

Canadian Railway and Marine World

September, 1919

The Canadian Overseas Railway Construction Corps' Organization, and Service in Belgium and France.

In Feb., 1915, a request was made by the Militia Department at Ottawa to Lord Shaughnessy, then President of the C.P.R., to prepare details of establishment and equipment for a railway construction and repair unit, having a total approximate strength of 500 men, all ranks, for service in France. An outline of such an organization was prepared and submitted to the department and, with the exception of heavy standard gauge equipment, was approved by an order in council, on Mar. 11, 1915.

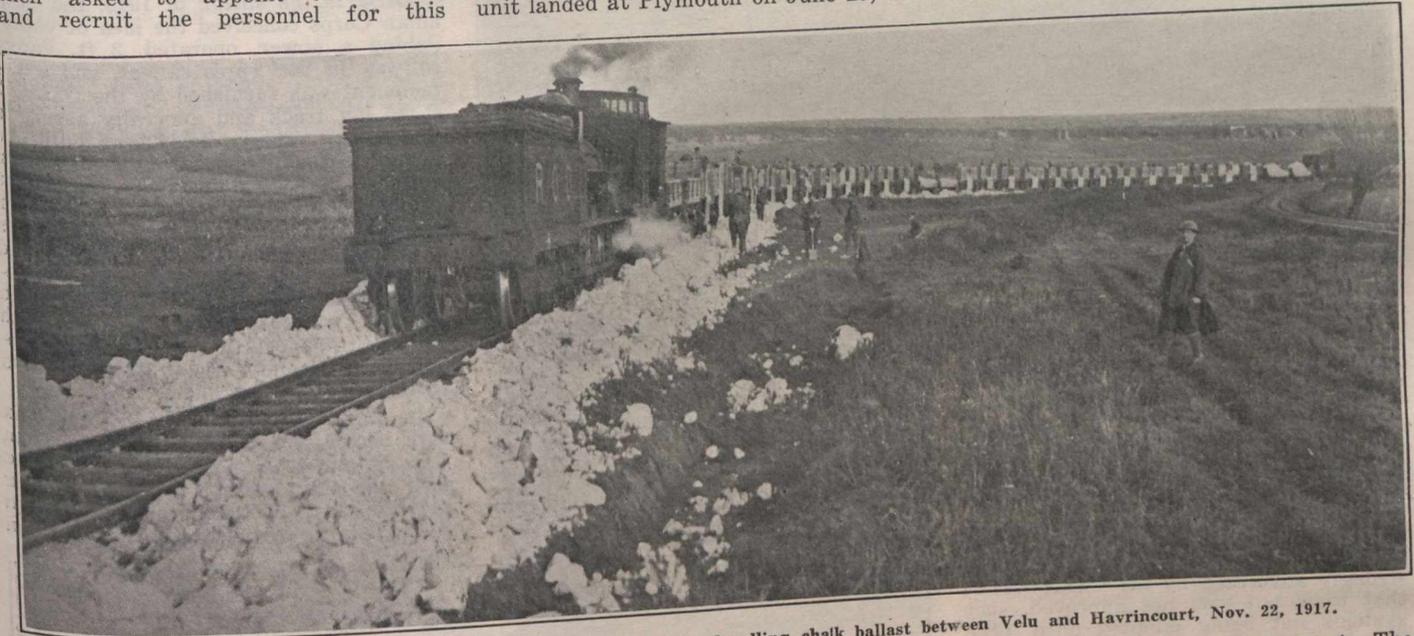
The C. P. R. management was then asked to appoint the officers and recruit the personnel for this

ing followed in great part by the large body of some 15,000 Canadian Railway Troops, which began to arrive in France during the latter part of 1916 and early part of 1917.

Recruiting was started Mar. 12, 1915, and was practically completed by May 1. Military training was carried on at St. John, unfortunately without Militia Department assistance, none being then available, until June 14, on which date, after inspections by the Minister of Militia and General Lessard, embarkation for England in the s.s. Herschel took place. After a very calm passage, the unit landed at Plymouth on June 25, and

thus usefully engaged throughout. After the strength of this base was entirely exhausted, further re-inforcements for the C.O.R.C.C. were supplied from the general reserve of Canadian Railway Troops, which was established in 1917.

On arrival at Calais, the C.O.R.C.C. proceeded to Alveringhem, Belgium, some six miles west of Dixmude, and took up billets in that vicinity. It was then attached to the 2nd and 5th Divisions of the Belgian Army, through the medium of the British Mission with the Belgian Army, for ordinary field engineering work, and engineer parties were also furnished for work with the naval siege gun



Canadian Overseas Railway Construction Corps' Ballast Train, handling chalk ballast between Velu and Havrincourt, Nov. 22, 1917.

organization. This work was undertaken, and as the information available, as to the requisite classes of men and equipment for such an organization, was at that time decidedly limited, authority was obtained to send an expert to France to report on conditions, and in the meantime recruiting was proceeded with. H. F. MacLean of the Cook Construction Co., undertook the mission to France, proceeding overseas in Mar., 1915, and returning in the latter part of May, with very complete and valuable information.

Headquarters were established at St. John, N.B., the C.P.R. providing barracks for the men in colonist cars there, no other accommodation being available. Recruiting was carried on through the agencies of the C.P.R. general superintendents from St. John to Vancouver, and eventually some 540 picked men were selected from a total of approximately 3,000 applicants.

The establishment eventually decided upon was as shown in the table attached and proved highly satisfactory for the work for which it was intended, be-

proceeded to Longmoor Camp, in the Aldershot district, which was then the headquarters of the British Railway Troops. Training was continued until Aug. 25, 1915, on which date, after an inspection by the King, the unit embarked for France via Southampton and Calais.

In Sept., 1915, authorization was given for the recruiting of a reserve base, consisting of two officers and 140 other ranks. This work was undertaken by F. L. Wanklyn, General Executive Assistant, C.P.R., honorary Lieutenant-Colonel of the corps, who, from its organization until demobilization, had charge of all Canadian matters pertaining to the unit, rendering most valuable assistance in the supply of men and equipment. Capt., now Major, Wellwood, returned from France to take charge of this base and took it to England, after which he rejoined the unit in France. While in England and until its strength was exhausted, the reserve base was employed on railway work at various points, including some considerable revisions and additions to yards at Newcastle, being

batteries then situated on the coast. The work in this vicinity consisted of the construction of reinforced concrete machine gun emplacements, observation towers, artillery emplacements, shell proof shelters, standard gauge railway mounted gun emplacements, 2 ft. gauge railways and trench train lines. A mechanical plant was also supplied and operated at Forthem for the transshipping of materials from barges to the light railway system.

In connection with this work the following points are of interest. Two concrete observation towers, some 30 ft. in height, were constructed in the shelter of old buildings, one in the Town of Newport, and the other some distance farther south, within 600 yards of the front line trenches, which, while somewhat battered by shellfire, served usefully as artillery observation posts for more than two years. The artillery emplacements constructed were of such a nature that they withstood successfully direct hits from 11 in. armor piercing shells, in one case a shell, striking directly in the embrasure, cut 4 ft. from the barrel of

a 6-inch gun, without serious damage to the emplacement. A light railway system of 2 ft. gauge, 9 lb. rail was constructed for the carrying of supplies, ammunition and R.E. stores from Forthem, some 5 miles behind the lines, to Dixmude, paralleling the trenches in either direction from the latter point. This light railway, the first of its kind used immediately behind the front line,

ed to billets at Wippenhoeck, just southwest of Ypres, where a few weeks later it was joined by the company from Audruicq, on the completion of its work at that point.

The C.O.R.C.C. was then attached to the second British Army and started on standard gauge work in that army's area. Advanced railways for the regular handling of supplies, ammunitions, R. E.

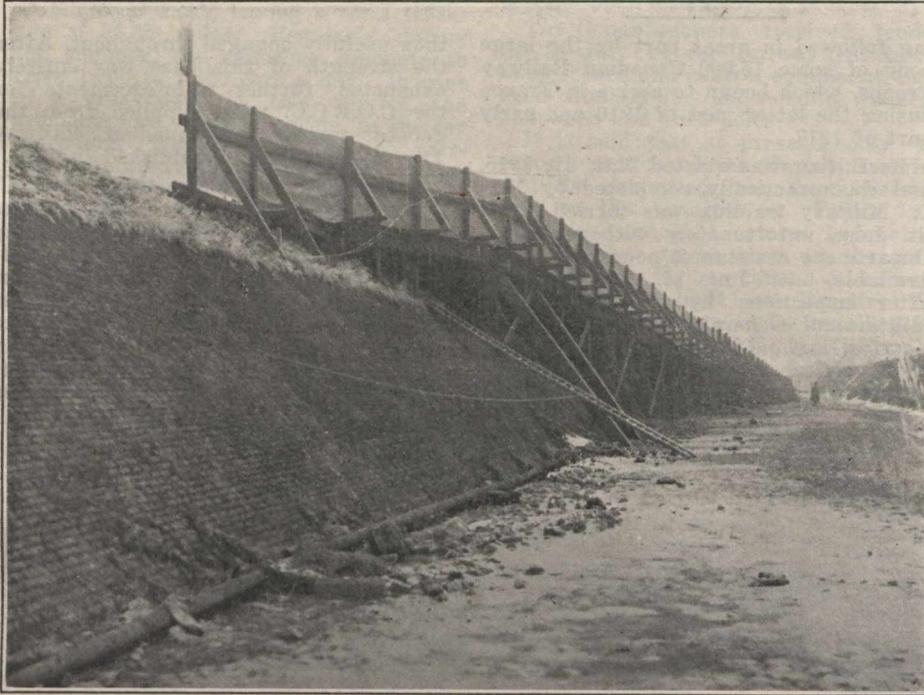
tion rail heads and gradually this idea was adopted and authority given for the construction of advanced rail heads on this line. It was on this area that the first really advanced standard gauge rail heads were used behind the British front.

By special request from the officer commanding the naval siege gun batteries on the coast, a small detachment was attached to that force, where it did much valuable work, remaining until practically the cessation of hostilities. Among the works of interest done by this detachment was the installation of the first 13 in. naval siege gun used behind the British front.

The corps remained in the vicinity of the Ypres salient until Aug., 1916, undertaking in addition to the works mentioned above, the construction of the Bergues-Vlamertingue line, later continued through to a connection with the old main line north of Ypres, various rail heads and branch lines in the Ypres salient and the construction of a meter gauge yard on the Belgian Railway at Ghyvelde.

Early in the spring of 1916, the Canadian Corps conceived the idea of establishing a power operated 2 ft. gauge railway in the Ypres salient, and a detachment was furnished by the C.O.R.C.C. to lay track and generally assist in this work. This railway was built, to a great extent, from salvaged materials, and in its beginning was somewhat primitive, for instance the first power consisted of two 10-ton locomotives abandoned in the German advance and salvaged by the C.O.R.C.C. from Dickebusch Lake, but it probably served as an example of what might be done with railway transportation and was the forerunner of the network of light railways that was finally installed.

In Mar., 1916, shipments of steel box cars began to arrive at Audruicq from Canada, and other points, and as neither men nor plant were available for their erection, the C.O.R.C.C. was called upon for assistance in the work. The erection



Side view of Timber Ramp, from towpath, to dry bottom of Canal du Nord, to permit it being used as a highway for artillery and team transport. Built by Canadian Overseas Railway Construction Corps, Nov., 1917. The embankment was approximately 40 ft. high.

on either the British or Belgian fronts, was a somewhat primitive affair, being operated in part by horse and in part by man power, but was at least an improvement over horse and hand transport, the only other possible system under the conditions.

An extensive, power operated, 2 ft. gauge system, having 30 lb. rail, was strongly advocated by the C.O.R.C.C. at that time, but was not approved, such systems not being adopted until 1917, when all means of transport other than railways had failed. It was at this time that the extensive construction equipment of the C.O.R.C.C. first came into use in part, scrapers being used for preparing artillery positions in the sand dunes, concrete mixers for reinforced concrete work, and steam hoists for a transshipping plant from barges to the railway system, thus saving much labor.

In the latter part of Oct., 1915, the corps was recalled to England, under orders to proceed to Salonica for work on the Salonica-Uskub Railway. Just at that time, however, the break in the Serbian lines took place, the greater part of the railways in question were lost and the C.O.R.C.C. was returned to France via Southampton and Havre, reaching the latter point on Nov. 5. From Havre, one company proceeded to Audruicq, the central railway supply depot of the British armies, and undertook the extension of yards there. At that time this central railway depot consisted of some 40 miles of standard gauge tracks; at the signing of the armistice it had been extended to approximately 120 miles. The other company proceed-

stores, etc., were then practically unknown, being considered dangerous and unreliable. The average rail heads were from 15 to 25 miles from the front line.

