo	S. Salvesen	J. Paige
Imbricaria	D. Hansen	R. Averhill
Kingsway	L. Anderson	C. Ferstron
New England	M. Scott	H. Ferchen

Canadian Pacific Ry., British Columbia Lake and River Service, Nelson, B.C.

Bonnington	A. Forslund	S. Peterson
Hosmer	M. McKinnon	P. H. Pearce
Kokanee	W. J. Fraser	J. Donaldson
Kuskanook	W. H. Wright	D. McLeod
Naramata	J. B. Weeks	J. P. Sutherland
Nasookin	W. Seaman	J. G. Camerson
Sandon	M. P. Reid	R. L. Reynolds
Sicomous	G. Robertson	D. H. Biggam
Slocan	W. Kirby	N. Hawthorn
Valhalla	J. Ferguson	T. C. F'Anson

Canada Steamship Lines Ltd., Montreal.

Belleville	J. J. Jarrell	G. Sanve
Bickerdike	T. H. Johnston	J. Aston
Cadillac	W. Beatty	H. Myler
City of Hamilton	O. Patenaude	W. Dugan
City of Ottawa	J. L. Baxter	John Kennedy
Collingwood	P. McKay	J. W. McLeod
E. B. Osler	J. H. Hudson	Jas. McGregor
Emperor	D. W. Burke	G. W. Smith
Fairfax	M. Hefferman	F. Patterson
Haddington	R. J. Wilson	C. Leriche
Home Rule	R. D. Simpson	
Ionic	O. Wing	A. E. Crosthwaite
J. H. G. Hagarty	C. E. Robinson	C. Robertson
J. R. Binning	R. Hand	
Kingston	A. E. Stinson	
Longueuil	M. Manderville	
Martian	R. McIntyre	R. R. Foote
Midland King	H. J. Aitken	A. E. Kennedy
Midland Prince	A. B. McIntyre	J. A. Pickard
Sarnian	R. Pyette	I. J. Boynton

Seguin	W. Brian	J. B. McLaren
Toiler	W. H. Montgomery	E. Scott
T. P. Phelan	H. A. Leaney	T. H. Hazlett
Toronto	N. McLennon	
W. D. Matthews	A. F. McLennan	W. Reid
W. Grant Morden	G. W. Pearson	R. Chalmers

Davidson and Smith Elevator Co., Port Arthur, Ont.

Schlesinger	O. Dyrness	H. Stokke
Tioga	J. C. Heaney	L. Linton

Grand Manan Steamship Co., Grand Manan, N.B.

Grand Manan	W. W. Hersey	John Cowie
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Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C.

Prince Albert	H. Nedden	R. Knox
Prince George	D. Donald	R. Bell
Prince John	W. S. Morehouse	D. H. Cochrane
Prince Rupert	D. MacKenzie	A. S. Monro

Landto Transportation Co., Buffalo, N.Y.

Lanbo	D. P. McCarthy	H. W. Fletcher
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Levis Ferry Ltd., Levis, Que.

Colomb	G. Chamberland	P. Plante
Lauzon	N. Thivierge	A. Laflamme
Levis	A. Fargues	N. Lamothe
Plessis	A. Chabot	F. Costin
	O. Fortin	S. Beaudet

Miramichi Steam Navigation Co., Chatham, N.B.

Alexandra	Jas. Newlan	N. Smith
Sybella H.	E. Steele	A. McIntyre

Niagara Ferry and Transportation Co., Buffalo, N.Y.

Franklin	M. Lutz	C. Beach
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Peace River Development Corporation, Peace River, Alta.

D. A. Thomas	J. A. Herrling	H. J. Hutchinson
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Quadra Steamship Co., Britannia Beach, B.C.

Quadra	M. F. Cutler	R. C. W. Macquarrie
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Quebec Salvage and Wrecking Co., Montreal.

Lord Strathcona	O. Scherrer	A. R. Casey
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River Lievre Navigation Co., Buckingham, Que.

George Bothwell	G. N. Bothwell	G. Bothwell
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Marine Department Estimates for 1919-1920.

The estimates for the year ending Mar. 31, 1920, submitted to the House of Commons recently, contain the following items chargeable to capital:—

Government shipbuilding programme, construction of steamships.....\$30,000,000.00

The following items are chargeable to income:—

OCEAN AND RIVER SERVICES.

Maintenance and repairs to Dominion steamships and ice breakers.....	1,500,000.00
Examiners of masters and mates.....	18,000.00
Investigations into wrecks.....	12,300.00
Expenses of schools of navigation.....	8,000.00
Registration of shipping.....	6,000.00
Removal of obstructions in navigable waters	5,000.00
Inspection of live stock shipments....	3,000.00
Subsidies for wrecking plants—Quebec, Maritime Provinces and British Columbia	35,000.00
Unforeseen expenses	35,000.00
Two boilers for C.G.S. Montcalm.....	70,000.00
One steamship, buoy and lighthouse service in Maritime Provinces.....	150,000.00

Agencies, rents and contingencies.....	\$1,812,300.00
Salaries and allowances to lightkeepers	\$ 192,000.00
Maintenance and repairs to lighthouses	750,000.00
Construction of lighthouses and aids to navigation, including apparatus, submarine signals, and providing suitable boats for carrying on construction work.....	400,000.00
Signal service.....	60,000.00
Administration of pilotage.....	200,000.00
Maintenance and repairs to wharves....	12,000.00
Breaking ice in Thunder Bay and Lake Superior and other points deemed advisable for the good of navigation	40,000.00
Pensions to retired pilots.....	9,900.00
Telephones at different points throughout the Dominion in connection with aids to navigation.....	500.00
Allowance to harbor master at Amherstburg, for supervision of lights and buoys in St. Clair river, Detroit river, Lake Erie, and other services during season of navigation....	400.00
Compassionate allowance to widows of lighthouse keepers.....	1,000.00
	\$2,205,800.00

MISCELLANEOUS.

Marine hospitals, including grants to institution assisting sailors.....	75,000.00
Shipwrecked and distressed seamen....	3,000.00
Steamboat inspection.....	87,827.77

Wooden Steamship Building in Canada for French Government.

Canadian Railway and Marine World has published in previous issues considerable information as to the twenty 3,000 ton and fifty 1,500 ton wooden steamships which have been ordered in Canada for the French Government. We are now able to give some additional particulars, together with plans:—

The 3,000 Ton Wooden Steamships.

Following are the general dimensions, etc., of the twenty 3,000 ton d.w. wooden steamships:—

Length over all.....	293 ft.
Length between perpendiculars.....	276 ft.
Beam extreme, about.....	47½ ft.
Beam moulded, about.....	46½ ft.
Depth moulded.....	23½ ft.
Draft over keel, about.....	21¾ ft.
Deadweight carrying capacity.....	3,000 tons
Tons displacement.....	5,655.5
Block co-efficient used.....	718

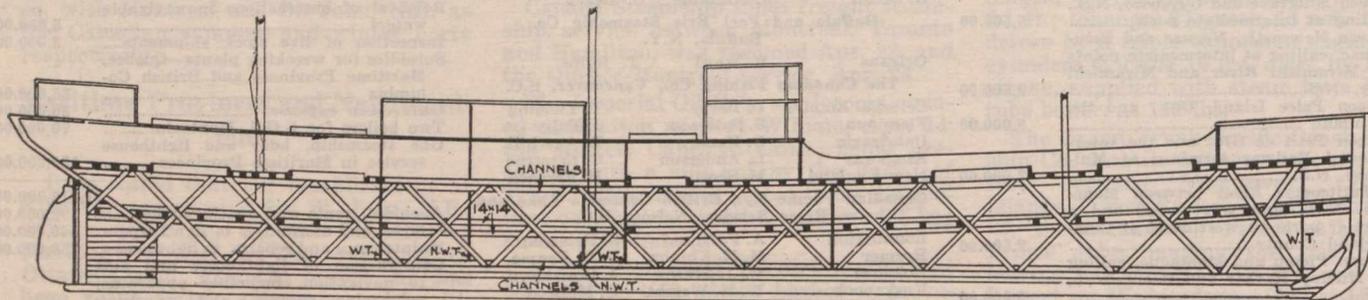
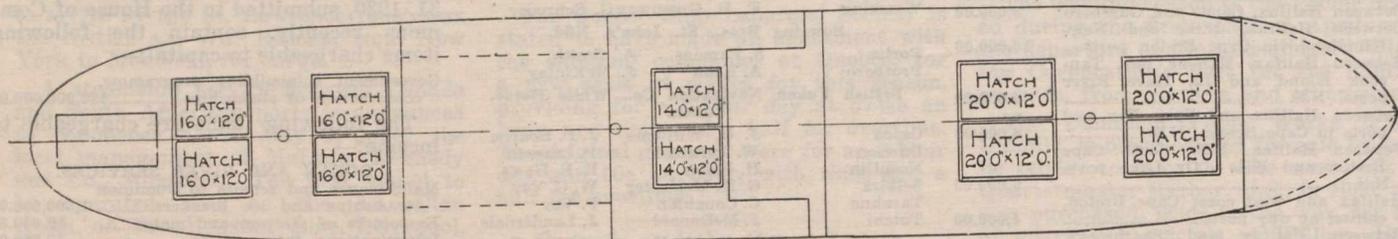
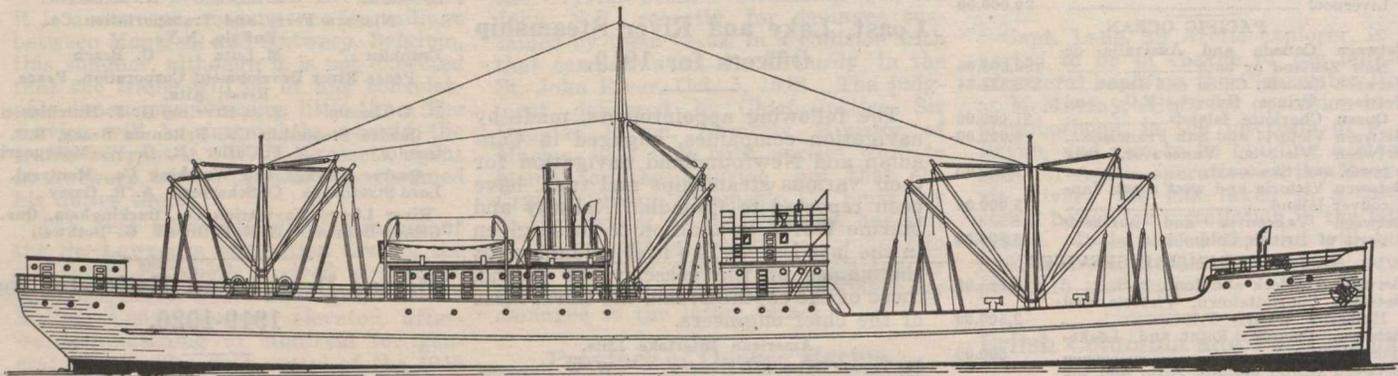
tions for gun crew of men to be arranged in the wheel house aft. Eight cargo winches, one of which is to be a warping winch, are to be installed. The windlass on forecastle head suited to handle anchors and full scope of chain, and also arranged for warping as usual practice.