The first work attempted by the corps in that area was the construction of a



Railway Yard at Bapaume, France, looking east; Nov. 29, 1917.

line from Wippenhoeck, on the main Hazebrouck-Voperingue line, to Dickebusch, a point south of Ypres, and about 1½ miles from the front line. The idea of the line at that time was that it would be used principally for railway mounted gun spurs, and possibly some small amount of stone traffic for repairs to roads. As the work advanced, and the corps became familiar with conditions, strong representations were made by it to the effect that the line should be made use of for advanced supply and ammuni-

of these cars was undertaken and the C.O.R.C.C. bridging plant, air compressors, etc., were set up and converted for the work. Some 1,300 cars were thus erected, by which time proper plant and other labor became available, and the work was turned over to the British army mechanical staff. During the period of this car construction, the detachment in charge of the work had the somewhat unpleasant experience of being present at the blowing up of some 15,000 tons of ammunition in the Audruicq

dump, about a quarter of a mile from the car yard, a dump which was then one of the largest British dumps and which

amounting in all to about 70 miles of railway. In this work they were for the first time assisted by considerable

up advanced railway work in the Fifth Army area.

During the late autumn attacks of 1916 by the British army in the Somme area, owing to the lack of proper railway facilities, practically all the roads had broken down under the heavy motor and team traffic, and in consequence the transportation of ammunition in sufficient quantities for further attacks was an impossibility. In view of this condition of affairs, and taking into consideration the contemplated 1917 spring attack, a very extensive railway programme was decided upon, and this work, in addition to the maintenance of such railways as already existed in that area and which in the majority of cases were in very bad shape, was taken over by the C.O.R.C.C. The contemplated extensions amounted to about 60 miles.

Considerable labor was supplied and work was pushed rapidly on these extensions until Feb., 1917, at which time the German retreat from Beaumont, Hamel and Serre started. In view of this retreat, which rapidly developed, work in the back areas was to a great extent abandoned, and all available forces were pushed on to the extension of the Candas-Acheux line, to a connection with the Nord Ry. main line from Albert to Arras at Achiet-le-Grand, the reconstruction of the Albert-Arras Ry. and also the reconstruction of the lines through Bapaume and easterly to Ytres and the Nord Canal, as well as the line from Boisleux-aux-Monts to Croisielles.

The reconstruction work was of the utmost urgency, and several units of the Canadian Railway Troops, then beginning to arrive in France in considerable numbers, as well as British and French troops, were for a short time employed upon it. All the bridge work, however, during the retreat in this area, was done by the C.O.R.C.C. forces, which also supplied the necessary ballast, and they eventually took over the completion, maintenance and further extensions of these lines, continuing with same until Nov., 1917.

Among the features of interest during this period, from Nov., 1916 to Nov., 1917, were the following: The maintenance and operation, without serious interruptions, of, 1st, a rail head at Aveluy, 4 miles from the front line, for am-



Team Outfit, grading for railway, near Canal du Nord, Nov., 1917.

was set off by German bombs, the explosions throwing shells in some cases nearly a mile and continuing for three days.

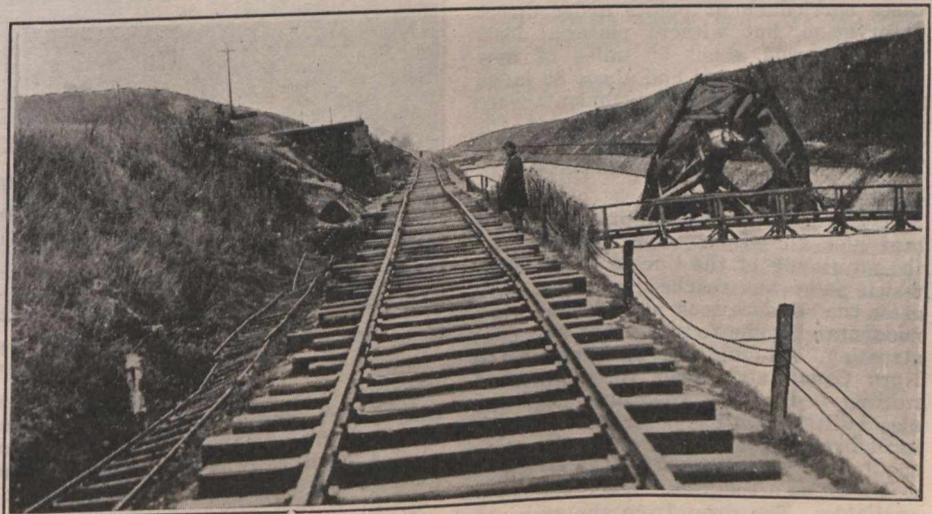
As railway work progressed in this area the need of steam shovels, track pile drivers and the usual standard gauge equipment became at once apparent, there being no modern railway construction equipment available in France. Ballast for railway construction was one of the most vexing problems, there being no good ballast available, the material used being principally the refuse from coal mines, which was both difficult to handle and unsuitable for track work, the supply being also very uncertain. After extensive representations made on this subject, permission was finally obtained for the acceptance of two 70 ton steam shovels and two standard gauge track pile drivers, and these were supplied by the Canadian Government through the C.P.R., and arrived in June, 1916. These shovels, which were worked incessantly from the summer of 1916, until the signing of the armistice, in many instances 24 hours a day, to a great extent saved the situation as far as ballast was concerned for the British railways, supplying the greater part of the material used for this work. This material consisted of sand and chalk. The track pile drivers were also incessantly employed, particularly in the German retreat, driving the great majority of new pile bridges from the Somme to the coast.

During the period referred to above, viz: from Nov., 1915 until Aug., 1916, the work of the corps may be briefly summarized as consisting of, 1st, the introduction of some, if insufficient, modern railway construction equipment in France; 2nd, the construction of the first advanced railways for both 2 ft. and standard gauge, showing to some extent the possibilities of such a means of transportation. The actual work consisted of the construction of some 60 miles of railway line, the erection of 1,300 steel box cars, the supply of ballast and construction of bridges for various lines, miscellaneous field engineering work, such as artillery positions, etc.

In Aug., 1916, the corps undertook the construction of a large railway yard at Zeneghem, some 12 miles from Audruicq, for an ammunition dump, etc., and shortly afterwards the construction of the ammunition yards at Dannes-Camier as well as various minor railway works,



Colonel C. W. P. Ramsey, C.M.G.
Officer Commanding Canadian Overseas Railway Construction Corps.



Newly Laid Railway Track along path of Canal du Nord, France; Nov. 27, 1917.

quantities of labor and the works were completed in Dec., 1916, at which time the corps moved to the Somme to take

munition supplies and R.E. stores for four divisions; 2nd, a line between Acheux and Albert for gun spurs and

feeding ammunition to batteries, running at some points within two miles of the front line, and fully exposed to direct observation; 3rd, an ammunition rail head at Mouquet Farm, 1½ miles from the front line, and 4th, an ammunition rail head at Euston dump, in front of Serre at 1,200 yards from the front line, probably the most advanced standard

Corps for assistance. In the short period that the ground east of the Nord Canal was held, this railway line and roadway proved of the greatest value for the forwarding of supplies, men and ammunition, as well as for the evacuation of wounded, being practically the sole means of transportation.

From Dec., 1917, until Mar., 1918, the

when the Germans were actually in occupation of the ground.

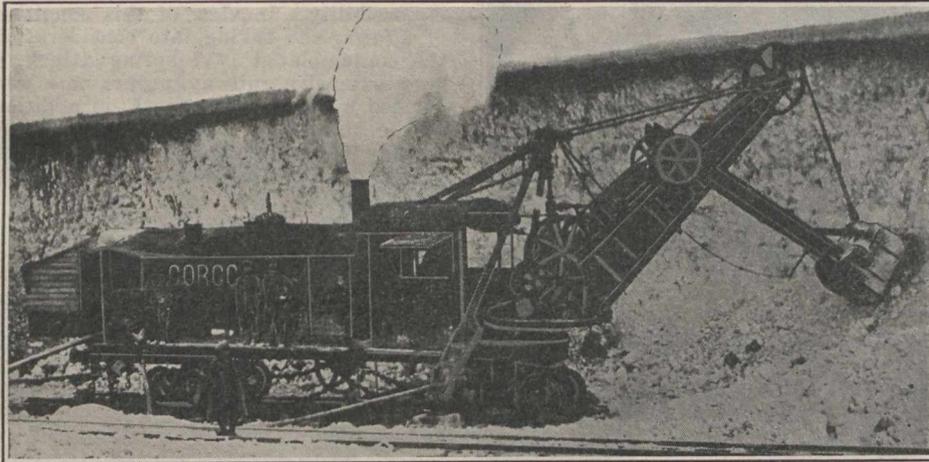
From Apr., 1918, until Aug., the beginning of the British final advance, railway work of the same type was carried on along the lines outlined previously behind the new front, some 50 miles in all being constructed. In the final advance, the corps undertook the reconstruction of the line through Valenciennes, and eventually finished its work by completing the railway line into Mons.

In Jan., 1919, the greater part of the unit was returned to England and at the moment of writing the majority of its members have reached Canada.

Some 500 miles of railway were constructed and reconstructed by this unit, which was probably 15% of the total standard gauge railway work done behind the British front. The skilled railway troops on the British front at the signing of the armistice probably totalled 30,000 men. In addition, many officers were furnished for executive positions and for other units, approximately 70 officers being commissioned from the ranks. The honors conferred on members of the corps were approximately as follows: C.M.G., 1; D.S.O., 9; M.C., 10; D.C.M., 6; M.M., 20; Belgian Croix de Guerre, 6.

Among the officers transferred or seconded, and who filled executive positions, are the following:

Lieut.-Col. (now Colonel) C. W. P. Ramsey, C.M.G., seconded as Railway Construction Engineer, 5th Army, Oct. 23, 1916, seconded to War Office, June 14, 1919. He was, prior to entering the army, Engineer of Construction, C. P. R., Montreal.



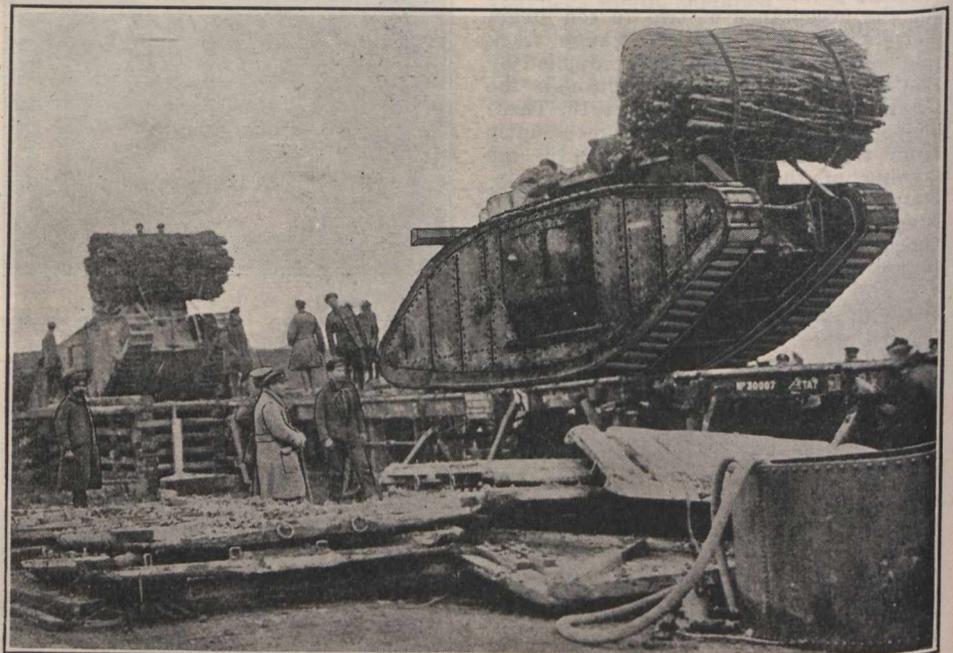
Atlantic Type Steam Shovel, supplied by Dominion Government, through the C.P.R., to the Canadian Overseas Railway Construction Corps, at work in chalk pit near Puchevillers; Nov., 1917.

gauge rail head ever used in France.

During the reconstruction period, it was found that, as the Germans retreated, they had in the majority of cases removed all rails, and the greater part of the ties, from their standard gauge lines. Where they had been pressed, rails had not been removed, but in such cases, they had been destroyed by explosives at practically every joint. All buildings and water supplies were destroyed. A feature which caused some annoyance was that of delayed mines, placed by the Germans in all large embankments. These mines were not discovered and removed, exploded at varying periods from 10 days to 4 weeks after the retreat. The arrangement of them was somewhat ingenious, the detonator being held by a wire in an acid bath, the acid gradually eating the wire away until a shock from a train passing on the embankment put the finishing touch, thus causing the explosion to take place at a most inopportune time. Work, even with track pile drivers, was in some cases carried on at points under direct observation, but without material loss. In this period about 50 miles of new line were constructed and about 80 miles reconstructed. Special detachments were also furnished during this period for work on advanced rail heads in the Ypres area, during the August and September battles.