Feed water tanks of full capacity to be located aft of engine room, top of tanks to be on level with all of deck forming shaft tunnels. Culinary water will be distributed from 2 separate steel tanks. The vessel is to be driven by twin screws, with engines located abaft midships.

The vessel is to be built to the requirements of the Bureau Veritas for highest classification, as far as necessary for a cargo steamer. All lumber used in the construction of the vessel to be of Oregon or Washington pine and fir, unless

The work to be to the satisfaction of the owner, his representative, or Bureau Veritas inspectors and surveyors. The contractors are to furnish all necessary lines, offsets, construction drawings and all detail plans for the successful construction and completion of the vessel.

When completed and ready for trial, the owner will fill the bunkers with coal and water tanks with fresh water. Then a series of progressive trials will be run on a measured mile course, at which a speed of 11 knots is to be obtained. The vessels are to be delivered by the contractors at the yard at Victoria, B.C., or if the owner decides on delivery elsewhere, the contractors are to be compensated for any such delivery as per arrangement agreed upon. The contractors are to keep the vessel, including all out-



3,000-ton Wooden Steamship for French Government.

The third, or bottom, plan above, shows the deep truss of steel channels, running the length of the ship, on her center line. It is claimed that this will so strengthen the hold, that the ship will prove much more seaworthy than some other types.

The vessel to be of single deck cargo type, built principally of Oregon and Washington pine, with hold beams, wood deck houses and rails. The vessel to have a cruiser or elliptical stern, with long poop deck aft and raised forecastle forward. The vessel to have 5 hatches, 4 watertight bulkheads, 1 bunker bulkhead, which is to be non-watertight, and 1 screen bulkhead. One watertight door between engine and shaft tunnel to be furnished. Accommodations for officers will be in deck houses erected in the poop deck. Accommodations for the crews will be located in the forecastle. A bridge and bridge house will be erected at the forward end of the poop. Accommoda-

otherwise specified. All materials to be to the satisfaction of the Bureau Veritas for highest classification. As long lengths as practically can be obtained, without delay for the completion of the vessel, are to be used in the keel keelsons, planking and ceilings, to be clear of shakes, loose knots and other defects and faults, and as far as possible free from sap. All decking to be edge grain, fastenings to be treenails, screw and drift bolts of galvanized and black iron as per best practice.

The contractors are to supply the owner with vessel constructed in a workmanlike manner, satisfactory for ocean service except for water, fuel and stores.

fit and material entering into the construction of the vessel, fully insured, both ashore and afloat, until delivered to the owner.

All scantling to be shown in midship section and as approved by Bureau Veritas. Should any difficulty be found in obtaining the size of scantling as shown on drawings, and as specified in detail specifications to be submitted when signing contract, it is understood that the contractors are to use a different sized scantling, as long as the same is approved by Bureau Veritas for highest classification.

On top of wood keelsons, rider keelson is to be installed, to be of lattice girder

construction of approved design, to the satisfaction of Bureau Veritas. All necessary davits, life boats, anchors and cable, steering engine, ladders, storerooms, and wireless apparatus are to be furnished and installed. Heating, plumbing to be furnished and installed to the approval of Bureau Veritas.

Electric lighting plant is to be installed, consisting of two 7½ k.w. engine or turbine driven generator sets, complete, all wiring to be furnished and installed; one switchboard with double pole switches, ammeter, voltmeter and short circuit indicator. Entire installation to conform

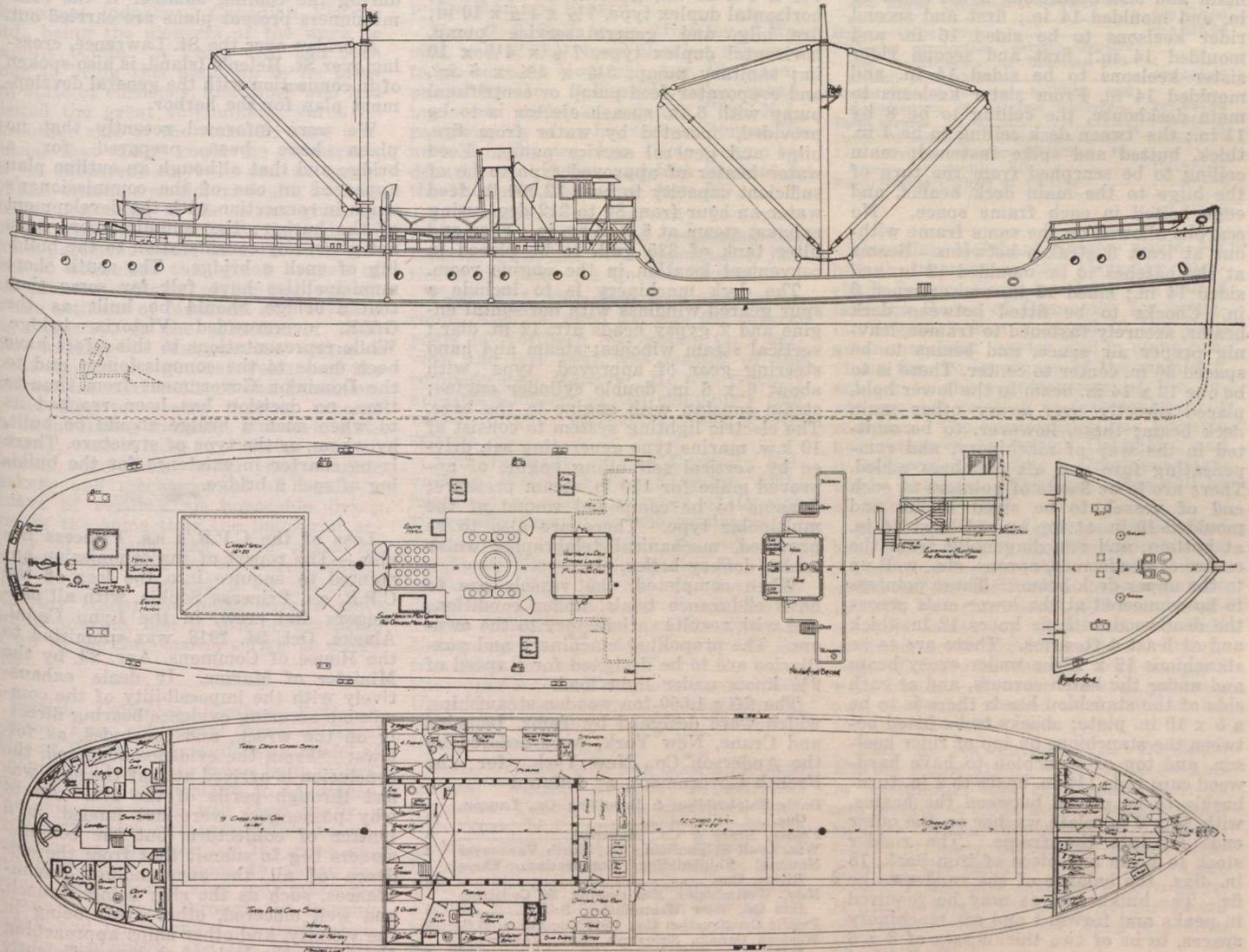
to conform to and meet with requirements of Bureau Veritas for highest classification. The machinery will consist of two 550 h.p. vertical, inverted, direct-acting, three-crank, triple expansion marine engines, each to develop not less than 550 i.h.p. when working under full boiler pressure. The boilers will consist of 2 coal-burning Scotch boilers, with a heating surface of about 3,500 sq. ft., built for a steam working pressure of 225 lb. a sq. in. There will be one each main surface condenser, auxiliary condenser with combined air and circulating pump, steam driven centrifugal circulat-

from the Cameron-Genoa Mills Shipbuilders, Ltd. These two yards have 8 ways. The contract calls for the delivery of the 20 completed steamships before Jan. 1, 1920. The vessels have been designed by Cox & Stevens, New York, N.Y.

The 1,500 Ton Wooden Steamships.

The 4 vessels, which are described as first class full powered barges, will have the following general dimensions:—

Length over all.....	204 ft. 6 in.
Length between perpendiculars.....	195 ft. 8 in.
Beam, moulded.....	39 ft. 8 in.
Beam, extreme.....	40 ft. 6 in.
Depth, moulded.....	17 ft.



1,500 ton Wooden Steamship for French Government.
Plan 1, Out board profile. Plan 2, Forecabin, navigating bridge and poop deck. Plan 3, Main deck.

to the requirements of Bureau Veritas. Complete pumping arrangements to be fitted. Hand pump scuppers, fire service, etc., to be installed to the satisfaction of Bureau Veritas.

Outside planking below load waterline to be painted with 2 coats of copper paint. All above to have 3 coats of lead and finished with color as selected by owner. All interior work to have 3 coats of lead paint. Interior accommodations to be finished with color as selected by owner. All deck work, fittings, etc., to be finished in color as selected by owner. Inside of decks, clamps, etc., to be oiled and all projecting ends of fastenings and visible iron work, including iron work on rider keelson, to be painted with red oxide paint.

The propelling machinery is to be built

ing pump, independent air pump, main feed pump, auxiliary feed pump, fire and bilge pump, sanitary pump, general service pump, bilge pump, fresh water pump, injector, feed water heater, evaporator feed pump, oil filter, induced draft fan, electric generating set and switchboard, ice machine, and evaporators, distiller, waste and soda tanks, engineer's storeroom, workshop, together with such other machinery and outfit as is necessary for the proper operation of the ship.

The Foundation Co. of British Columbia, Ltd., has the contract for these vessels and is building them at Victoria, where it has two yards, the one at which it built five 2,800 ton wooden steamship hulls ordered by the Imperial Munitions Board for the British Government, the other yard adjoining, which it has leased

Depth of hold.....	15 ft.
Draft, loaded.....	16 ft.
Block coefficient.....	.73

They are to be built of Douglas fir, all timber in keel, keelsons, stem, apron, stern post, frames, deadwoods, ceiling, deck beams, stanchions, pointers, breast hooks, etc., to be no. 1 merchantable; planking, bulwarks, rails and rail stringers, waterways, coamings and all timber above deck, to be no. 1 select, and the deck is to be clear vertical grain, no. 2 grade. The ceiling from floor to clamps to average 40 ft. lengths, also the clamps, planking above the bilge to deck, and waterways, while the rail is to be in lengths of not less than 40 ft., and the planking and bottom on bilges to average 35 ft. Keel, sided 18 in., moulded 12 in. net; shoe, sided 12 in., moulded 3 in. net;

frames, half sided 8 in., moulded 20 in. at keel, 14 in. at bilge, 8 in. at head, spaced 27 in. centers. From the break of the bridge deck aft, and the fore-castle deck forward, the frames to run up to rail double, and between these points the frames to be single from deck to rail. Stem, sided 18 in., moulded about 24 in., and connected to keel with a natural crook fir knee, or in other approved manner. Apron, sided 18 in., moulded 18 in.; deadwood, sided 18 in.; stern post, sided 18 in. at keel, moulded 24 in., and connected to keel with fir knee. Rudder trunk to be bolted securely to stern post. The main and sister keelsons to be sided 16 in. and moulded 14 in.; first and second rider keelsons to be sided 16 in. and moulded 14 in.; first and second rider sister keelsons to be sided 14 in. and moulded 14 in. From sister keelsons to main deckhouse, the ceiling to be 8 by 11 in.; the 'tween deck ceiling to be 4 in. thick, butted and spike fastened; main ceiling to be scarphed from the turn of the bilge to the main deck beams, and edge bolted in each frame space. No scarphs allowed on the same frame without at least 3 strakes between. Beams at the hatches to be moulded 12 in. and sided 14 in.; sided 12 in. and crowned 6 in. Chocks to be fitted between deck beams, securely fastened to frames, leaving proper air space, and beams to be spaced 36 in. center to center. There is to be one 12 x 14 in. beam in the lower hold, placed directly over every other main deck beam; these, however, to be omitted in the way of machinery, and compensating fore and aft members added. There are to be 3 sets of pointers at each end of vessel, to be sided 12 in. and moulded 10 in. at top and at least 14 in. at bottom, and run diagonally from the center of deadwoods, aprons, etc., well up to the upper deck beams. These pointers to be connected at the lower ends across the deadwood with fir knees 12 in. thick and at least 4 ft. arms. There are to be stanchions 12 x 12 in. under every beam and under the hatch corners, and at each side of the stanchion heads there is to be a 5 x 10 in. plate; chocks to be fitted between the stanchions on top of rider keelson, and top of stanchion to have hardwood cap; rods 1½ in. upset to 2 in. turnbuckle to be placed between the beams, with ¾ x 6 in. plate washer on the outer ends let into the frame. The rudder stock to be in one piece of iron bark, 18 in. diam., the balance of the rudder to be fir. The bulkheads, as may be required in peaks and forward and aft machinery spaces, to be of two thicknesses of 3 x 6 in. tongued and grooved stock, finished down to about 2¼ x 5¼ in. face laid diagonally in opposite directions, and canvas laid in white lead paint to be laid between the two thicknesses. Beams so arranged that one m.d. and one t.d. beams are secured to face of bulkhead.

The 2 masts and 6 cargo booms are to be of Oregon pine, of suitable diameter and strength for handling cargo equal to about a 3 ton lift. The general accommodation and quarters, include wheel house and chart room, berths, mess rooms, pantry, galley, store rooms and ice house, lavatories, etc. Each vessel is to be equipped with two lifeboats 20 x 6 x 2½ ft., with swinging davits. All anchors to be of the stockless type.

The propelling machinery to consist of 2 vertical inverted direct acting compound surface condensing engines, with cylinders 12 x 24 in. diam., by about 16 in. stroke, turning outboard when going ahead, capable of developing 275 i.h.p.

with no live steam in the receivers, at not more than 175 r.p.m. Steam is to be supplied by either one return tube, 3 furnace, single ended Scotch boiler, with a total heating surface of 1,800 sq. ft., or one water tube boiler with heating surface of not less than 2,000 sq. ft. The propellers are to be solid, 3 bladed cast iron. There is to be one main condenser independent of the main engine, one main circulating pump of centrifugal pump with 6 in. suction and discharge; main air pump, vertical single acting beam type, 7½ x 14 x 10 in.; 2 main and auxiliary feed pumps of vertical simplex type, 7½ x 4 x 10 in.; general service pump, horizontal duplex type, 7½ x 4½ x 10 in.; fire, bilge and general service pump, horizontal duplex type, 7½ x 4½ x 10 in.; sanitary pump, 5¼ x 4¾ x 5 in., and evaporator feed pump or centrifugal pump with 6 in. sucash ejector is to be provided, operated by water from fire, bilge and general service pump. Feed water heater of approved type to be of sufficient capacity to heat 12,000 lb. feed water an hour from 80 to 212 deg., using exhaust steam at 5 lb. a sq. in. Feed and filter tank of 325 gall. to be placed in convenient location in the engine room.

The deck machinery is to include a spur geared windlass with horizontal engine and 2 gypsy heads aft, 12 in. diam.; vertical steam winches; steam and hand steering gear of approved type with about 6 x 6 in. double cylinder engine; steam capstan with engine in the base. The electric lighting system to consist of 10 k.w. marine type generating set, driven by vertical self oiling engine of approved make for 150 lb. steam pressure; dynamo to be compound wound of the multipolar type. There are also to be provided, mechanical telegraphs, water tanks, donkey boiler, etc.

When completed, the vessels are to have endurance trials, under conditions and with results satisfactory to the owners. The propelling machinery and auxiliaries are to be designed for a speed of 9½ knots under light load.

The fifty 1,500-ton wooden steamships, which were designed by Tams, Lemoine and Crane, New York, were ordered by the Anderson Co., New York, for the French Government, as follows:—

Davie Shipbuilding & Repairing Co., Lauzon, Que.	12
Fraser, Brace & Co., Montreal.....	8
Wm. Lyall Shipbuilding Co., North Vancouver	8
National Shipbuilding Corporation, Three Rivers, Que.	10
New Westminster Engineering & Construction Co., New Westminster, B.C.....	5
Pacific Construction Co., Port Coquitlam, B.C.	2
Western Canada Shipyards, Ltd., Vancouver, B.C.	5

Landing Mails at Rimouski.—In answer to a question by Hon. R. Lemieux, in the House of Commons, recently, the President of the Privy Council stated that Halifax, N.S., had not been substituted for Rimouski, Que., as the port for the landing of the trans-Atlantic mails, and continued: "The situation is this. Owing to the interruption of trans-Atlantic traffic, due to the war, there is no regular line of ships now carrying Canadian mails. Hence the Post Office Department must make arrangements with whatever vessels are available, and as the majority of these vessels are carrying troops, and come under orders with respect to the landing of those troops, the mails are necessarily landed at the port where the disembarkation of troops takes place. There is no intention of changing the permanent policy which has been followed".

Montreal Harbor Development Plans.

Prior to the outbreak of war in 1914, the Montreal Harbor Commissioner had under consideration extensive plans for the improvement of the harbor works at an estimated cost of some \$15,000,000. The work covered the electrification of the harbor system of railways, and the elevation of the tracks from McGill St. to Victoria Park.

We are advised that a commencement on the electrification work will be made during the coming summer if the commissioners present plans are carried out.

A bridge over the St. Lawrence, crossing over St. Helen's Island, is also spoken of in connection with the general development plan for the harbor.

We were informed recently that no plans have been prepared for a bridge and that although an outline plan appeared on one of the commissioner's maps in connection with the development of the harbor; the commissioners have not given any consideration to the building of such a bridge. The south shore municipalities have felt for some time that a bridge should be built as the G.T.R. overcrowded Victoria bridge. While representations to this effect have been made to the commissioners and to the Dominion Government from time to time, no decision has been reached as to when such a bridge should be built, by whom, or the type of structure. There is no charter in existence for the building of such a bridge.

Loss of the C.P.R.'s s.s. Princess Sophia.—The report of the commission appointed to enquire into the loss of the C.P.R. s.s. Princess Sophia, with all passengers and crew, in the Lynn Canal, Alaska, Oct. 24, 1918, was submitted to the House of Commons, Apr. 23, by the Minister of Marine. It deals exhaustively with the impossibility of the commission securing evidence bearing directly on the wreck, and concludes, as follows: "From the evidence adducted, the conclusion is arrived at that the ship was lost through perils of the sea. As to why passengers were not landed, is a matter of conjecture, but the commissioners beg to submit that from the evidence of all the surrounding circumstances, such as the ship being staunch, and well officered, other craft being in the vicinity, and other ships approaching the shore, the lack of shelter sufficiently near, the time of year and weather conditions, they are prepared to find that it was not unreasonable for the master of the ship not to land his passengers."