In Nov., 1917, came the push for Cambrai and all efforts were expended on the advancing of the line to Havincourt, which point was reached some five days after the advance took place. This work necessitated some four miles of new construction, including the bridging of the Nord Canal, and about three miles of railway repairs. A roadway ramp was also built in two days, for the forwarding of artillery from the embankment to the dry bottom of the Nord Canal, which was used as a roadway, none other being available. The drop from the embankment to the bottom of the canal was some 40 feet. This work was not strictly railway construction, but was done on an urgent call from the C.O.C., Fifth

corps was employed in the construction of additional railways and rail heads for a defence line, in view of the anticipated hostile spring attacks. Some 40 miles of railway were put under construction and practically completed by the time the German attack took place, viz: Mar. 21, 1918. Shortly after this attack, it became apparent that the British were losing ground, railway con-



Method of Loading Tanks on Railway Cars. In Nov., 1917, during one night, 460 of these tanks were unloaded, between Etricourt and Velu, for the push on Cambrai.

struction was abandoned and until the end of Mar., the C.O.R.C.C. was broken up into maintenance and demolition parties. All railway mounted guns in its area were salvaged, as was practically all rolling stock, with the exception of a small quantity, so badly damaged by shell fire that it could not be moved. In addition to this, 100 miles of railway track were effectively demolished, much of this work being done

Major (now Lieutenant-Colonel) J. G. Reid, D.S.O., transferred to command of unit, Oct. 23, 1916. He was formerly Assistant Engineer, C.P.R., Winnipeg.

Major (now Brigadier-General) C. L. Hervey, D.S.O., transferred to command of 4th Battalion, Canadian Railway Troops, Feb., 1917, seconded to War Office, May, 1918. He is an engineer and contractor, living at Lancaster, Ont., with office in Montreal.

Birthdays of Transportation Men in September.

Many happy returns of the day to:—

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

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

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

E. J. Blais, Foreman Tinsmith, Canadian National Rys., Transcona, Man., born Sept. 26, 1876.

V. T. Boughton, Assistant Superintendent, Chapleau Division, Algoma District, C.P.R., Chapleau, Ont., born at Troy, N.Y., Sept. 9, 1888.

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

W. B. Bulling, ex-Assistant Freight Traffic Manager, Eastern Lines, C.P.R., now of Knowlton, Que., born at Montreal, Sept. 16, 1858.

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

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

A. S. Dawson, Chief Engineer, Department of Natural Resources, C.P.R., Calgary, Alta., born at Pictou, N.S., Sept. 6, 1871.

H. B. Dufief, Assistant to Solicitor, Grand Trunk Pacific Ry., Winnipeg, born at Washington, D.C., Sept. 16, 1883.

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

R. S. Elworthy, General Agent, Passenger Department, Canadian Pacific Ocean Services Ltd., Chicago, Ill., born at London, Eng., Sept. 10, 1877.

H. G. Foreman, Assistant Treasurer, Canadian Northern Ry. System, Toronto, born there, Sept. 2, 1882.

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

G. J. Fox, Superintendent, Calgary Division, Alberta District, C.P.R., Calgary, Alta., born at Montreal, Sept. 24, 1883.

W. H. Gordon, Trainmaster, C.P.R., Field, B.C., born at Montreal, Sept. 21, 1875.

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

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

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

W. R. Howard, dispatcher, C.P.R., Brownville Jct., Me., born at St. Andrews, N.B., Sept. 14, 1871.

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

G. C. Jones, Assistant to President, G.T.R., Toronto, born at Clyde, N.Y., Sept. 24, 1869.

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

S. King, London, Ont., director, National Steel Car Co., Hamilton, Ont., born at Thetford, Norfolk, Eng., Sept. 12, 1853.

C. C. Labrie, Purchasing Agent, Canadian National Rys., Vancouver, B.C., born at Quebec, Que., Sept. 8, 1882.

R. E. Larmour, General Freight Agent, Eastern Lines, C.P.R., Montreal, born at Brantford, Ont., Sept. 26, 1868.

C. D. MacKintosh, Superintendent, Lethbridge Division, Alberta District, C.P.R., Lethbridge, Alta., born at Auckland, New Zealand, Sept. 24, 1882.

W. A. Mather, General Superintendent, Saskatchewan District, C.P.R., Moose Jaw, born at Oshawa, Ont., Sept., 1885.

M. B. Murphy, Manager, Winnipeg Joint Terminals, Winnipeg, born at Napa, Cal., Sept. 11, 1866.

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

W. J. Pickrell, Master Mechanic, New Brunswick District, C.P.R., St. John, born at London, Ont., Sept. 15, 1880.

H. T. Rawlings, Lake Forwarding Agent and Fuel Inspector, Canadian National Rys., Cleveland, Ohio, born at London Eng., Sept. 27, 1883.

W. D. Robb, Vice President, Transportation and Maintenance, G.T.R., Montreal, born at Longueuil, Que., Sept. 21, 1857.

H. T. Ruhl, Engineer, Maintenance of Way and Structures, Delaware & Hudson Rd., Albany, N.Y., born at Mifflinburg, Pa., Sept. 29, 1882.

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

R. A. Sewell, Assistant Superintendent, Montreal Terminals Division, Quebec District, C.P.R., Montreal, born at Brampton, Ont., Sept. 2, 1880.

J. M. Silliman, Engineer, Maintenance of Way, Susquehanna Division, Delaware & Hudson Rd., Oneonta, N.Y., born at Easton, Pa., Sept. 8, 1885.

H. A. Young, formerly Ontario Storage & Cartage Co., Ltd., Toronto, now of Buffalo, N.Y., born at Brooklyn, N.Y., Sept. 1, 1864.

Imperial Service Medals Given Canadian Government Railways Employes.

A London cablegram says the Imperial Service Medal has been granted to the following: Albert J. Atkinson, time-keeper, Moncton; Placide Babineau, carpenter, Moncton; Alexander Bain, station agent, Riversdale; B. T. Boddington, locomotive fireman, Moncton; William Cantwell, tool room keeper, Charlottetown; John Corbett, section foreman, Moncton; J. S. Cameron, section foreman, Penniac; Harry Cummings, hostler, Stellarton; Aime Dumas, conductor, Riviere du Loup; John A. Fraser, machinist, Moncton; M. Grant, section foreman, Riviere du Loup; Joseph Guay, brakeman, Levis; Alfred Lavel, conductor, Riviere du Loup; Jules G. Parent, locomotive man, Riviere du Loup; Aubrey C. Reid, carpenter, Moncton; F. W. Rioux, locomotive man, Riviere du Loup; Benjamin Steeves, section foreman, Campbellton; Matthew C. Webster, station agent, Pictou; Job Yeo, locomotive man, Charlottetown; Charles Mercier, locomotive man, Riviere du Loup; Robert W. Orchard, conductor, Mont Joli; Joseph Scott, locomotive man, Riviere du Loup.

Major (now Lieutenant-Colonel) F. LeFebvre, D.S.O., seconded as Railway Engineer, 5th area, Apr., 1918. He was Representative Engineer for Pearsons & Co. at Montreal.

Lieut. (now Lieutenant-Colonel) E. Turbett, O.B.E., D.S.O., seconded and placed in charge of mechanical shops northern area, Oct., 1916. He was Mechanical Superintendent, Quebec Ry. Light & Power Co., Quebec, Que.

Lieut. (now Lieutenant-Colonel) K. A. Ramsay, D.S.O., seconded as Assistant Director of light railways. He was Superintendent of Construction for Foley, Welch & Stewart, contractors.

Lieut. (now Major) C. Flint, D.S.O., Belgian Croix de Guerre, seconded to Marine Artillery, Mar., 1918. He was Resident Engineer, C.P.R., Edmonton, Alta.

Canadian Overseas Railway Construction Corps, War Establishment, Battalion Headquarters:

	Lieut.-Col.	Major	Captain	W.O., class 1	W.O., class 2	Sappers
Officer commanding	1					
Chief engineer		1				
Adjutant			1			
Quartermaster			1			
Paymaster			1			
Medical officer			1			
Regt.-sergt. mapor				1		
Reqt. quartermaster-sergt.				1		
Orderly room sergeant				1		
Paymaster sergeant						2
Buglers						2
Total	1	2	3	3	1	2

Grand total, all ranks, 12.

Company Organization.

	Major	Captain	Lieutenant	Warrant officer, class 2	Sergeant	Corporals	Lance Corporals	Corporals	Sappers
O.C. company	1								
Supt. construction		1							
Supt. track			1						
Supt. timber bridges			1						
Supt. steel bridges			1						
Supt. steam shovel and train crew			1						
Company sergt.-major				1					
Company Q.M.S.					1				
Track foreman						1			
Timber bridge foreman						1			
Steel bridge foreman						1			
Steam shovel and train crew foreman						1			
Asst. track foremen							2		
Trackmen								2	24
Team foremen								2	24
Teamsters								2	24
Asst. timber bridge foremen								2	24
Timber bridgemen								2	24
Instrumentmen								1	5
Draftsmen								1	5
Junior engineers								1	12
Clerks								1	12
Pile driver foremen								1	12
Pile driver men								1	12
Asst. steel bridge foremen								2	24
Steel bridgemen								1	12
Mechanical foremen								1	12
Mechanics								1	12
Masonry foremen								1	12
Masons and bricklayers								1	12
Train conductors								2	8
Cranesmen								2	10
Trainmen								2	14
Locomotive men								2	14
Enginemen								2	14
Steam shovel runners								2	14
Asst. grade foremen								2	14
Laborers								2	20
Cooks								2	9
Batmen								2	7
Total	1	1	4	2	4	16	16	210	

Grand total, all ranks, 254.

Summary.	
Headquarters	12
Two companies, each 254 of all ranks	508
Total	520

Specifications for Steel Full Mail Cars for Canadian Railway Mail Service

As stated in Canadian Railway and Marine World at the time, the Board of Railway Commissioners passed general order 259 on Jan. 13, 1919, approving specifications for mail cars submitted by the Post Office Department's railway mail service branch, on May 22, 1918, as amended and corrected. These specifications cover the construction of all steel postal cars, wooden mail apartment cars, fixtures and interior equipment, including construction, sanitation and operation. A complete set of plans for the cars have been prepared by J. Ogilvie, Mechanical Expert, Board of Railway Commissioners. The following summary has been abstracted from the specifications for the all steel postal cars:

Any of the following types of construction may be used: 1. Heavy center sill construction, the center sill acting as the main carrying member. 2. Side carrying construction; the sides of the car acting as the main carrying members, having their support at the bolsters. 3. Underframe construction; in which the load is carried by all the longitudinal members of the lower frame, and having

end construction may be used. This applies also to the bolsters and cross bearers, floor beams and end sills.

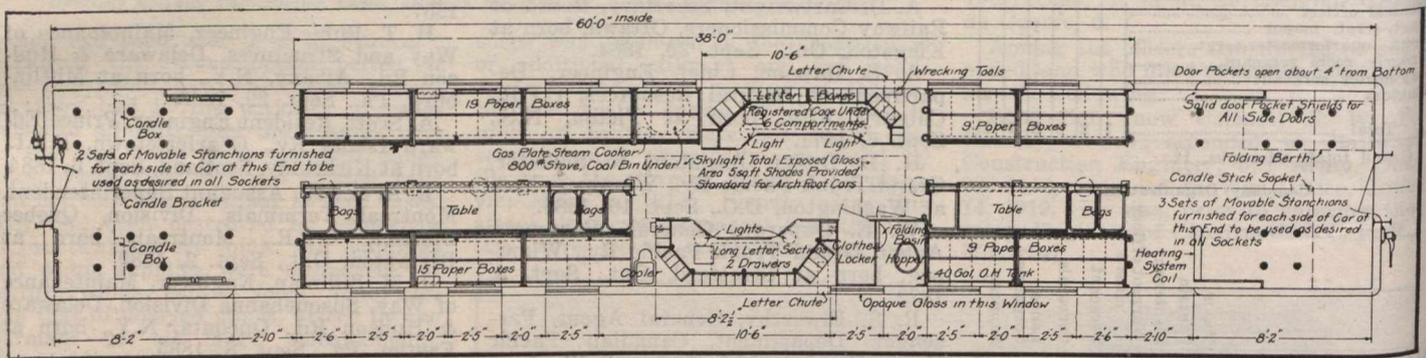
In the side frame, the effective depth, when considered as a girder, may be taken as either the distance between the centers of gravity of the side plate and side sill, or belt rail and side sill. At side door openings, the bending movement caused by the vertical shear at the door posts shall be considered as resisted by the section above and below the door openings. A sufficient proportion of the door reinforcing members shall be extended beyond the door posts, so that their reaction may be taken care of by the side frame without exceeding allowable stresses.

The sum of the section moduli taken at any horizontal section between the floor line and the top line of the windows, of all posts and braces on each side of car located between end posts, shall not be less than 0.30 multiplied by the distance in feet between centers of end panels. The outside sheathing shall not be less than $\frac{1}{8}$ in. iron or steel plate.

The roof may be either the clerestory

duli, such force being of sufficient amount to cause bending of all the vertical members acting together and the top connections of the vertical end members will be designed for these reactions. The bottom connections of the vertical end members shall be sufficient to develop the full horizontal shearing value of all members. Except where the vertical end members shall bear directly against, or be attached directly to, the longitudinal members at either the top or the bottom, the assumed reactions will be considered as loads applied to whatever construction is used at the end sill or end plate, and both these last named members shall have section moduli, respectively, sufficient to prevent their failure horizontally before that of the vertical end members.

Using rolled steel having an ultimate tensile strength of from 50,000 to 65,000 lb., all parts of the car shall be so proportioned that the following unit stresses shall not be exceeded; Bolsters, 12,500 lb.; sills and framing 16,000 lb. The same stresses may be used for cast steel except in tension, when they must



Steel Full Mail Car for Canadian Railway Mail Service.

a steel superstructure framing. 4. Combination construction; in which the side frames carry part of the load in order to utilize uniform center sill construction, and embodying if desired, steel castings, as parts of the underframe.

All fabricated steel must be open hearth, and must meet the requirements of the standard specifications of the American Society for Testing Materials.

The maximum end shock, due to buffing, shall be assumed as a static load of 400,000 lb., modified in the case of electric lines, where the train does not exceed 600,000 lb., to a static load of 200,000 lb., and for self propelled cars, with trailers, weighing not over 200,000 lb. to a static load of 100,000 lb. This end shock shall be assumed to be resisted by all the continuous longitudinal underframe members below the floor level.

Rivet centers shall be not less than 3 rivet diameters, nor more than 24 times the thinnest outside member thickness. Below the floor, the framing connections may be rolled, pressed or cast steel, and above the floor, of malleable iron. Connections for I beams, chambers and tees, may also be made by coping the rolled members. All rivet holes must be reamed in place.

Center sills may be built up, or composed of rolled or pressed shapes, with or without cover plates, and cast steel

or turtleback type. In the clerestory type, the deck plates shall be in the form of a continuous plate girder, or equivalent construction, extending from the upper deck eaves to the deck sill, and either built of rolled or pressed shapes, or pressed in one piece from steel plates. The carlines may be either pressed or rolled sections, extending in one length across the car, or supported from cantilever projections of the side posts. In the turtleback type, the carlines may be of similar arrangement. The roof sheets, if of iron or steel, must be at least 0.05 in. thick, and if of wood sheathing, not less than 13-16 in., covered with canvas, and laid in thick white lead and oil, or equal.

The sum of the section moduli of all the vertical end members at each end, shall not be less than 65, the main members to comprise at least 75% of this. For electrically operated trains, weighing not over 600,000 lb., the section moduli shall be at least 40, and for self-propelled cars and trailers, totalling less than 200,000 lb., the section moduli will be at least 20 for each end, the percentage of principal members remaining the same.

The horizontal reactions of all vertical end members at the top shall be calculated from an assumed external horizontal force, applied 18 in. above the floor line, to all vertical members in proportion to their respective section mo-

be reduced 20%. For members in compression, the formula, $16,000-70L-R$ is used, in which L is length in inches, and R, the least radius of gyration in inches. Rivets may be stressed to 10,000 and 12,000 lb. in shear in non-buffing and buffing, respectively, and to 20,000 and 24,000 lb., in bearing, non-buffing and buffing, respectively.

The floors shall be of iron or steel, flat or corrugated, the wearing surface of matched wooden flooring or composition, but with the latter, it must be surfaced in the wearing area, with wood, cork, or other suitable wearing material. The interior finish of the cars will be of flat or corrugated steel plate, composition board, or wood, properly secured to the car framing.

The cars shall be insulated throughout, with material of such a nature that it can be securely fastened so as to withstand the vibration incident to railway service, and the insulation must be such that it will not support combustion, nor absorb moisture beyond its own weight, and when wet, not become corrosive. It must be such that it will not transmit per square foot of surface, per Fahrenheit degree, in 24 hours more than 8 b.t.u. for side walls, end walls and roof, and 7 b.t.u. for the floor.

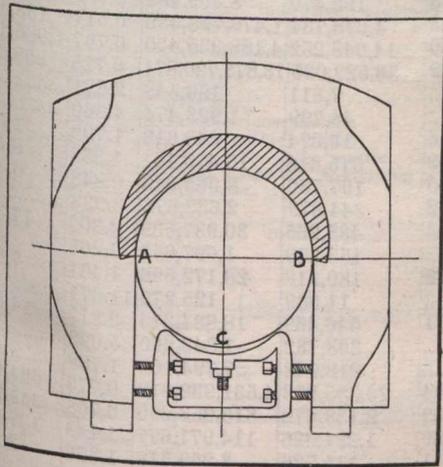
Details covering the illumination of the cars are also included in the specifications.

Railway Mechanical Methods and Devices.

Boring Locomotive Driving Box Journals on the T., H. & B. Ry.

In boring locomotive driving box journal brasses, the mechanic sometimes finds it difficult to get the brass bored to the exact size, especially when the journal is worn below the standard. The difficulty is due to the fact that the diameter of the brass is generally less than a full half circle, at the point A-B shown in the accompanying plan.

If it was over a half the circle there would be no difficulty in calipering it, and getting it exactly right, but it would not go over the journal. Therefore it is usually left a little less than the half circle and thereby it becomes difficult to caliper properly. To overcome this



some mechanics measure the journal, take half of the size, and set the boring bar tool that distance from the center of the bar. This, however, necessitates considerable measuring, where two or three cuts have to be taken out of the brass, and is not altogether reliable.

Others cut tin or sheet iron templates the size of the journal and bore brass to suit. The accompanying plan, got up at the Toronto, Hamilton & Buffalo Ry. shops in Hamilton, makes it very easy to caliper the exact size accurately. It consists of a 1/2 x 1 in. wrought iron frame, made smaller than the cellar pit of the smaller box. Two half inch set screws on each side make it adjustable to the larger size boxes. A half inch cap screw, C, with a check nut inside the frame, completes the device.

When in use the frame is set inside the cellar pit and flush with the top side of the box, where it is held by the 4 set screws. The operator sets the head of the cap screw, so that the boring tool will just touch it, then by placing the point of the inside caliper on the mark left by the tool he can tell accurately the size he is boring the brass. We are indebted to M. J. Hayes, General Foreman, T., H. & B. shops, Hamilton, for the foregoing.

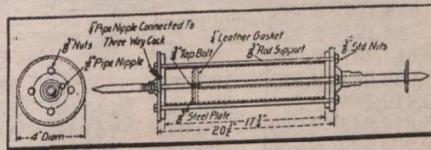
The Value of a Tool Room.

The province of the tool room is to make such tools as may be needed, to maintain them in such condition that when they are wanted, they are ready for service, and to have them on hand, so there will be no delay to the men who are to use them. I call to mind a

hurry up job that was not done on time; on investigating the matter, the excuse was made: "We could not find our tools." On looking into the matter in detail, it was found that the excuse was correct. The practice had been for a man to pick up the particular tool that he needed, use it, and leave it where he got through with it. If somebody else wanted it, and remembered where it was last used, he might find it; and if he did not find it, then he kept on hunting until he finally located it. The result was an enormous waste of time chasing up tools. There was no tool room in that particular department, and there never had been. The men were consulted and were asked: "If you are given a tool room, a place to put your tools, will you put them there?" A tool room was built in the end of a shed for storing tools—it was not a manufacturing department and there were no machine tools in it whatever. It was simply a place to put the special articles that were needed at various times in a car repair yard. The majority of the men did as requested. When they took a tool out of the tool room, and used it, they put it back. A few, however, did not have time to put the tools back. The majority of the men, who were living up to the rule, made it so unpleasant for those who were careless, that they fell in line, and in a short time, every tool belonging in the tool room was put in its proper place when the men were through using it.—J. A. Carney, Superintendent of Shops, Chicago, Burlington and Quincy Rd.

Jack for Removing Expanded Tires.

The old-time prevalent idea that any old tool that had served its usefulness in the back shop would be received with a warm welcome in the locomotive house is now becoming more generally known as erroneous. The locomotive man, not having the back shop equipment close at hand, is thrown more or less on his own resources, and it is, therefore, false economy to have the locomotive house equipped with a scant or poor supply



Jack for Removing Expanded Tires.

of tools. With good tools, reasonably cared for, higher efficiency is possible.

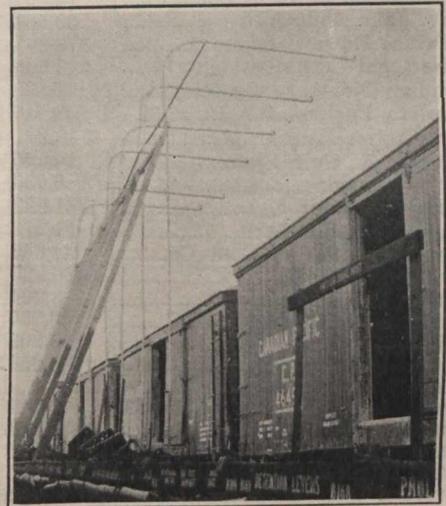
The accompanying illustration shows a tire removing device, a simple light air jack. After the tire is heated and expanded, the end of the jack is placed against the opposite tire or wheel center. The plunger, in pushing off the tire, is stopped from going out too far by a 3 x 3/8 in. round collar, set fast on the shaft, which strikes the wheel center as the tire leaves it, using a lesser stroke, and economizing on the air.—F. D. West, Tool Foreman, Illinois Central Rd.

The Hamilton and Barton Incline Ry. is reported to have increased the price of red tickets on its line in Hamilton, Ont., from 50 for \$1 to 50 for \$1.25. The orange tickets remain at 10 for 25c.

Leaky Roof Testing Equipment, Winnipeg Shops, C.P.R.

After a freight car has passed through the C.P.R. Winnipeg freight car repair shops, it is subjected to a test for leaky roofs, with the apparatus shown in the accompanying illustration, which is said to subject the car to as severe conditions as the most violent rainstorm.

Near the ground level, there is a 6 in. header, parallel to the track, supplied with water from a 2 in. pipe, the control valve for which is located in the car shop. From this header, there are six 3/4 in. galvanized iron upright pipes, rising to about 10 ft. above the top of the car, with the ends bent over into line



Apparatus to Test Roofs for Leaks.

with the track centers. These pipes are supported by a wooden frame structure. The sprinkler ends are the ordinary automatic fire sprinklers, with the fire seal removed.

The sprinkler apparatus is placed over the outgoing track, and a string of repaired cars is drawn under the sprinkler at the rate of about 3 m.p.h., which is sufficient to show up any leaky spots. In addition to the control valve, there is also a drip cock inside the car shop for draining off the water in cold weather to prevent the apparatus from freezing.

Reid Newfoundland Co. Suit—A petition has been presented to a Quebec court by Miss H. D. Reid, asking for the appointment of a sequestrator in connection with the management of 54,768 shares of the Reid Newfoundland Co., now deposited with the Royal Trust Co., Montreal. The proceedings are directed against Sir William D. Reid, H. D. Reid, R. G. Reid Jr., Lord Shaughnessy, the Royal Trust Co., and the Reid Newfoundland Co. The petition alleges that by the will of her father, who was also the father of Sir William D. Reid and H. D. Reid, and the grandfather of R. G. Reid, his widow inherited property which was to revert to the children at her death. On the death of Lady Reid, Sr., it is claimed, Sir William D. Reid and H. D. Reid and others, as executors, continued the management of the Reid Newfoundland Co. and kept and operated the estate for their own account and benefit.

Steam Railway Statistics for Year Ended June 30, 1918.

This is the third of a series of tables containing statistics for the year ended June 30, 1918. The others were published in Canadian Railway and Marine World for July, pgs. 365 and 366, and for August, pg. 420.