Lake Sale of Trawlers and Drifters.—The Anderson Co. of Canada, 285 Beaver Hall Hill, Montreal, has entered into a contract with the British Government for the purchase of the entire lot of trawlers and drifters built in Canada for the Admiralty through the Naval Service Department, and is offering them for sale, preference being given to Canadian interests. A press dispatch states that the purchase covers 60 steel steam trawlers and 89 wooden drifters, now lying in Halifax harbor. Details of these vessels have been given in Canadian Railway and Marine World, from time to time. It is reported that six have been sold to the Phillipines Government, and that enquiries have been received from Great Britain, France and Holland.

The Minister of Marine on the Dominion Government's Ship-building.

Hon. C. C. Ballantyne, in speaking at the launching of the s.s. Canadian Ranger, by Canadian Vickers Ltd., in Montreal, April 19, said he had ever been a believer in shipbuilding in Canada, and especially in the harbor of Montreal, and he felt that his optimism had not been in vain. The vessels already launched and sent to sea would be followed by others, and he predicted a growing and permanent industry. Canadian Vickers Ltd., being the pioneers of the work so happily begun. A great deal had been done to bring this plant up to its present state of efficiency, and those who had visited the great shipbuilding yards on the other side of the Atlantic were convinced that ships could be constructed in Montreal as well and as quickly, and warships would, no doubt, be built there. Referring to the orders given by the government, he said that the policy of the department would be sufficiently liberal to stimulate this great branch of our national industry, giving employment to the artisans of Montreal and developing industry, as the presence of 3,500 men working in Maisonneuve means a great deal to the general welfare of the commercial metropolis of the Dominion. The Minister stated that at present the shipbuilding industry, although in its infancy, was giving to 25,000 men in Canada, including boiler and engine makers and mechanics of all kinds, a means of earning an honorable living and at the same time the industrial activity of Canada was being given an impetus that could not be overestimated. "If," he said, "Canada is to possess a carrying trade, she must have a mercantile marine, and it will be the pride of all to see the country's flag on every sea."

British Columbia Timber Raft.—A London, Eng., cablegram says:—Vickers' office at Westminster contains a model of a novel 9,000 ton ship being built in British Columbia of 5,000,000 ft. of timber. The ship and cargo will form really a huge raft, which will have ample accommodation on the deck for the crew and will have motor engines to assist the sails. This strange ship will make the voyage to England through the Panama Canal, and on reaching its destination, will be dismantled and the timber distributed.

Marine Department Salaries.—The Dominion Government estimates for the year ending Mar. 31, 1920, provide for \$241,650 for salaries in the Marine Department, against \$225,800 for the previous year. The Deputy Minister, Alex. Johnston, is increased from \$5,000 to \$6,000 a year; the Assistant Deputy Minister, C. Stanton, from \$4,000 to \$4,500; and the Naval Conductor, C. S. Duguid, from \$4,000 to \$4,500; the Chief Engineer's salary remaining at \$4,000.

The Mount Royal Steamship Co. Ltd., has been incorporated under the Dominion Companies Act, with authorized capital of \$100,000 (the official notice reads "one hundred dollars divided into 1,000 shares of one hundred dollars each), and office at Montreal, to build, own and operate steam and other vessels, and to carry on a general transportation business and shipping agency.

Mainly About Marine People.

Sir Montagu Allan, formerly of the Allan Steamship Lines, and Miss Martha Allan, who have been in England for a considerable portion of the war, are expected to return to Montreal at an early date. Lady Allan who has been in charge of Sidmouth Hospital for the past year, has postponed her return to Canada until the autumn.

J. Herbert Anderson, of the Anderson Co., New York, and the Anderson Co. of Canada, Montreal, ship builders, left New York, early in April, on a business trip to England and France.

Hon. C. C. Ballantyne, Minister of Marine, and of the Naval Service, returned to his house in Montreal, Apr. 12, accompanied by Mrs. Ballantyne, after spending some weeks at Atlantic City, N.J., recuperating after his serious illness. He arrived in Ottawa, Apr. 12, to resume his departmental duties, and took his seat in the House of Commons, Apr. 22.

J. T. Boissinot, Secretary-Treasurer, Davie Shipbuilding and Repairing Co., Lauzon, Que., has been appointed a justice of the peace for Quebec District.

Capt. A. L. Campbell, who died at Toronto, Apr. 18, aged 44, was for several years in Northern Navigation Co.'s service, and last year was master of the company's s.s. Hamonic. He was recently appointed master of the company's flag vessel Noronic, succeeding Capt. Foote, retired.

John Donnelly, of the Donnelly Salvage & Wrecking Co., Kingston, Ont., has been elected a member of Queens University Council, by the graduates.

Mrs. Foy, widow of Jno. Foy, who was president, Niagara Navigation Co., died at Toronto, Apr. 12. She was the eldest daughter of the late Sir Frank Smith, also a former president of the Niagara Navigation Co. Her two sons are in the transportation service, Frank C., being Passenger Agent, New York Central Rd., Utica, N.Y., and John V., being General Passenger Agent, Canada Steamship Lines, Toronto.

F. G. Frieser, who has been appointed General Agent, Freight Department, Canadian Pacific Ocean Services, Ltd., New York, N.Y., entered C.P.R. service in Maq, 1905, as Assistant Export and Import Agent, New York, and in July, 1906, was appointed Assstant Import Freight Agent, Chicago, Ill.; leaving the service in Oct., 1906, and re-entering it in Mar., 1911, as Assistant Foreign Freight Agent, New York, was appointed Export Freight Agent, Montreal, in Sept., 1911, and Export Freight Agent, New York, in Jan., 1916.

F. Orr Lewis, President, Canadian Vickers Ltd., has arrived in Montreal, after a considerable absence in England.

J. W. Norcross, President, Canada Steamship Lines, has removed to his new residence, 97 The Boulevard, Montreal. Mrs. Norcross and daughters returned recently from a visit to Atlantic City.

W. F. Wasley, Manager and Treasurer, Muskoka Lakes Navigation and Hotel Co., Gravenhurst, Ont., has been elected President of the International Water Lines Passenger Association.

R. M. Wolvin, vice president and managing director, Halifax Shipyards Ltd., and Mrs. Wolvin, returned to Montreal in April from Europe.

W. A. Wright, eldest son of A. A. Wright, Assistant Director of Shipbuild-

ing, Naval Service, Montreal, and a prominent member of the Dominion Marine Association, died at his father's house, in Toronto, Apr. 9, aged 21.

Naval Service Department Estimates for 1919-1920.

The estimates for the year ending Mar. 31, 1920, submitted to the House of Commons recently, contain the following items among others:—

Naval Service—maintenance and upkeep of ships, Naval College, dockyards at Halifax and Esquimalt, and Royal Canadian Volunteer Reserve	\$ 600,000.00
Hydrographic surveys.....	250,000.00
Fisheries protection service—repairs and maintenance of fisheries protection steamships.....	400,000.00
Radiotelegraph service—building and maintenance of wireless stations....	285,000.00
Tidal service.....	30,000.00
Patrol of northern waters.....	40,000.00
Life saving stations—including rewards for saving life.....	100,000.00
Royal Naval College of Canada.....	100,000.00
	\$1,805,000.00

Canadian Merchant Service Guild.—A bill to incorporate the Canadian Merchant Service Guild has been introduced into the House of Commons, for bringing together men engaged in the Canadian merchant service, and to make provision for the insurance of the members, subject to the requirements of the Insurance Act relating to fraternal benefit societies. The organization has hitherto been confined to British Columbia, and it is now desired that a Dominion charter be obtained. The head office will be at Vancouver, B.C.

The Upper Canada Tract Society has been given \$200 by the Dominion Marine Association in connection with the work at the Sailors' Institute in Toronto, where in 1918, by actual count, 839 men entered their names for work, and over half of these, according to the actual knowledge of those in charge, were supplied with berths. A much greater percentage, no doubt, secured work without informing the institution.

Aids to Navigation.—The Dominion Marine Association's committee on aids to navigation, met in Toronto Apr. 12 and decided to make several recommendations to the Lighthouse Board. The committee strongly favors the re-establishment of the light at Otter Head, Lake Superior, and also asks for a horn there. It also supports the Port Arthur Horn of Trade's proposal for light and horn at Angus Island.

West Coast Towing and Salvage Co. Ltd. has been incorporated under the Dominion Companies Act, with \$250,000 authorized capital and office at Vancouver, B.C., to carry on a general transportation, towing, wrecking and salvage business, and in connection therewith, to own and operate steam and other vessels, wharves, piers, etc.

The Ottawa Salvage Co. Ltd., the incorporation of which was announced in a recent issue, with office at Ottawa, is being organized to salvage logs from the Ottawa River, and for other salvage work. Capt. Milford, an engineer and former sea captain, recently of New York, is chiefly interested.

Pacat Steamships Ltd. has been incorporated under the Dominion Companies Act, with \$50,000 authorized capital and office at Toronto, to carry on a general navigation and steamship owning and building business.

Details of the Different Types of Steamship for Canadian Government Merchant Marine Ltd.