Name of Railway	Passengers carried	Passengers carried on mile	Revenue per passenger per mile, cents.	Mileage of revenue passenger trains	Mileage of revenue mixed trains	Mileage revenue freight	Tons of freight carried	Tons carried one mile.	Revenue per ton per mile, cents.	Mileage of non revenue trains.
Alberta and Great Waterways....	9,835	624,985	3.856	6,015	20,792	18,633	60,263	4,953,011	1.001	601
Algoma Central & Hudson Bay	38,564	2,625,082	3.629	60,330	14,840	306,515	836,280	101,339,272	0.818	14,578
Algoma Eastern	60,477	1,414,976	3.435	50,623	.....	101,109	2,609,163	32,657,663	2.263	170
Atlantic, Quebec & Western.....	44,636	1,348,970	2.902	28,789	36,239	40,723	220,110	8,727,641	1.599	1,367
Brandon, Saskatchewan & H.B...	22,022	781,807	2.701	42,926	.....	21,528	26,043	1,126,725	1.490	.....
British Yukon	6,913	368,720	10.386	461	28,655	4,837	28,700	2,463,575	6.792	2,611
Canada Southern	1,518,705	150,629,334	2.512	1,976,572	146,941	1,829,515	10,409,361	1,566,969,563	0.683	76,293
Canada and Gulf Terminal	25,667	560,603	3.408	.....	20,304	.....	46,988	1,400,419	3.546	.....
Canadian Government Railways:—										
Intercolonial	4,632,016	284,633,916	1.727	3,190,339	467,589	4,728,109	8,177,862	2,090,377,028	0.616	280,053
International of N.B.....	34,565	1,375,696	2.726	35,526	67,762	64,019	157,642	10,880,580	1.139	11,091
St. John and Quebec.....	50,534	1,227,846	2.491	430	65,559	12,483	78,943	3,334,975	1.932	5,201
Prince Edward Island.....	376,891	9,383,641	1.854	94,517	216,079	37,033	193,470	8,409,498	3.639	16,857
National Transcontinental	913,566	57,772,534	1.831	826,579	431,031	2,290,743	4,078,734	1,476,798,332	0.517	138,580
Canadian Northern System.....	10,294,830	327,608,708	2.243	6,279,467	1,887,796	9,711,230	14,048,252	4,188,935,470	0.757	1,036,158
Canadian Pacific	15,179,047	1,519,558,178	2.134	17,652,919	1,956,288	23,791,329	30,522,035	13,875,720,871	0.728	958,378
Cape Breton	13,221	282,325	2.940	.....	19,406	.....	7,811	196,548	2.871	.....
Caraquet & Gulf Shore.....	14,596	598,636	3.038	.....	.....	.....	46,799	1,923,474	4.360	.....
Central Canada	6,030	292,307	3.206	.....	10,284	1,456	13,374	648,613	1.792	1,047
Central Vermont	281,822	3,702,904	2.715	119,132	34,829	70,539	575,816	15,470,141	1.338	8,445
Crows Nest Southern.....	11,373	337,407	3.522	33,023	.....	48,325	197,730	8,065,046	0.948	6,362
Cumberland Ry. & Coal Co.....	44,845	530,197	2.667	.....	27,994	10,622	344,879	2,632,576	3.933	.....
Dominion Atlantic	430,225	17,568,926	2.272	251,060	90,088	178,744	435,265	30,937,539	2.309	17,383
Eastern British Columbia.....	3,204	32,922	5.478	456	7,608	.....	153,309	1,697,650	2.268	481
Edmonton, Dunvegan & B.C.....	46,757	5,816,711	3.464	85,020	22,518	118,488	189,918	23,172,596	1.461	7,662
Elgin & Havelock	8,232	90,552	1.442	.....	14,748	.....	11,389	125,279	11.371	.....
Esquimalt & Nanaimo.....	308,656	7,795,133	2.910	151,272	4,140	111,831	546,459	18,884,313	2.817	14,606
Essex Terminal .....	.....	.....	.....	.....	28,000	.....	368,732	1,843,660	5.022	.....
Fredericton & Grand Lake C. & R. Co	14,317	379,244	2.784	.....	32,486	.....	218,948	7,794,103	1.788	.....
Grand Trunk	11,041,854	568,371,287	1.924	7,026,797	650,071	9,911,704	23,385,853	4,531,932,818	0.777	604,639
Grand Trunk Pacific.....	430,762	53,702,766	2.227	986,247	93,690	2,002,253	2,138,472	815,253,290	0.708	349,250
Grand Trunk Pacific Branch Lines	287,837	14,969,331	2.471	326,254	221,491	413,789	1,221,326	114,971,677	1.149	137,460
Hereford	28,452	444,533	4.594	30,403	32,137	1,161	111,726	3,259,518	1.356	2,188
Kent Northern	6,500	.....	.....	.....	.....	.....	14,400	.....	.....	.....
Kettle Valley	58,523	6,529,504	2.901	197,039	25,512	131,444	320,680	21,373,586	1.549	74,540
Lotbiniere & Megantic	11,370	156,968	2.811	.....	18,780	.....	62,867	895,894	3.966	.....
Maine Central (Princeton Branch)	104,116	530,992	2.492	3,950	5,900	4,040	219,327	1,118,797	0.637	145
Manitoba Great Northern.....	6,564	148,662	2.811	9,984	24,024	4,680	41,286	1,846,846	0.929	41
Maritime Coal Ry. & Power Co..	19,465	179,198	3.298	.....	31,615	.....	278,853	2,866,268	3.442	.....
Massawippi Valley	169,901	2,346,103	2.753	63,368	22,505	38,375	565,037	16,612,478	0.886	2,027
Midland of Manitoba.....	59,941	3,627,633	2.483	98,765	.....	42,545	173,783	12,404,579	1.025	.....
Montreal & Atlantic	332,004	8,117,480	2.438	136,535	154,661	238,812	1,781,437	98,909,665	1.173	6,483
Moncton & Buctouche	22,899	503,778	2.400	.....	15,024	.....	18,957	379,140	5.176	2,642
Morrissey, Fernie & Michel.....	105,050	640,805	1.694	.....	35,511	.....	466,244	2,844,088	2.758	.....
Napierville Jct.	80,069	2,825,270	3.036	50,068	13,358	32,270	845,512	24,241,474	0.806	5,801
Nelson & Fort Sheppard.....	25,384	580,357	3.315	36,732	.....	18,451	35,525	1,088,625	2.651	2,277
New Brunswick Coal & Ry. Co..	26,074	624,120	2.598	.....	37,725	.....	44,177	674,382	5.679	.....
New Westminster Southern.....	907	14,191	2.729	.....	3,269	440	28,377	137,270	3.202	.....
Ottawa & New York.....	134,160	3,313,407	2.609	75,222	.....	54,984	502,409	26,062,989	0.614	8,131
Pere Marquette	208,517	3,952,893	2.512	186,568	.....	788,656	2,892,736	535,492,444	0.577	4,556
Quebec Central	450,755	19,419,465	2.300	270,164	249,219	235,931	1,160,735	94,587,884	1.490	217,067
Quebec, Montreal & Southern....	243,371	5,618,844	2.669	90,071	74,632	110,122	773,455	36,639,853	1.276	25,104
Quebec Oriental	40,720	2,274,323	2.899	29,926	30,696	103,983	206,492	17,135,410	1.312	16,410
Quebec Ry., Light & Power Co....	41,123	277,991	1.525	2,345	.....	25,232	236,031	3,392,882	3.363	231
Red Mountain	6,466	58,022	2.725	.....	8,928	.....	25,064	217,855	3.574	249
Roberval-Saguenay	36,630	606,151	2.823	23,922	9,393	36,640	178,692	5,728,126	1.808	2,760
Rutland & Noyan.....	30,005	101,717	2.844	1,247	.....	2,358	326,406	1,106,516	0.694	.....
Salisbury & Albert	10,924	246,042	2.673	.....	28,900	.....	47,598	1,192,141	3.034	.....
St. Lawrence & Adirondack.....	636,992	12,929,274	1.697	144,371	.....	183,528	2,494,847	100,356,770	1.078	9,501
St. Martins	5,916	112,166	2.626	60	14,580	.....	11,359	161,688	6.515	.....
Sydney & Louisburg.....	160,395	2,014,350	2.588	24,808	20,096	155,078	3,433,044	52,191,604	1.590	.....
Temiscouata	66,648	1,804,042	2.880	50,808	68,003	6,169	230,345	8,922,073	2.521	14,204
Timiskaming & Northern Ontario	484,696	26,981,491	2.470	396,794	51,937	577,150	1,157,869	217,260,868	0.810	25,356
Thousand Islands	40,097	240,582	3.370	.....	82,678	.....	41,046	246,276	11.834	.....
Toronto, Hamilton & Buffalo....	509,315	16,395,275	2.584	212,114	.....	217,703	3,584,724	135,128,399	1.370	9,012
Vancouver, Victoria & Eastern...	150,885	4,048,356	2.795	112,221	101,785	74,354	975,733	30,535,327	1.250	37,589
Victoria & Sidney.....	53,129	679,282	2.531	27,180	1,264	7,168	19,682	180,694	6.080	.....
Victoria Terminal Ry. & Ferry Co.	51,134	50,632	2.483	1,684	79	446	11,973	11,853	6.120	.....
Wabash	159,167	27,167,525	1.361	349,348	.....	1,222,737	2,861,479	619,141,319	0.494	3,332
York & Carleton	6,995	41,970	.....	.....	7,776	.....	13,791	82,746	.....	.....
Total for 1916-17.....	50,737,294	3,190,025,682	.....	41,850,189	7,787,636	60,143,014	127,543,687	31,029,072,279	.....	4,158,919
Total for 1918.....	53,749,680	3,150,127,428	.....	44,038,575	8,746,811	62,863,724	121,916,272	31,186,707,851	.....	3,627,901

In addition to the revenue train mileage, given in figure columns 4, 5 and 6, there was a total special revenue train mileage of 76,721, distributed over 24 railways.

Carbonization in Valve Chambers and Cylinders of Superheated Steam Locomotives; Its Cause, Effect on Lubrication and Maintenance, and Proper Measures to Overcome it.

By F. P. Roesch, Supervisor, Fuel Conservation Section, U.S. Railroad Administration, Northwestern Region.

The so-called carbonization or deposits of foreign matter in valve chambers, passages, etc., is usually called carbonized oil. This term is a misnomer, as shown by an analysis made by Dr. P. H. Conradson, Chief Chemist, Galena-Signal Oil Co., the composition of four samples being as follows:

FIRST SAMPLE.

- 13.35% thick oil.
- 2.60% oily, gummy matter.
- 57.15% carbonaceous combustible matter (coal and coke matter).
- 26.90% red ash, principally iron oxides, silicious matter.

After removing the oil and oily matter, the deposit was non-magnetic, indicating practical freedom from metallic iron.

SECOND SAMPLE.

- 24.25% thick oil.
- 0.80% oily, gummy matter.
- 48.78% iron metal wearings.
- 8.18% iron oxides and silicious matter.
- 17.87% carbonaceous combustible matter.

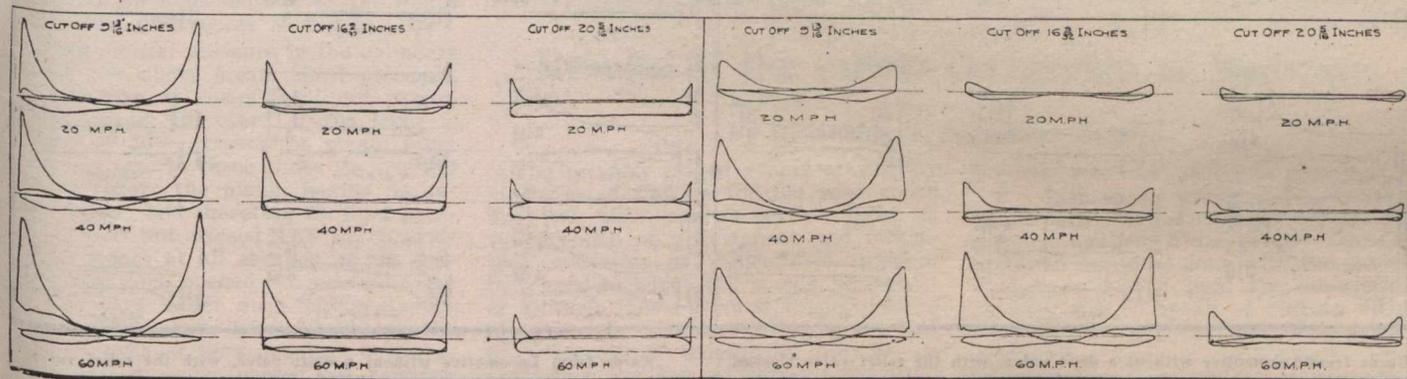
After extracting the oil and oily matter, the deposit was very strongly magnetic, containing a large amount of metallic iron.

sticky deposit which bakes on the metal much harder with superheated steam, especially high superheat, than would be the case with ordinary wet or saturated steam."

Effect on Lubrication and Maintenance
—Oil is introduced into valve chambers and cylinders in order to separate the rubbing surfaces with a film of lubricant. The oils now furnished will admirably perform this function, regardless of temperature, under proper conditions, but this film of oil is infinitesimal in thickness, therefore when the throttle is closed and the locomotive so manipulated as to allow the entrance of smoke box gases, with their constituent properties of coal, coke, soot and cinders, these small particles will work their way between the pistons and cylinder walls, separating them to a degree far beyond the thickness of the oil film, so that effective lubrication, even though the

This beautifully homely illustration gave me the idea that giving the cylinder of a locomotive too much oil at one revolution and not any at the next revolution is like a window washer putting plenty of water on the pane of glass and then clearing the pane of the excess water by passing a rubber squeegee over it, leaving but a very thin film of water that quickly evaporates and leaves the pane clean and dry.

The piston in the locomotive's cylinder acts like the squeegee in the window washer's hands. It cleans the walls of the cylinder of all the excess oil, and drives out through the ports, exhaust passages, and the nozzle, what oil does not cling to the piston head and cylinder heads, to be carbonized at the first entrance of oxygen from the air; whereas the cylinder walls that need the lubrication for the next revolution do not have any unless the oil is injected into



Cards from Locomotive having no by-pass or relief valve.

Cards from Locomotive having a by-pass and relief valve.

THIRD SAMPLE.

- 6.45% oil and oily matter.
- 35.70% coky, carbonaceous combustible matter.
- 57.28% metallic iron, iron oxides and silicious matter.

Mineral matter strongly magnetic from metallic iron wearings.

FOURTH SAMPLE.

- 4.2% oil and oily matter.
- 41.0% metal wearings, iron oxides, silicious matter.

Mineral matter strongly magnetic.

From the above it will be seen that oil or oil products form but a small percentage of the whole, and the analysis also points directly to the cause, namely, smoke box gases drawn into the cylinders through the nozzle and there mixed with the oil adhering to the various ports, passages and surfaces not swept by either the valves or pistons in their movements, and this combination, through the high temperatures obtaining at the moment the throttle is closed, together with practically the entire absence of steam, bakes on the surfaces above referred to almost in the form of an enamel. Again quoting Dr. Conradson: "The above clearly illustrates the advisability of preventing smoke stack gases, with their inherent dirt, dust, grit, etc., to be drawn into the cylinders while the locomotives are drifting. As seen from the analyses, a comparatively small amount of oil binds together a large amount of mineral matter, forming a

quantity of oil introduced be materially increased, is practically destroyed, as the film of oil cannot fill the grooves or ridges in rings and cylinders. Or again, this foreign matter may combine with the oil, forming an abrasive compound, causing wear of bushing, bull rings and packing rings, and thus accounting for the metallic iron, etc., found by Dr. Conradson. In fact, our investigation indicates that increasing the supply of oil beyond that required for effective lubrication simply aggravates instead of reducing the trouble.

R. Quayle, General Superintendent Motive Power, Chicago and North Western Rd., who is always given to reducing complex problems to the simplest channels for conclusions, told me some time ago how he, years previous, had demonstrated to some locomotive men what constituted sufficient lubrication. He said he put a few drops of oil on a face plate on his desk and smeared the oil over the entire surface of the plate, after which he scraped a straight-edge over the entire surface to remove all the surplus oil. He said he had nearly as much oil on the straight-edge and on the four edges of the face plate as he originally put on the face plate and the locomotive men had to admit that the face plate had enough oil left on it to lubricate the sliding surface of another face plate.

the steam the very next revolution.

As the lubrication is affected, so is the maintenance. Wear on valve rings and chambers, cylinder packing rings and cylinders is proportionately increased. Not only wear through abrasion, but, through lack of lubrication, cylinder packing rings become overheated, resulting in their collapse, or in other cases, breakage. Again, these so-called carbon deposits affect maintenance in other ways, as, for instance, cases have been observed where these deposits built up on piston and cylinder heads so as to take up practically all the clearance, in some cases knocking out cylinder heads, damaging cylinders, studs, etc., in others partially or wholly shearing rod bolts, etc.

Were the increased maintenance costs, the only direct loss, it might not be so serious, but, in addition to this, the deposits build up in the packing ring grooves, causing the ring to stick, producing valve and cylinder blows which materially impair the efficiency of the locomotive and result in proportionate increase in fuel and water consumption. Furthermore, cases have been observed where the exhaust passages were so constricted, due to the heavy deposits of this material, as to retard the exhaust sufficient to highly increase the back pressure.

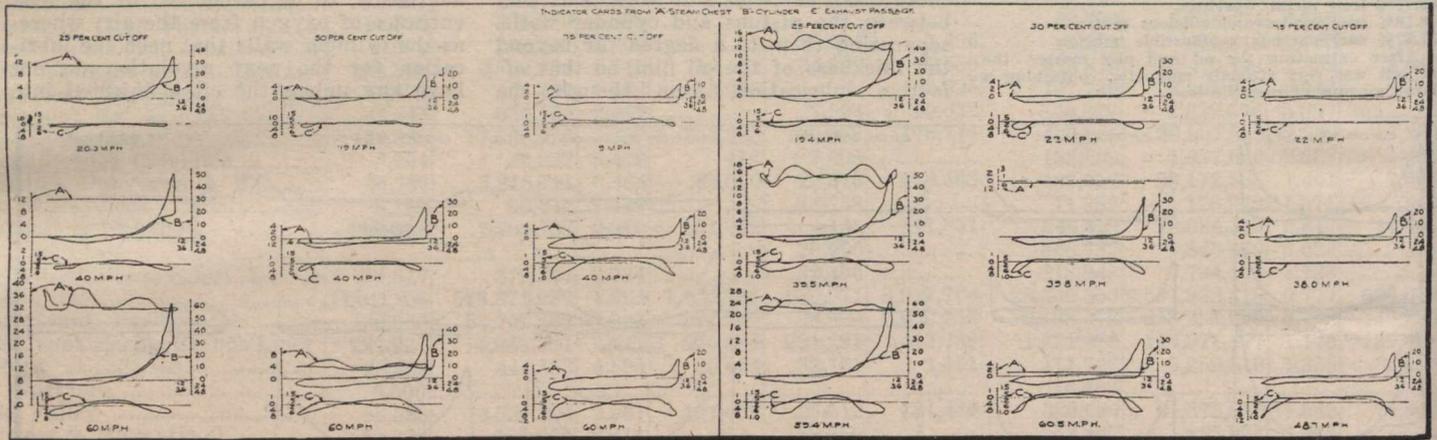
A Possible Solution.—In checking over the various measures adopted by different railways to overcome the troubles mentioned above we find a marked lack of unanimity. This is not surprising, however, when the conditions under which each operates is taken under consideration, and it is only by comparing and analyzing the results obtained by the different methods that some plan can be formulated applicable to and meeting practically all conditions.

We find some roads block shut, or entirely remove, the steam chest relief valves, retaining the by-pass. Others block shut the by-pass and maintain the relief valve. Others again dispense with both by-pass and relief valves, while other roads maintain both. Some use a drifting throttle, some a so-called drifting valve, and others again use nothing. Some use special metal, some common grey iron, some use plain snap rings, some grooved and perforated snap rings, some segmental rings, etc. Some use a special oil, some the same as with saturated steam. Some advocate a reduc-

especially at high speeds. In this particular discussion we are not so much concerned with the compression, as the vacuum, as the only material effect due to compression, in so far as the so-called carbonization is concerned, is to increase the temperature of the air being compressed, which, while it undoubtedly adds to the adherence of the deposit, would not, however, be otherwise serious were it not for the presence of the smoke box gases in the cylinder, which are due solely to the vacuum created. A certain amount of compression is considered advisable in order to aid in cushioning the reciprocating parts. The elimination of the by-pass valve, either by blocking or removal, can have but one effect, namely, increasing the degree of vacuum, which vacuum must and will be filled from some source, either through the open relief valve, if in use, or in its absence through the nozzle, or through the admission of steam from the boiler. It has been shown conclusively that the major portion of the deposits found in cylinders, etc., is due directly to smoke

pass valves, while others maintain them presumably operative. In the absence of both by-pass and relief valves, much higher compression and greater vacuum will obtain than by their use, and in this case the vacuum can only be relieved through the nozzle. In order to make this clear, attention is directed to the the drifting cards shown herewith. Note the difference in the vacuum and compression at various speeds and cut-off. These cards also indicate another factor in the proposition, viz: if it were desired to entirely overcome cylinder vacuum under such conditions it would be necessary to proportion the by-pass valves to conform to cylinder volumes. As this is mechanically impractical, however, the problem must be considered with a view to finding relief under existing conditions.

Drifting Valves.—Under this head can be classed all devices used to admit steam to the steam chest and cylinders, through pipes, etc., i.e., not through the main throttle as with a drifting throttle, and it is through failure to properly co-ordin-



Cards from Locomotive without a drift valve, with the relief valve blocked shut.

Cards from Locomotive without a drift valve, with the relief valve opened.

tion in the fatty constituents in the oil, others an increase. Some advocate the use of the hydrostatic lubricator, others favor forced feed.

The Steam Chest Relief Valve is a heritage handed down from the saturated steam locomotive. It had its place at that time and as a safety feature with certain modifications can no doubt be fittingly used on modern power. Blocking it shut, or removing it entirely, will certainly prevent the admission of air to the valve chamber through this source, when the throttle is closed on a moving locomotive; but in this case the question arises, which is preferable in the cylinder, clean air from the outside, or smoke box gases? As a matter of fact, enquiry seems to indicate that these valves were removed from superheated steam locomotives, not so much to prevent carbonization, but to overcome cylinder failures which were attributed to the stresses set up by the cooling effect of air so introduced. Some years ago these valves were removed from some locomotives using saturated steam, presumably to reduce maintenance costs, and in those cases the same deposits were in evidence on cylinder and piston heads.

By-Pass Valves—The function of this valve is to reduce the vacuum and compression created in the cylinder of the moving locomotive employing piston valves, when the locomotive is drifting,

box gases, and therefore the logical solution of the problem appears to be either to prevent their admission or to neutralize their evil effects.

The Drifting Throttle.—On roads where no drifting occurs to speak of, i.e., comparatively level roads, the use of the drifting throttle, so called, will undoubtedly prevent the admission of smoke box gases to the cylinders, regardless of the presence or absence of either or both steam chest relief and cylinder by-pass valves, provided the locomotive man does not forget. Here, however, is the danger—human fallibility. If the locomotive man fails to leave his throttle slightly cracked when coming to a stop, or when tipping the summit of a grade, the damage is done, even though the throttle be left closed for but a few revolutions. Each succeeding oversight adds its mite to the deposit, thus accounting for the deposits where the drifting throttle is presumably always used. As stated above, on comparatively level roads the drifting throttle can be used to advantage, if men will at all times comply with instructions, but where necessary to make long drifts, other means must be provided, as the drifting throttle is not always practicable, the gradient, tonnage, brakes, etc., governing.

The above explains why some roads find it to their advantage to block by-

ate or take into consideration the relative movements of valve and piston that so many devices have been discarded as unsatisfactory. So many failures have been recorded that today the advocate of the drifting valve is received with a smile of compassion. A study of the causes of these failures would indicate the following:

1. The average locomotive man drifts his locomotive with the lever well hooked up, i.e., in a short cut-off. Following the movements of the valve and piston and beginning the cycle with the initial port opening as the piston is beginning its stroke, we have the piston moving back (assuming it starts from the front center), while the valve moves forward (inside admission) to complete the port opening. Continuing the cycle the valve now begins to travel back, closing the port when the piston has travelled a distance proportionate to the cut-off.

2. We will now assume that we are admitting steam to the valve chamber through a pipe of certain dimensions, and in order to avoid repetition we will assume the pipe to be 2 in. inside diameter. The flow of steam through a 2-in. pipe at 200 lb. absolute pressure is 9 lb. per second (Napier's formula

A.P.)

Its volume 40 lb. absolute pressure is 90.54 cu. ft.

Taking a locomotive with cylinders 25 x 30 in., drivers, 63 in. in diam., we find the piston displacement equal to 8.5 cu. ft. per cylinder. Now, assuming this locomotive to be drifting at the rate of 30 m.p.h., it would take 90.44 cu. ft. of steam per second to keep the cylinders filled at this speed; therefore, it would appear that a 2-in. pipe would more than meet our requirements under the above conditions, viz: keep both cylinders filled with steam above atmospheric pressure.