The following are comparative details of five of the six different types of steamship being built for the Canadian Government Merchant Marine Ltd. At the time of writing, the plans for the 10,500-ton vessels were not available:

	3,400 ton.	3,700 ton.	4,300 ton.	5,100 ton.	8,100 ton.
Length, overall.....	260 ft.	.....	333 ft. 7 ins.	.....	413 ft. 1 in.
Length, bet. perpendiculars.....	43½ ft.	251 ft.	320 ft.	331 ft.	400 ft.
Breadth, moulded.....	251 ft.	43½ ft.	44 ft.	46½ ft.	52 ft.
Depth, moulded.....	23 ft.	26 ft.	25 ft.	25½ ft.	31 ft.
Draft, loaded.....	20 ft. 1½ in.	22 ft. 2 in.	21 ft. 2 ins.	21 ft. 8 ins.	25 ft. 1 in.
Type.....	S.d., p.b. & f'c's'le	Lake, s.d., p.b. & f'c's'le	S.d., p.b. & f'c's'le	S.d., p.b. & f'c's'le	2d., p.b. & f'c's'le
Engines—Type.....	Triple expansion	Triple expansion	Triple expansion	Triple expansion	Triple expansion
Cylinders, diam.....	20 x 33 x 54 ins.	18 x 30 x 50 ins.	25 x 41 x 67 ins.	25 x 41 x 68 ins.	27 x 44 x 73 ins.
Stroke.....	40 ins.	36 ins.	45 ins.	45 ins.	48 ins.
Ind. h.p.....	1,300	.....	1,800	.....	3,000
Boilers—Type.....	Single ended	Single ended	Single ended	Single ended	Single ended.
No.....	2	2	2	3	3
Diam. and length.....	15 x 11 ft.	14 x 10¾ ft.	15½ x 11½ ft.	14 x 11½ ft.	15½ x 11½ ft.
Furnaces—No.....	6	.....	6	.....	9
Grate surface.....	135 sq. ft.	.....	132 sq. ft.	.....	198 sq. ft.
Heating surface.....	4,670 sq. ft.	.....	5,162 sq. ft.	.....	7,743 sq. ft.
Working pressure.....	190 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.
Speed.....	9 knots	9 knots	11 knots	11 knots	11 knots
Classification.....	Lloyd's	Brit. Corp.	Lloyd's	Lloyd's	Lloyd's



Wooden Steam Drifters at Lauzon, Que.

The vessels shown above are a portion of the 36 wooden steam drifters, built in Canada during the war, for the British Government, through the Canadian Naval Service Department. A full description, and plans of them, were given in Canadian Railway and Marine World for February.

Loss of the s.s. Troja.

Held at St. John, N.B., Mar. 25., before Commander H. St. G. Lindsay, assisted by Capt. Jas. Gillies and C. W. Hodder, as nautical assessors, into total loss of the s.s. Troja, on Old Proprietor, in the Bay of Fundy, Mar. 18. The court was unanimously of the opinion that the stranding and subsequent loss of the vessel was caused by the actions of the master, Capt. J. C. Caine, as he neglected to make use of his dead sea lead, which, had he done so when taking his departure from Seal Island, would have given him a better idea as to the distance, thereby enabling him to place more confidence in his course. A proper allowance was not made for the tidal set, owing, no doubt, to the fact that the tide

tables used by him, were shown to be incorrect. The court, taking into consideration the master's long and successful service, and the proper and seamanlike manner in which the vessel was handled when the broken water was reported, until the stranding, and not wishing to deal with his certificates, severely censured him and ordered that he pay the costs of the investigation.

Since the taking over of the cable companies by the U.S. Government, and the placing of them under the Postal Department, some friction has developed in regard to the corporate officials of some of the companies, and this culminated recently in the "dismissal" of C. H. Mackay, as President of the Postal Telegraph Cable Co., by the Postmaster General. Mr. Mackay is reported to have

stated that the action could not have been more arbitrary, despotic and vindictive. He also expressed the opinion that the action was intended to lead to a cable monopoly in the U.S., and was especially discriminatory against his companies.

The Marine Department will receive tenders to May 12, for the building on the Barret rock, near Prince Rupert, of a concrete tower, 38 ft. high, surmounted by an Aga light, supplied with compressed gas, capable of burning for about 6 months without attention. This is similar to the tower and light erected on the Ogden Point breakwater, at Victoria.

The Dominion Public Works Department will receive tenders to May 2, for repairs to the wharf at the quarantine station, Williams Head, B.C., about nine miles southwest of Victoria.

United States Ships Going Out by the St. Lawrence.

In Canadian Railway and Marine World for April, mention was made of a large number of ships built at U.S. yards on the Great Lakes, for ocean and coast service, and of their passage to the ocean via the St. Lawrence River. We have been officially advised that during 1918, 160 coal burning steamships, built at U.S. yards on the Great Lakes, passed through the St. Lawrence to the coast, the total deadweight tonnage being 560,000. For this year, 154 oil burning and 106 coal burning steamships, all steel, and 70 steel and wooden steam tugs, will be completed on the Great Lakes, and sent to the ocean by the same route. Following is a list of these, giving the builder, the ship's names and the deadweight tonnage.

American Shipbuilding Co., Chicago Yard, Lake Grafton, Lake Grainger, Lake Grama, Lake Grampian, Lake Grampus, Lake Granby, coal burning vessels, 4,200 tons d.w.; Lake Gazette, Lake Gebhart, Lake Gera, Lake Gert, Lake Getaway, Lake Geyster, Lake Giddings, oil burning vessels, 4,050 tons d.w.

Detroit Yard,—Lake Grattan, Lake Gravella, Lake Gravity, Lake Greenbrier, Lake Gretna, Lake Grogan, Lake Flovilla, Lake Flume, Lake Flushing, Lake Flynus, Lake Folcroft, Lake Sapor, Lake Fonda, Lake Fontana, Lake Fontanet, Lake Faresman, coal burning vessels, 4,200 tons d.w.; Lake Gilboa, Lake Gilpen, Lake Gilta, Lake Giltedge, Lake Girth, Lake Gitano, Lake Glasco, Lake Fablus, Lake Fabyan, Lake Fackler, Lake Fagundus, Lake Fairfax, Lake Fairlie, Lake Inglenook, Lake Fairport, Lake Fairton, Lake Faliah, Lake Falfa, Lake Falkner, Lake Treab, Lake Falun, Lake Tippah, Lake Fandango, Lake Fandon, oil burning vessels, 4,050 tons d.w.

Cleveland Yard,—Lake Faristelle, Lake Forkville, Lake Forney, Lake Forsby, Lake Fossil, coal burning vessels, 4,200 tons d.w.; Lake Fannin, Lake Farabee, Lake Farber, Lake Faribault, Lake Fariston, Lake Farley, oil burning vessels, 4,050 tons d.w.

Superior Yard,—Lake Fouche, Lake Foxboro, Lake Foxcroft, Lake Fraichur, Lake Fraley, Lake Farlin, coal burning vessels, 4,200 tons d.w.; Lake Farmingdale, Lake Farragut, Lake Farrar, Lake Stobi, Lake Falama, oil burning vessels, 4,050 tons d.w.

Lorain Yard,—Lake Franconia, Lake Fray, Lake Frazee, Lake Frecks, Lake Freeborn, Lake Freed, Lake Freeland, Lake Freezeout, Lake Frenchton, Lake Fresco, Lake Inaha, Lake Friar, Lake Frio, Lake Fronna, Lake Frolono, Lake Frugality, Lake Frumet, coal burning vessels, 4,200 tons d.w.; Lake Fanbush, Lake Faulk, Lake Fansdale, Lake Fanguier, Lake Favonia, Lake Faxon, Lake Felden, Lake Hachita, Lake Fellowship, Lake Felton, Lake Fenn, Lake Feodora, Lake Fergus, Lake Fernalda, oil burning vessels, 4,050 tons d.w.

Buffalo Yard,—Lake Cathoon, coal burning vessel, 3,550 tons d.w.; Lake Fugard, Lake Furley, Lake Furlough, coal burning vessels, 4,200 tons d.w.; Lake Fernando, Lake Ferrona, Lake Feßenden, oil burning vessels, 4,050 tons d.w.

Burger Boa Co., Manitowoc, Wisc.—Retriever and Terrier, steam tugs.

Dachel-Carter Boat Co., Benton Harbor, Mich.—Badger and Leopard, steam tugs.

Globe Shipbuilding Co., Superior, Wisc.—Conotton, Procter, Copalgrove, Lake Glebe, Lake Glencoe, coal burning vessels, 3,500 tons d.w.; Lake Fiscus, Lake Fisher, Lake Fitch, Lake Fithian, Lake Flag, Lake Glaucus, Lake Gunni, Lake Harminia, Lake Hector, Lake Justice, oil burning vessels, 4,050 tons d.w.

Great Lakes Engineering Works, Ecorse Yard.—Cottonplant, Cottonwood, Coulee, Council Bluffs, Couparle, Courtois, Coushatta, Couolene, Covalt, Cove-dale, Covena, Coverun, Cowan, coal burning vessels, 4,200 tons d.w.; Lake Elkwood, Lake Elkwater, Lake Ellendale, Lake Singara, Lake Eillerslie, Lake Elliott, Lake Ellijay, Lake Ellithorpe, Lake Ellsworth, Lake Ellsbury, Lake Elmdale, Lake Elmhurst, Lake Elmont, Lake Slavi, Lake Elmsford, Lake Elmwood, oil burning vessels, 4,050 tons d.w.

Ashtabula Yard.—Cowanshannock, Cowboy, Cowee, Cowishe, Crabtree, Craigrownie, Craigsmere, coal burning vessels, 4,200 tons d.w.; Lake Elnora, Lake Elon, Lake Elpueblo, Lake Elrio, Lake Elsay, Lake Elsmere, Lake Elva, Lake Elwin, oil burning vessels, 4,050 tons d.w.

Leatham and Smith Towing and Wrecking Co., Sturgeon Bay, Wisc.—Energy, Diligent, Active, Bison, Bullock, Ox, Bear, Burro, and four not yet named, steam tugs.

McDougall-Duluth Co., Duluth, Minn.—Cedar Spring, Ceralvo, Cerosco, Cerro Gardo, Chamberlino, Chamblee, Chaparel, Chantier, Chappell, Chautauqua, coal burning vessels, 3,500 tons d.w.; Lake Flagon, Lake Flagstaff, Lake Flambeau, Lake Flanders, Lake Flatonina, Lake Flattery, Lake Strymon, Lake Flaxman, Lake Flippen, Lake Floise, Lake Flomatch, Lake Floravista, Lake Florian, Lake Floris, Lake Flournoy, oil burning vessels, 4,050 tons d.w.