The above would be correct did the steam ports open directly to the boiler, so there would be no drop in pressure between the boiler and the cylinders, or if the intervals between port opening were so far apart as to allow the steam to bank up to boiler pressure. But as this is not the case and as the steam must follow natural laws (Boyle's) in so far as decrease in pressure as the increase in volume into which it expands, and as the cylinders are continually drawing on this supply, it follows, as shown by tests conducted on a certain railway that a 2 in. pipe extending from the cab to the steam chests will not maintain a pressure to exceed 20 lb. gauge or 35-lb. absolute in the valve chambers on a locomotive of the above dimensions drifting at 30 m.p.h.

As the initial pressure in the cylinders cannot rise above steam chest pressure, the pressure at cut-off will not exceed 35 lb. gauge; therefore, if the lever is carried at 30% stroke, the steam must again, expand to three times its original volume before the piston begins its return stroke, and therefore its final pressure would not exceed 11.6 lb., providing no steam at all escaped at the moment the port opened to exhaust. As the pressure under such circumstances was slightly above atmospheric at the point of exhaust port opening, however, the excess pressure passed out through the nozzle until the point of equalization was reached; on the further movement of the piston, the steam continues to expand with a corresponding drop in pressure to a point well below atmosphere. As no more steam is being admitted, equalization can only take place through the admission of air, and as the only opening to atmospheric pressure is by way of the nozzle, equalization will take place through this source, the inrushing air carrying with it the front end gases with all their fouling constituents. A glance at the indicator cards showing a sustained steam chest pressure of 25 lb. will clearly verify this statement.

Here, then, apparently is where and when the trouble starts. As the cylinder pressure is less than atmosphere, air will flow in through the nozzle and the open exhaust port, until the pressures equalizes the combined steam, air and smoke box gases being then expelled by the piston on its return stroke. However, as the valve, valve chamber and ports are at their highest temperature, and exposed to the first inrush of the incoming gases, it follows that all carbonaceous matter in these gases, coming into contact with any of the above surfaces, will adhere, or, in other words, be baked on. This theory appears to satisfactorily account for the greater deposits obtaining in the exhaust cavity of the valve as well as the exhaust ports and passages. If the reader will superimpose

the drifting cards taken with and without by-pass and relief valves it may help to clarify the proposition.

The above hypothesis, if based on correct premises, would hold good in so far as the drifting throttle is concerned, except that through use of the drifting throttle a higher initial pressure may be obtained, resulting in a correspondingly higher terminal pressure. The only trouble is, as previously stated, in the fallibility of the human agent, and also the fact that the total opening of a circular valve (throttle) is very indefinite where gauged by the position of the throttle lever.

Starting from correct premises we should arrive at correct conclusions. Therefore, if the correctness of the above theories is established, the remedy appears obvious, namely, prevent by automatic means as far as possible the intake of smoke box gases or neutralize their evil affects by diluting with steam. To accomplish this it would appear that we should turn to such devices as we already have at hand, viz.: the steam chest relief and the by-pass valves. While the former is not exactly necessary, yet its use under proper conditions presents no great difficulty and as a safety feature it has a distinct place. The use of the by-pass, however, is prac-

tically essential in that it will go far toward preventing the formation of a vacuum in the cylinders if properly maintained, and under right treatment its maintenance cost is negligible.

The last and most important requirement is the neutralization of such gases as might be drawn in through the nozzle through improper handling of the locomotive. This can only be accomplished by admission of a jet of steam to both the receiving and exhaust end of the valve so that when the conditions obtain as mentioned previously, the steam jet so admitted will mingle with the front end gases before they have an opportunity to deposit their constituent matter, and so neutralize their effects, it being universally conceded that carbonization of oil, or even the deposits of the so-called carbon, will not take place in the presence of steam, as, again quoting Dr. Conradson: "I will show you by another interesting demonstration that you might admit a certain amount of air with the steam without carbonizing oil"; or, conversely, a certain amount of steam with the air and produce like effect.

The foregoing was contributed as an individual paper at the recent railway mechanical convention at Atlantic City, N.J.

Results of the Public Ownership of Railways.

By Andrew T. Drummond, LL.D.

The recently issued report of railway statistics of Canada for the year ended June 30, 1918, throws further light on the problem of government and municipal ownership of railways—a problem in regard to which the people, especially of Ontario, have allowed themselves to be misled by sections of the press and by a coterie of individuals engaged in exploiting the idea of public ownership, and who studiously suppress all facts which would militate against the idea. As the results of the operation of each railway line are given in the report in voluminous detail, and are compiled from sworn statements furnished by the different railway companies, we have reliable sources from which to draw conclusions. These conclusions only add emphasis to a long series, extending over years, illustrating the inability of both governments and municipalities in Canada to create those conditions in construction and operation which would place their railways on a business basis and lead to the avoidance of deficits. Briefly, these 1918 statistics establish certain facts.

1. Government ownership, just as it has year after year in the past, resulted in large deficits on every railway operated, whether under provincial or Dominion auspices. The Dominion Government systems show an adverse balance for the year of nearly \$6,000,000 in their operating cost, without considering interest on the bonds issued to pay for the capital cost of the roads. On the other hand, the Ontario Government's railway fell short by towards \$500,000 of paying its full bond interest, whilst the New Brunswick Government's road failed to meet any interest whatever on its cost. And it has to be remembered that all government roads are entirely exempt from government imposts and municipal taxes which privately owned

companies are compelled to pay.

2. Just as in previous years, every municipally owned railway, if it had charged against it its proper share of taxes, as would be done with the private roads, and had it paid the interest on its cost, not to speak of sinking funds and funds for renewals and betterments, would have shown a large deficit. Even the much-heralded London and Port Stanley Ry., operated under the auspices of the Hydro Electric Power Commission of Ontario, which is a mere arm of the Ontario Government, would have had its nominal surplus of \$22,493 turned into a considerable deficit had fair taxes been charged and interest paid on its original cost, which appears to be represented in the statistics by \$1,746,854 in a municipal subscription and loan from the City of London.

3. The same government statistics indicate that, whilst the Hydro Electric Power Commission of Ontario is supposed to furnish the municipalities and railways with power at cost, for light, railway and manufacturing purposes, the charges made by it, while they may represent cost to the commission, appear, in actual operating experience, to be higher than those charged to consumers by privately owned power companies. Thus, in the case of the Lake Erie and Northern, and Galt, Preston and Hespeler, and the London and Port Stanley Rys., which derive their power from the commission, the cost of this power is represented by 7.2c, 6.72c and 4.44c, respectively, for each mile run by the cars of these companies as against the much lower cost of power per car mile of, for instance, the following interurban electric railways, which derive their power from other sources:—

Lake Erie and Northern.....	7.2c
Galt, Preston and Hespeler.....	6.72c
London and Port Stanley.....	4.44c

Toronto and York Radial.....	4.9c
Montreal and Southern Counties.....	4.02c
Hamilton Radial.....	3.98c
Hamilton, Grimsby and Beamsville.....	3.12c
Schomberg and Aurora.....	2.9c
Niagara, St. Catharines and Toronto.....	2.7c

The Windsor, Essex and Lake Shore Ry., which is operated electrically with rapid steam power, and in 1917 was represented in power cost by 4.6c a car mile, indicated in 1918 a power cost of 6.2c.

We may well ask ourselves, Why do these results happen? The work of a government, as well as that of a municipality, is a business, and why cannot both be run on business principles? The Hydro Electric Power Commission of Ontario has always, in matters of expenditure, been given a free hand by the Ontario Government, of which it is an executive arm. The principle it has adopted of supplying power to the municipalities and railways at cost is fair, provided that cost is reasonable compared with the charges of other organizations. No details of its expenditure have been furnished, at least to the public, and no judgment can thus be formed as to the wisdom or economy exercised. The special report of the auditor presented to the legislature deals only in generalities, and expresses no opinion as to the propriety or large amount of any individual expenditure, whilst the public appears to be content with the mechanical outcome of the undertaking, without troubling itself as to the largeness of the outlay in construction, or as to whether the rates charged are, in consequence, higher than they could have been. The huge estimates of cost—towards \$100,-

000 a mile—furnished by the commission to Toronto and other municipalities three and a half years ago, when seeking the passage by the people of the Toronto-to-London railway bylaws—estimates enormously in excess of what a private corporation, in deference to its shareholders, bondholders and the public, could have entered on—suggest that the expenditure already incurred by the commission in the purchase of power and in construction, as well as for maintenance, operating and renewals, have been so large that the present charges to the municipalities and railways have necessarily had to be correspondingly large, even if they exceeded what dividend-paying private companies are able to afford.

The recent reduction made by the commission in its rates for power to a considerable number of municipalities was, suggestively, not so much an act of grace as from a desire to help the municipalities to avoid their deficits, which were becoming noticeable, and to prevent the otherwise raising by the municipalities of their rates to consumers and driving them into the hands of private companies which could often afford to give cheaper rates.

The private company, when engaging in construction, has to limit its expenditure to the capital it can raise under the share and bond issues authorized by its charter. The Hydro Electric Power Commission has no such check on its expenditure, and if its works should cost a few million dollars more than anticipated it can always fall back on its relationship to the Ontario Government and that government's guarantee of its

securities. This is the invariable trouble in all government construction, and the experience is the same in the annual operating of government undertakings. The ambition of the managing officials of private enterprises to make them a success is wanting, and there is no fear of a receiver if they are not. Instead there is the fallacious opinion, held by so many politicians, that government works should be run, not on business principles, or with a view to bare profit, but for the convenience of the people, and that the ever consequent deficits should be met out of the general revenues of the country, forgetful of the facts that deficits anywhere are, on general principles, very objectionable, and that in meeting them out of general revenue the people pay them all the same. Our Canadian statistics are not alone in the disclosures they make. The disastrous results of the operating of railways under the auspices of the governments of both the United States and Great Britain have opened the eyes of especially the people of the former country to the fallacy of public ownership.

The results are largely similar in the case of municipal railway undertakings. The municipal councils have no capacity for railway management, nor can they attract the best railway experts, and in planning, in construction and in subsequently operating a system of railways they do not follow the strict business principles which would actuate a private company, but seek rather to satisfy the whims of the people whose votes have elected the individual members of the councils to office.—Monetary Times.

Reasons for Allowing the Temiscouata Railway to Advance its Passenger Fares to Four Cents a Mile.

Commissioner S. J. McLean, of the Board of Railway Commissioners, gave the following judgment, July 25: "Application is made by the Temiscouata Ry. for permission to increase its standard 1st class passenger fares from 3.45c to 4c a mile. Prior to the increase in the 15% case, the standard fare was 3.3c. When the increase in the 15% was made, the increase was limited to 3.45c, being 15% on a 3c standard base. This allowed an increase of 3% over the standard fare hitherto charged. Had the full 15% on the 3.3c rate been allowed, it would have given a rate of 3.82c.

"Complaint was also made of the railway having taken out its 2nd class fares on its main line. This was effective June 16, 1919. No application for suspension was received.

"The railway was instructed to serve a copy of its application on the various municipalities affected. The following municipalities were served: Fraserville, Cabano, St. Louis du Ha Ha, Notre Dame du Lac, St. Modeste, Ste. Rose du Degele, Edmundston, St. Hilaire, St. Honore, Clair and Ledges. Prior to the hearing, replies had been received as follows: Edmundston, stated it had no objection. The municipalities of Cabano, Notre Dame du Lac, Clair and Ledges objected to the proposed 4c fare. The municipality of Ste. Rose du Degele filed an objection as to the 2nd class fares. A telegraphic protest regarding the 2nd class fare was received, on the eve of the hearing, from the municipality of Notre Dame du Lac.

"At the hearing, various protests re-

garding the service rendered were made. As explained prior to the hearing, as well as in the course of the hearing, this is a matter distinct from the one of rates and had been the subject of a special report by an inspector of the board. At the same time, an opportunity was given those present to file these protests. While notice in regard to these complaints had not been served on the railway, the matters were discussed and explained at the hearing.

"Complaint was made as to the express service between Edmundston and St. Hilaire, it being stated that a parcel was taken beyond to Clair. It was explained that this was a matter falling within the operations of the Dominion Express Co. which operates over the Temiscouata Ry. Complaint was made of an extra charge for tickets purchased on the train. It was stated by the railway that if the agent was not at the station there was no additional charge.

"Complaint was made as to the limitations in connection with passenger travel on freight train cabooses. It was explained that the release which has to be signed is a standard form approved by the board's orders, and a satisfactory explanation was given as to the limitation in case of women desiring to travel, it being at the same time stated that in cases of sickness rendering it urgent to travel on a caboose the matter could be arranged.

"Various complaints of freight delays were made. An intimation was given by Mr. Stewart, for the railway, that if such matters were taken up with him

they would be at once gone into. He pointed out that the instances of this nature, cited at the hearing, as well as complaints as to the nature of the service performed by the agents at various points, had been brought to his attention at the hearing for the first time.