S. C. McLouth, Marine City, Mich.—Seafarer, Adventurer, Protector, Marine City, and four not yet named, steam tugs.

Manitowoc Shipbuilding Co., Manitowoc, Wisc.—Coperas, Coquina, Corapeak, Corcoran, Python, Cornucopia, coal burning vessels, 3,400 tons d.w.; Lake Gadsden, Lake Onawa, Lake Savus, Lake Gaiter, Lake Galata, Lake Galewood, Lake Galien, Lake Galisteo, Lake Ikatan, Lake Galva, Lake Idria, Lake Gama, Lake Haresti, Lake Horus, Lake Hyas, Lake Hybla, Lake Hygeia, Lake Hypanis, oil burning vessels, 4,050 tons d.w.

Northwest Engineering Works, Green Bay, Wisc.—Cockamong, Cockeco, Toiler, Vanguard, Sampson, Mastiff, Guardian, Vallonia, Moositauke, Toopi, Menominee, Outagamie, Pylos, Salem, Ashwaubemie, Suamico, Tomah, Green Bay, Fort Howard, Allouez, Ousaki, Seymour, Kaukouna, Kellogg, and nine not yet named, steam tugs.

Saginaw Shipbuilding Co., Saginaw, Mich.—Lake Lilicusun, Lake Licoco, Lake Saba, Lake Canaveral, Lake Candelaria, Lake Cannonsburg, Lake Fear, Lake Girardeau, coal burning vessels, 3,500 tons d.w.; Lake Gando, Lake Furnas, Lake Gannett, Lake Gano, Lake Gara, Lake Gardeau, Lake Gardi, Lake Garlock, Lake Eaglerock, Lake Kaleta, Lake Gasconade, Lake Hebron, oil burning vessels, 4,050 tons d.w.

Toledo Shipbuilding Co., Toledo, Ohio—Lake Strabo, Lake Charlottesville, coal burning vessels, 3,500 tons d.w.; Lake

Festina, Lake Festus, Lake Fibre, Lake Fielding, Lake Fife, Lake Figart, Lake Fighting, Lake Filbert, Lake Fillion, Lake Fillmore, Lake Filson, Lake Fin-castle, Lake Fine, Lake Finkton, Lake Finney, Lake Firth, oil burning vessels, 4,050 tons, d.w.

Universal Shipbuilding Co., Sturgeon Bay, Wisc.—Commander, Commodore, Lieutenant, steam tugs.

Whitney Bros. Co., Wisc.—Hukey, Hulver, Humaconna, Humrick, Keshena, Kio-kee, Kiron, Kitchi, Kolda, Kaleen, steam tugs.

Vancouver Harbor Improvements Suggested.

A. D. Swan, consulting engineer, Montreal, who was employed by the Dominion Public Works to report on Vancouver Harbor is said to have suggested the following improvements:—

A booming ground for timber in English Bay.

A timber export wharf.

A harbor terminal railway.

Provision for 6 new deep water berths or wharves at once.

Mechanical equipment at the new government wharf and other wharves when constructed.

Equipment for non-inflammable oil storage in some suitable site.

Provision of a fire tug, fitted with powerful crane, which tug shall be used as an auxiliary car ferry to serve immediate needs to North Vancouver.

Dockage facilities for passengers and other traffic in connection with the Canadian National Rys.

Removal of C.P.R. bridge across entrance of False Creek at Kitsilano reserve, and if necessary, construction of new bridge in a suitable location.

Suitable landing facilities at North Vancouver, for auxiliary car ferry, with railway connections.

Second Narrows bridge to be constructed as part of the complete scheme, if not immediately, at an early date.

Drydock to be built by government, if not arranged for by private interests, at early date.

Conference Between Shipbuilders and Employes.

Ottawa press dispatch states: A conference of shipbuilders from Port Arthur to Halifax with representatives of their employes, has been in progress for the past two days at the Labor Department. The object was to arrive at a working agreement which would be satisfactory to both parties. The shipbuilding trades represented are amalgamated into a single organization called the Marine Trades Federation. The question of a working agreement was thoroughly discussed, but it was found impossible to formulate the terms of an actual agreement during the conference. It was arranged, however, that a further conference would be held shortly, after the points brought up at this one had been considered.

Aliens at Shipbuilding Yards.—The order in council, passed as a war measure, Sept. 17, 1917, prohibiting the entrance into any shipbuilding yard, of persons not natural born British subjects, has been rescinded.

The C.G.S. Montcalm's Winter Trips Between Quebec and North Sydney.

Canadian Railway and Marine World for March contained a copy of the Canadian Government's Merchant Marine Ltd. s.s. Canadian Voyageur's log from her leaving Quebec, Jan. 20, to her arrival at Halifax, N.S., Feb. 4. She was convoyed from Quebec to Sydney, N.S., by the C.G.S. Montcalm, and we have been favored with the following extracts from the Montcalm's log, on both the down and up trips, which will doubtless prove of interest, on account of the fact that the trips were unprecedented on the St. Lawrence at the season at which they were made:—

Jan. 20.—Ship at Pt. a Carcy wharf, Quebec, ready to leave in company of s.s. Canadian Voyageur. Weather cloudy, light n.e. wind. 9.50 a.m., cast off proceeded down. 10.50 a.m. returned to Quebec, snowing, Canadian Voyageur in tow. 12.45 p.m. Moored at Pt. a Carcy wharf. Capt. A. Fournier on board to assist Capt. P. A. Lachance; boiler maker on board, in case of trouble with boilers. Ship took 29 tons of coal and remained at Pt. a Carcy.

Jan. 21.—Cloudy, calm. Cast off from Pt. a Carcy wharf at 9 a.m., and proceeded, Canadian Voyageur in company. 10.20 a.m., St. Laurent light abeam; 11.28 a.m. St. John light abeam; 1.20 p.m. Crane Island light abeam; 2.05 p.m. Stone Pillar abeam. Cloudy, light n.e. wind, 5.40 p.m. St. Irenee light abeam; stopped in the ice. 10 p.m. weather clearing, proceeded down; 10.45 p.m. Cape Salmon light abeam. 11.30 p.m. Cape Dog light abeam. Distance 98 miles.

Jan. 22.—Midnight, abeam White Island; course according to ice; 5.50 a.m., stopped waiting for daylight; ice thick; 6 a.m. light snow, full speed ahead; 8.30 a.m. Biquette abeam; 10 a.m., came along side Canadian Voyageur took pilots Koenig and Pouliot, and Mr. Smith, on board as passengers; proceeded down, course n. 15 e.; light snow; 2 p.m. about Manikiagan buoy position; course s. 85 e. Light snow; 6 p.m. stopped in solid ice, cloudy, light wind, distance 87 miles.

Jan. 23.—4 a.m. About four miles south of Minikiagan gas buoy; proceeded in heavy ice; 8 a.m. ship laboring in heavy ice, making no progress; north wind, clear weather; 9 a.m. light s.e. wind; ship making no headway; noon Pt. Des Monts, bore n. 80 e.; Cape St. Nicolas bore n. 53 e.; 2 p.m. south east wind, headed ship south, to keep clear of Manicona; sign of storm coming; 4 p.m., cloudy; ship in thick ice; about ten miles south of Manikiagan gas buoy for the night. 10 p.m. strong s.e. wind, snow storm, n.e. gale.

Jan. 24.—Midnight, ship south on Maniconagan; 85 fathoms water; in solid ice; snow storm, n.e. gale; ship drifting with wind; 9 a.m., cast lead 65 fathoms; 11 a.m., lost lead; noon 67 fathoms; 1.30 p.m. Weather same, 75 fathoms; 2.30 p.m. 80 fathoms, ship drifting with n.e. gale, at rate of nearly 2 miles an hour. 4 p.m. 70 fathoms; 5 p.m. 50 fathoms; 6 p.m. same weather; 7 p.m. 40 fathoms; 8 p.m. 25 fathoms; ship near North Shore, headed to south to try and keep clear; 10 p.m. 45 fathoms; wind north, light snow; ship remained stopped in ice for night.

Jan. 25.—Midnight, ship in solid ice, 80 fathoms; 6 a.m. weather clear; 100 fathoms; Pt. Neuf bore w.n.w., strong north

wind; proceeded to s.s. Canadian Voyageur; east end of Bic Island bore s. 12 e. Weather clear; ship drifted in yesterday's gale about 46 miles in solid ice; working ship hard in heavy ice, to go to assist Canadian Voyageur one mile away; noon, moored alongside Canadian Voyageur; took 86 tons of coal.

Jan. 26.—Ship two miles n.w. off Biquette Island; finished coaling; light north wind; proceeded course n. 87 e.; 6 a.m. Bersimis abeam; 8.30 a.m. 5 miles off Maniconagan; 9 a.m., slow engine, waiting for Canadian Voyageur; 12.55 p.m. Pt. Des Monts abeam; light west wind; course n. 60 e.; 2.25 p.m. Egg Island abeam; course n. 80 e.; light scattered ice; 5.40 p.m. Carousel abeam; 9 miles off; course s. 62 e.; 10 p.m., stopped engine for night; waiting for daylight to make West Point, Anticosti.

Jan. 27.—Long. 65, 16; west lat. 49.58 n.; 4.40 a.m. proceeded s. 62 e.; west wind, light ice; 7.15 a.m. West Point, Anticosti abeam, 7 miles off; 9 a.m. close packed ice everywhere; 9.15 a.m., slob ice from North Point, Cape Observation; 1.30 p.m. abeam, Carleton Pt.; 4.30 p.m. abeam about Cape Bear; 6.15 p.m. starboard rudder chain broke in heavy ice rudder came in port propeller engine; going slow astern; lost one propeller blade and broke hand steering gear; 8.30 p.m., rudder chain repaired, ship remained in heavy ice all night; crew removed 38 tons of coal from aft hold to bunker today; chief officer gave orders to steward and cook to be careful with water and provisions.

Jan. 28.—Ships position about long. 62.16; w. lat. 49.37 n.; ship drifting with ice; light west wind; 12.45 a.m. cast lead 95 fathoms; 2.45 a.m. 86 fathoms; 5.30 a.m. 80 fathoms; 6 a.m., trying to work ship, impossible to move; 7 a.m. stopped engine, no headway possible; weather clear; light west wind; noon 70 fathoms water; 2 p.m. 55 fathoms; lost deep sea lead in ice; tried to work ship. 3 p.m. stopped, impossible to move; 6 p.m. ship stopped in heavy ice; 9.30 p.m. 83 fathoms; ice moving to east slowly; crew removed 38 tons of coal from aft hold to bunker.

Jan. 29.—Ships position long. 62.14; w. lat. 49.39 n.; in heavy close packed ice, 49 fathoms; 4 a.m. 42 fathoms; 6 a.m. 52 fathoms; commenced working ship in opening, proceeded north to find condition of ice; 6 p.m. stopped; cast lead, 75 fathoms; heavy scattered ice; 8 p.m. proceeded s. 63 e.; heavy ice, scattered. Distance 60 miles.

Jan. 30.—Ships position about 30 miles north of Table Head; course s. 63 e.; weather clear, moderate n.w. wind; 2.50 a.m. stopped in thick ice, waiting for daylight; 6 a.m. proceeded s. by e.; light n.w. wind; 9 a.m. ship in heavy ice, making slow progress; 10.30 a.m., cast lead, 75 fathoms; Heath Pt. bore s. 20 w.; Canadian Voyageur in thick ice; impossible to go to her; stopped in the ice; ship about 10 miles off Anticosti; crew moved 48 tons of coal from fore hold to bunker; ship remained in ice; distance 24 miles.

Jan. 31.—Ship's position about 5 miles east of east end of Anticosti Island, weather clear; light west wind; 6 a.m., proceeded, trying to go to assist Canadian Voyageur in heavy ice; worked ship back and forth; 10 a.m. impossible to do anything; 10.15 a.m. proceeded e. to s.w.; 12.45 p.m. stopped, 75 fathoms water;

2.55 p.m. proceeded to west; 8 p.m. 46 fathoms water; stopped in ice; midnight 48 fathoms water; ship remained in ice for night.

Feb. 1.—Ship's position about 6 miles east of Anticosti in 48 fathoms water. 6 a.m. ship working, trying to go to assist Canadian Voyageur; 8 a.m. ship working in heavy ice, making good progress; 8.45 a.m. ship with Canadian Voyageur; 9.05 a.m. proceeding with Canadian Voyageur; noon, ship in loose ice; proceeding, Canadian Voyageur following, steering according to ice, e. to s.w.; 1 p.m. light ice, course s. 20 w.; 6 p.m., cast lead 265 fathoms; 9.40 p.m. 260 fathoms; 11 p.m. 215 fathoms; sounding machine lead carried away by ice.

Feb. 2.—Ship about 10 miles north of St. Paul Island, in some heavy loose ice; 1.30 a.m. St. Paul light bore s. 45 w.; cast lead 285 fathoms; 3.35 a.m. St. Paul Island abeam about 4 miles off; in heavy loose ice, course s. 25 w.; 8 a.m., ship in light ice, wind s.w., light snow; 10 a.m. Flat Point abeam; 11.25 a.m. Moored at coal pier, North Sydney.

Feb. 4.—Diver on board, for examination of rudder and port propeller; reports rudder shaft twisted, some bolts loose in rudder connections, one blade of port propeller lost, diver working at loose bolts.

The Return Trip From North Sydney to Quebec.

Mar. 11.—North Sydney, weather clear with strong n.w. wind. 5 a.m. left for St. Paul Island; 9.55 a.m., in heavy, close packed ice; 10.15 a.m. Cape North abeam; 12.30 p.m. anchored at St. Paul Island and landed provisions; 1.50 p.m., weighed anchor and proceeded in heavy, close packed ice; 4 p.m., open ice. Altered course n. 4 e. Hours at sea 18, run 160 miles.

Mar. 12.—About 20 miles east of Heath Point; weather clear with light n.n.w. wind; 6 a.m., East Point Anticosti bearing s. 50 w.; heavy loose ice; 9 a.m., Cape Henry abeam, 6 miles off; noon Carleton Point abeam 9.30 p.m. anchored Thunder river; latter part snow with fresh s. wind, hours steaming 21½, distance 220 miles.

Mar. 13.—Thunder river, fair and snowing, with strong gale n.w.; 12.45 a.m. weighed anchor and proceeded westward; 3.30 p.m. Carousel Island abeam; 4 p.m., ship in solid ice for the night; Seven Islands Bay; latter part clear with strong n.w. gales, steaming 15 hours, 15 minutes.

Mar. 14.—Seven Islands Bay, in ice; distance 80 miles; weather clear with moderate n.w. wind; landed freight; 10.30 a.m., left for Thunder river; 11 a.m. Carousel abeam; course s. 70 e. 4.20 p.m. anchored off Thunder Bay, and loaded fish; latter part clear, with light n.w. wind, hours steaming 5½, distance 80 miles.

Mar. 15.—Thunder river; weather clear with light n.w. wind; 9 a.m., finished loading and weighed anchor for Ellis Bay; 12.25 p.m. anchored Ellis Bay; landed and received mail; 8.20 p.m., weighed anchor and left for Quebec 9.18 p.m. West Point abeam; course n.50w. Latter part clear with n.w. wind; time steaming 7 hours, 5 minutes, distance 65 miles.

Mar. 16.—35 miles west of West Point; 3.50 a.m. Carousel light abeam, 2 miles off; 7 a.m., anchored Shelter Bay, landed passengers; 12.10 p.m., weighed anchor

and proceeded; 2 p.m., picked up fog alarm keeper at Pointe des Monts; 3.10 p.m. arrived Godbout and took passenger; 3.25 p.m. proceeded up; 4.15 p.m. arrived English Bay, landed passengers and freight; 10 p.m. proceeded on way up; midnight, course s. 72 w., time steaming 13½ hours, distance 142 miles.

Mar. 17.—Off Metis. Weather rainy and fog; 2.25 a.m. Father Point abeam; heavy scattered ice; 8 a.m., anchored off Baud Mills, on account of thick weather; 12.30 p.m. weighed anchor and left for Tadousac, but unable to stop there owing to thick weather; 2.50 p.m. Cape Salmon abeam; 4.40 p.m. anchored off St. Irene; time steaming 16 hours, 40 minutes, distance 106 miles.

Mar. 18.—St. Irene; first part cloudy, with light s.e. wind; 7.30 a.m.; left for Quebec; 9.44 a.m. Upper Traverse pier abeam; 12.15 p.m. Crane Island abeam; 4 p.m. arrived at Quebec and moored at Point a Carcy wharf; latter part cloudy with light s.w. wind; time steaming 8½ hours, distance 66 miles.

Government Operation of Steamships.

The Montreal Gazette says.—“State operation of steamships offers a new field in Canada, but not one which has been left untried elsewhere. In Great Britain, during the latter period of the war, the government controlled the shipping, and an instructive comparison of the results achieved under commercial control on the one hand, and state control on the other, is available. The question is dealt with clearly and exhaustively in the annual report of the Liverpool Steamship Owners' Association. Taking the year ended July 31, 1916, as the last complete period of commercial control, and comparing it with the year ended July 31, 1918, the first complete period of state control, it is found that in the latter period the costs increased while the service declined. The decrease in tonnage amounted to 13%, but the drop in the weight of imports carried amounted to 22%. Under commercial control the increase in cost over peace time figures was 46%, and under state control 163%. In the commercial period the weight of imported raw materials decreased 16%, and the cost increased 7%, while in the state period the volume decreased 31%, and the cost increased 56%. All imports decreased 15%, in the first period and 37% in the second. The proportion of exports to imports dropped from 61% to 44%. It is pointed out that under government control the use of 8,500,000 tons of foreign shipping was lost, and the concentration of British tonnage on the shorter routes, intended to offset this loss, meant the forfeiture of some of the best import and export markets, with a resultant rise in prices. The conclusions of this illuminating report are summed up as follows:

“For the first two years of the war, commercial enterprise working in and with the markets of the world equipped the armies and provided for the needs of the nation and its allies. It is true that supplies decreased and prices advanced, but never to the point of imposing privation and suffering on the nation. In the last two years of the war, whilst the state was in control, the quantity and quality of our supplies were reduced, prices were forced up, our power to pay by means of our exports was crippled, and foreign debt was greatly increased.

It has been demonstrated that even with the unlimited credit of the nation behind it the state cannot supply the needs of the nation as they were supplied through commercial enterprise, and that the first

step towards the re-establishment of the industries and commerce of the nation must be the elimination of state control over both our oversea trade and shipping.”

Telegraph Lines Statistics.

The following table is taken from the Public Works Department reports for the year ended Mar. 31, 1918, and gives the latest figures available:

Canada.	Length of Lines in Miles.			No. of Offices.
	Aerial	Under-ground.	Sub-marine. Total.	
Great North Western Telegraph Co.....	10,064	7	13 10,084	.....
Canadian Pacific Ry. Co's. Telegraphs.....	14,617	23	95 14,735	1,519
Dominion Government Telegraph service.....	11,890¼	.....	386 11,726¼	1,058
Grand Trunk Pacific Telegraph Co.....	5,279	1	1 5,279	279

Welland Ship Canal Construction.

In connection with the vote of \$3,500,000 for construction on the Welland Ship Canal, the Minister of Railways and Canals, said in the House of Commons, April 22:

“The new Welland Ship Canal was under construction at the time war was declared. Work was carried on for a time afterwards, then was closed down. There were four sections under construction: No. 1, for dredging the harbor, completing the concrete work, and regulating the weir; that contract was with the Dominion Dredging Co., when work was closed down. Then there were sections 2, 3 and 5 also under construction. These were the four largest sections of this canal. When the war ended and demobilization took place, we felt it was necessary to go on with some of the work to provide employment. A great many of the men who had been working on the canal had enlisted, and there were also in that district a great many men who were thrown out of work owing to the closing of munitions plants. We therefore decided to go on with the work that we had under construction. We had, of course, settled with the contractors; the contracts had been cancelled. When we decided to start work again, we thought that the cost of materials and labor was so high that it would be almost impossible for the contractors to tender at a fair and reasonable price. We therefore put the old contractors at work on these four sections, which would employ a large number of men, and we decided to let them proceed with the work on a cost-plus basis. We agreed to pay them 8%. These contractors understood the work, had their organizations, and we thought they would be able to do the work in the most economical way. The work goes on only from month to month, because we stipulated in the contract that we can stop work on the cost-plus basis at any time and call for tenders, so that we could take advantage of conditions when they become normal again. We also stipulated in the order in council that the contract would not extend beyond Dec. 31, 1919, so that there could be no misunderstanding with the contractors or with the public. In section 1 we estimate that the total amount that could be expended would be \$500,000; sec. 2, \$600,000; sec. 3, \$700,000, and sec. 5, \$500,000. Then for the purchase of plant, cement, bridges, steel rails, engineering, etc., \$1,200,000. They do not get any percentage on the \$1,200,000, but only on the other. So that, although we have \$3,500,000 in the estimates, we will pay a percentage only on \$2,300,000 at the

very most, if they do that amount of work.”

The Schooner Francis J. Elkin Co. Ltd., has been incorporated under the New Brunswick Companies Act, with authorized capital of \$99,000, and office at St. John, N.B., to acquire and operate the schooner Francis J. Elkin, and to carry on the business of managing steamships and other vessels of all kinds. The incorporators are, F. P. Elkin, W. E. Golding, G. R. McKean, St. John, N.B.

Telegraph and Telephone Line Estimates for 1919-1920.

The Public Works Department's estimates, for the year ending Mar. 31, 1920, submitted to the House of Commons recently, contain the following items:—

NOVA SCOTIA.	
Pictou Island—telephone cable.....	\$ 5,000.00
PRINCE EDWARD ISLAND.	
Half cost of reconstruction of telegraph lines jointly owned by the Anglo-American Telegraph Co. and Dominion Government.....	18,700.00
QUEBEC.	
Improvements to repair service.....	3,000.00
SASKATCHEWAN AND ALBERTA.	
Peace River line—office and dwelling at Grande Prairie.....	4,000.00
Peace River line—woods clearance Edmonton to Peace River.....	5,000.00
Repairs and improvements to office buildings	1,000.00
BRITISH COLUMBIA.	
Mainland telegraph and telephone lines—general repairs and improvements	10,000.00
Vancouver Island lines—repairs and renewals	8,700.00
	\$ 55,400.00

The following items are chargeable to collection of revenue:—

Prince Edward Island and mainland.....	\$ 7,000.00
Land and cable telegraph lines, Lower St. Lawrence and Maritime Provinces, including working expenses of vessels required for cable service	202,000.00
Saskatchewan	61,700.00
Alberta	89,000.00
British Columbia—mainland.....	66,000.00
British Columbia—Vancouver Island district	107,800.00
Yukon system (Ashcroft-Dawson)	237,000.00
Telegraph and telephone service generally	10,000.00
	\$ 780,500.00

Among the Express Companies.

G. J. Veigel has been appointed agent, Canadian Ex. Co., Saskatoon, Sask., vice E. S. Mitchell.

A. C. Thorn, heretofore agent, Dominion Ex. Co., Quebec, Que., has been appointed agent at Montreal.

The Canadian Northern Ex. Co. has opened offices at Camden East, Ont., and Madison and Glidden, Sask.

F. Fennell, heretofore agent, Dominion Ex. Co., Truro, N.S., has been appointed agent at Halifax, N.S., vice K. Copeman, transferred.

K. Copeman, heretofore agent, Dominion Ex. Co., Halifax, N.S., has been appointed agent at Quebec, Que., vice A. C. Thorn, transferred.

The Board of Railway Commissioners passed order 28168, Mar. 18, extending the area within which the tolls of express companies shall include the collection and delivery of express freight in Montreal, defined by order 18281, Dec. 2, 1912, at the Tail Race, or Butler Ave. so as to include the British Munitions Co.'s plant for the period of the war only.

Canadian Ex. Co.'s freight handlers, checkers, drivers, messengers, etc., struck work Apr. 10. The matters in dispute between the company and its employes had been referred to a board of conciliation, and the company not seeing its way to accept the award, had referred the matter to the Railway Board of Adjustment No. 1, but the men decided to strike without waiting for the board's decision on the points submitted. They returned to work Apr. 21, having accepted the board's decision, which provided for an eight-hour basic day, effective May 1, with a wage increase of \$25 a month retroactive to Feb. 1, and based on the rates paid on Jan. 1, 1918. It is also provided that overtime pro rata be paid for the first two hours above eight hours, and at the rate of time and a half above 10 hours. A mileage rate of 1½¢ is provided for messengers travelling upwards of 6,000 miles a month, and payment will be made for Christmas and New Year holidays. John Pullen, president of the company, is reported to have stated that the decision is practically along the lines established by the U.S. Railroad Administration.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Safety Car Heating and Lighting Co.—Col. Robt. Andrews, a former president of this company, died at East Orange, N.J., April 7, aged 84. After being on the Pennsylvania State and union canals as an assistant engineer he commenced railway engineering in 1857 as principal engineer of surveys and construction on the Sunbury and Erie Ry. In 1959 he went with the South Pennsylvania Rd. as principal engineer of surveys until the outbreak of the Civil War, when he was made a major of the 2nd Regiment, Delaware Volunteers, and became colonel in 1863. At the close of the war he was made principal engineer of Saratoga & Hudson River Rd. 1863-1865, was subsequently superintendent of Toledo, Wabash & Western Rd. 1865-1875, chief engineer of same road 1873-1875, and general superintendent and consulting engineer of Wabash system 1875-1884. From 1884 to 1885 he was consulting engineer of Wabash, St. Louis and Pacific, and in 1885 was made general superintendent and engineer of Virginia Midland Ry. In 1889 he left railway service to take the

position of vice president of the Safety Car Heating and Lighting Co. In Dec., 1901, he was elected president, and from May, 1907 to 1915, he was chairman of the board of directors.

Transportation Conventions in 1919

May 6-8.—Air Brake Association, Chicago, Ill.
 May 19.—International Railway Fuel Association, Chicago, Ill.
 May 26-29.—Master Boiler Makers' Association, Chicago, Ill.
 June 11.—Railway Accounting Officers' Association, New York.
 June 17-20.—American Train Despatchers' Association, Chicago, Ill.
 June 18-21.—Master Car Builders' Association, Atlantic City, N.J.
 June 23-25.—American Railway Master Mechanics' Association, Atlantic City, N.J.
 September.—Master Car and Locomotive Painters' Association of the United States and Canada, Chicago, Ill.
 September.—Traveling Engineers' Association, Chicago, Ill.
 Sept. 16-18.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.
 October.—American Railway Electric Engineers' Association, Chicago, Ill.
 Oct. 21-23.—American Railway Bridge and Building Association, Cleveland, Ohio.
 Oct. 21-23.—Maintenance of Way and Master Painters' Association, St. Louis, Me.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:
 Belleville Railway Men's Educational Club, Meets each Tuesday, 7.30 p.m. F. A. Pingston, Belleville, Ont.
 Canadian Car Service Bureau—W. J. Collins, Manager, 401 St. Nicholas Building, Montreal.
 Canadian Electric Railway Association—Acton Burrows, 70 Bond Street, Toronto.
 Canadian Freight Association (Eastern lines)—G. C. Ransom, Canadian Express Building, Montreal.
 Canadian Freight Association (Western lines)—W. E. Campbell, 305 Boyd Block, Winnipeg.
 Canadian Railway Club—J. Powell, St. Lambert, Que. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July and August.
 Canadian Railway War Board—W. M. Neal, Montreal.
 Dominion Marine Association—F. King, Counsel, Kingston, Ont.
 Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.
 Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.
 Engineers' Club of Montreal—R. W. H. Smith, 9 Beaver Hall Square, Montreal.
 Engineers' Club of Toronto—R. B. Wolsey, 94 King Street West, Toronto.
 Engineering Institute of Canada—F. S. Keith, 176 Mansfield St., Montreal.
 Express Traffic Association of Canada—C. N. Ham, Montreal.
 Great Lakes and St. Lawrence River Rate Committee—James Morrison, Montreal.
 Hydro-Electric Railway Association of Ontario—T. J. Hannigan, Guelph, Ont.
 International Water Lines Passenger Association—M. R. Nelson, New York.
 Niagara Frontier Summer Rate Committee—James Morrison, Montreal.
 Quebec Transportation Club—A. F. Dion, Quebec.
 Shipping Federation of Canada—Thos. Robb, Manager, 42 St. Sacramento Street, Montreal.
 Toronto Transportation Club—W. A. Gray, 143 Yonge Street, Toronto.
 Transportation Club of Vancouver—H. W. Schofield, 556 Church Street, Vancouver, B.C.

OTTAWA, NORTHERN & WESTERN RAILWAY COMPANY.

The Ottawa, Northern & Western Railway Company hereby gives notice that it will apply to the Parliament of Canada, now in session, for an Act empowering the company to construct a line of railway extending from the present terminus of its so-called Waltham Branch at Waltham, in the Province of Quebec, thence through the Townships of Waltham, Chichester and Sheen, thence across the Ottawa River to a junction with the Canadian Pacific Railway at or near Chalk River, in the Province of Ontario, and to increase its bonding powers.

Dated at Montreal, this 7th day of April, 1919.

H. C. OSWALD,
Secretary.

Pringle, Thompson, Burgess & Cote,
Ottawa agents.

CANADIAN PACIFIC RAILWAY COMPANY.

NOTICE is hereby given that the Canadian Pacific Railway Company will apply to the Parliament of Canada, now in Session, for an Act authorizing it to establish, maintain and operate services by air-craft between such points and places within or without the Dominion of Canada as may be found desirable, and to exercise and enjoy such powers as may be necessary for such purposes.

Dated at Montreal, the 16th day of April, A.D. 1919.

E. ALEXANDER,
Secretary.

Pringle, Thompson, Burgess & Cote,
Parliamentary agents.



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