"The complaint as to the station at Ste. Rose du Degele being closed too early, which was referred to by the mayor of that municipality was explained by Mr. Stewart to be due to the closing at 5 o'clock contingent upon the adoption of the 8 hour day.

"The question of the lack of connection at Riviere du Loup with the Canadian National Rys. for travel from St. John, N.B., via the C.P.R. and Temiscouata was raised by Mr. Michaud, M.P. In reply, it was stated that to hold the train so as to make the through connection would necessitate the following additional items of expense: Overtime, \$1,500 a year; overtime for locomotive men, amounting to \$15 a day, \$4,700 a year. As against this additional expense of \$6,200, it was testified that in April, which might be taken as a characteristic month, the C.P.R. issued to the Temiscouata Ry. 20 tickets, from which the railway received \$2.80 in each case. On a yearly basis, this would mean a revenue of \$672, against an increased cost of \$6,200.

"The physical operating conditions of the Temiscouata Ry. were considered by the Board in Eastern Townships Lumber Company vs. Temiscouata Ry. Co., 16 Canadian Railway cases. In the present application, the following detail was

given by the railway:

"Grades and curvature—The portion of the line in the Province of Quebec lies through a rolling and difficult country; commencing at Riviere du Loup, the line ascends for 24 miles to the summit between the waters of the St. John and St. Lawrence Rivers; in this 24 miles an ascent of 1003.7 ft. is made, being an average grade of 42 ft. per mile; leaving the summit at mileage 24 a descent of 775.7 ft. is made in the next 19 miles, which is an average of over 40 ft. to the mile. Out of 113 miles, there are accordingly 43 miles of heavy grades, 2% being encountered in many places, and on this section there are few tangents, a succession of curves from 4 to 7½ degrees being the ruling alignment. Under these conditions, the line may be compared to the mountain divisions of the lines west of Calgary, the grades of the Temiscouata Ry., in fact being actually heavier than one of the mountain divisions."

"In some of the submissions made, the opinion was expressed that the nature of the business done and the profit obtained were such as to obviate any necessity of increase. If these allegations are correct, the application would of necessity fail. They must be tested by the actual returns. To take a pre-war year as a starting point, it appears that between 1913 and 1919, while gross revenue increased 41%, expenses increased 77%. In terms of absolute figures, the increase in gross in the period in question was \$108,801, while the increase in expenses was \$142,728. This is mirrored in the net revenue. While in 1919 the gross operating revenue was 41% greater than in 1913, the net operating revenue was barely 50% of what it was in the earlier year. The following summary will illustrate the steady upward movement of expense:

Year ended	Revenue	Expenses	Net revenue	% of expenses to revenue
June 30				
1913	\$251,662.39	\$184,422.15	\$67,240.24	73.28%
1914	272,079.17	206,688.64	65,390.53	75.96%
1915	221,109.98	181,872.18	39,237.80	82.25%
1916	222,872.15	180,450.49	42,421.66	80.96%
1917	226,817.76	202,240.72	24,577.04	89.17%
1918	300,961.11	252,117.38	48,843.73	83.77%
1919	360,463.92	327,150.38	33,313.54	90.75%

"There is not at present available for the year ended June 30, 1919, the same full details as are available for 1918 in the railways' sworn returns to the Railways Department. It must be remembered that in 1918 the sharp increase in wages, later referred to, had not been manifested.

"The figures for 1918 show the following capital liabilities worked out on a mileage basis: Stock, \$8,620 a mile; consolidated mortgage bonds and prior lien bonds, \$31,281 a mile; total, \$39,901 a mile. No dividends have ever been earned or paid on share capital; so for purposes of measuring the earnings power of the line and charges against such earning power, the item of \$8,620 per mile may be omitted. To understand the situation as it exists today, there must be considered all the debt outstanding whether the railway has met charges thereon or not. There are outstanding \$2,856,333.88 of 5% consolidated mortgage income bonds and \$243,333.33 of 5% prior lien bonds. The legislation of 1914, 4 Ed. VII, chap. 129, which makes provision for the prior lien bonds and the consolidated mortgage bonds may be referred to. The situation in respect of these securities is as follows: Dividends on consolidated mortgage income bonds have been paid as follows: For years ended June 30, 1909, 1910, 1911,

and 1912, 1%; for years ended June 30, 1913 and 1914, 1¼%; for years ended June 30, 1915, 1%; since 1915 nothing has been paid on these bonds. Interest on 5% prior lien bonds, amounting to \$12,166.66 a year has been paid since these bonds were issued in 1906 and \$9,733.33 has been appropriated annually from net revenue for the redemption of these bonds.

"In the absence of a return as to the taxes for 1919, the figure for 1918 may be taken, viz: \$4,530.94. Omitting the amount set aside for redemption of the prior lien bonds, the following summary situation regarding the charges against net operating revenue for the year ended June 30, 1919, is available:

Consolidated mortgage bonds, \$2,856,333.88 @ 5%.....	\$132,816.69
Prior lien bonds, \$243,333.33 @ 5%.....	12,166.66
Taxes	4,530.94
	\$149,514.29
Net operating revenue.....	33,313.54
Deficit	\$116,200.75

"In 1918, the net operating revenue per mile was \$421. This is exclusive of deductions for interest on funded debt (only a small portion paid), hire of equipment and other deductions. For 1919, the figure is \$295.

"The decision of the board already referred to points out that the bulk of the freight tonnage carried is low grade. For 1918, produce of forests, etc., represented 72.5%; agriculture, 3.2%; stone, sand, etc., 13.7%. The latter was a special movement in connection with building construction. For 1919, the freight revenue per mile of line was \$2,423, while the passenger revenue was \$479. For 1917, the latest year for which full returns for all the railways of Canada are available, the freight earnings per mile of line of all Canadian railways was \$5,575, while the passenger earnings were \$1,069. Comparisons were made at the hearing by Mr. Paradis, who appeared for the municipality of St. Mathias de Cabano, between the Temiscouata and the Intercolonial (Canadian Government Rys.), contending that the former was in a better position from the standpoint of cost than the latter. The volume of business must be looked to. For 1917, the freight and passenger earnings per mile of line on the Intercolonial were respectively \$7,460 and \$3,312.

"As illustrative of the increases in cost, reference may be made to certain items. In 1915, coal on the locomotives cost \$4.60 a ton, against \$7.85 in 1919. This means increase in cost on the quantity used of \$32,500 alone. The figures for coal consumption in passenger business are not given. If the average coal consumption in Canada for 1917 on straight passenger locomotive runs is taken, and also one-half of the mixed locomotive mileage consumption (the allocation is arbitrary), this would mean an increase in cost for coal in passenger business of \$14,552. The average number of ties used is 18,000 a year. The price has increased from 25c in 1915 to 65c in 1919, a total increase of \$7,200. The increase in wage costs for the year ended June 30, 1919, as compared with the previous year, was approximately \$80,000.

"The company makes no provision for depreciation. When it has anything over, after paying interest on prior lien bonds and sinking fund, appropriations are made from the balance for ballasting and other work. Since 1912, the company has thus provided and expended \$60,000 on the line. The expenditure on rails is light. The rails in place are Cammel steel. As they are getting old, they will

have to be replaced in five or six years. No fund is set aside for their replacement. The company has \$43,000 of capital money unspent at present; that is practically its working capital. On ballasting, the company has since 1912 spent some \$74,000. Of this, \$30,000 was from revenue and \$44,000 from capital. The Manager expects an appropriation of \$12,000 for ballasting on the eastern end of the line this year.

"Attention was directed to conditions on the branch from Edmundston to Connors. For a considerable portion of this line there is railway paralleling competing for light traffic. In May, 1919, there were 1,234 passengers carried on this branch, with an average haul of 12.7 miles and an average fare of 44c—a total passenger earning of \$542.73. The earnings for June were \$512.24. The freight revenue on this branch has recently been increased by a movement of pulpwood from Baker Brook, which movement it is expected will be over by August. The passenger service is mixed. The company computes average earnings as \$2,500 a month from the branch, while its train service cost, as figured for May, 1919, at \$2.85 per train mile, would amount to \$4,942.08 per month.

"The reason for the cancellation of the 2nd class fares is explained by the company as follows: 'At present this company's express train consists of one baggage and mail car, one 2nd and one 1st class car. As a rule, there are very few passengers in the 2nd class car, while very often the 1st class is crowded; this 1st class car contains a smoking compartment. Passenger business is showing some increase and more 1st class space is needed on the train. We, therefore, intend to take the smoking compartment out of our 1st class car and fix up our 2nd class car as a smoking car and by doing this our present equipment will be sufficient to look after our passenger business for some time to come. Our passenger motive power is very light and over 25 years old, and the addition of another 1st class car to our train would seriously affect its running time as we ascend over 1,000 ft. in the first 24 miles after leaving Riviere du Loup. I claim that according to the Railway Act that we are within our within our rights in cancelling our 2nd class rates. Our freight and passenger rates are not any higher than the rates in effect on other Canadian railways and we give as good a service as any other railway of our size in Canada and much better than the majority of the small railways give. Our passenger equipment is kept in good repair and is thoroughly cleaned daily. Owing to the large increases in wages and material, we are obliged to practice the strictest economy in order to even meet operating expenses, and we are not able at present to spend the money necessary to provide another 1st class, especially when we are hauling a 2nd class car practically empty, which can be utilized for smokers and thereby provide 1st class space for non-smokers.'

"Detailed information as to the real need for a 2nd class fare was not furnished by the applicants at the hearing. Dr. Dube, who represented the Parish of Notre Dame du Lac, raised the question as to whether there was not a charter obligation on the part of the Temiscouata Ry. to have 2nd class fares. This was answered in the negative. There does not appear to be any statutory obligation in the special act. No provision is contained in the Railway Act as to

provision for 2nd class fares. Even if the board has discretion to direct the installation of 2nd class fares—a point it is not necessary to pass upon here—the facts as developed in regard to cost conditions and revenues do not warrant the exercise of this discretion by way of direction for their re-installation on the Temiscouata Ry.

"The average haul per passenger is approximately 28 miles. For the period 1914-1918 it average 27.99 miles. As already pointed out, it cost over 90c on the dollar to operate during the year ended June 30, 1919. In April, 1919, it cost 98.6c to earn \$1. For the 4 months ended April 30, 1919, it cost 96.5c to earn \$1, as compared with 85c for the same period in 1918. The train mile costs, which were \$2.65 in Nov., 1918, were \$2.85 in May, 1919. In April, 1919, the passenger service train revenue per train mile was \$1.15, while the operating expenses per train mile were \$2.92.

"Exact data permitting the differentiation of passenger train mile costs

from freight train mile costs are not available. If cost is arbitrarily allocated in the proportion that passenger train mileage bears to freight train mileage, this would give a passenger train mile cost of \$2.70. If an arbitrary reduction of one-third is made from this, because of the smaller coal consumption of passenger locomotives, and the lower cost of upkeep of passenger cars as compared with freight cars, it would still leave a figure of \$1.80. The passenger car miles for the year ended June 30, 1919, were \$204,358. Allocating the revenues earned in passenger train service on a passenger car mile basis, the result is as follows:

	Passenger earnings	Passenger car-mile earnings
Passenger earnings	\$54,165.99	26.54c
Mails	5,991.68	2.80
Express	3,552.39	1.70
	\$63,710.06	31.04c

"The C.P.R., with a large and diversified volume of traffic, has an opportunity to effect economies in detail operating costs which are not available to a

road so situated as is the Temiscouata. In the evidence submitted by the C.P.R. in the matter of railway mailpay, it was computed that the passenger mile cost for the 6 months ended Feb. 1, 1919, was 33.10c. Without a detailed analysis, which has not been made, of the comparative conditions of the two railways it cannot be said that the evidence as submitted by the C.P.R. is necessarily conclusive in the case of the Temiscouata.

"On consideration of all material factors concerned, a case for increasing the 1st class standard fare to 4c a mile has been made out. This increased rate may become effective on compliance with the provisions of the Railway Act as to standard passenger fare publication.

"As indicated, various matters affecting service were referred to at the hearing. The board has taken cognizance of these, and if they are not satisfactorily adjusted, further investigation, if need be, will be made by the board's operating department."

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 268. July 25.—Ordering subject to terms of judgment of July 17, that tariffs issued under authority to and in conformity therewith, be, published and filed at least five days previous to date on which they are to become effective; also that express freight collection and delivery plan outlined be given effect to.

General order 269. Aug. 7.—Amending regulations regarding rules and specifications so that the pay of inspectors of crossings be increased to \$11 a day from \$3 as provided by general order 267.

General order 270. Aug. 7.—Ordering that markers shall be carried in lower sockets under certain conditions when passenger cars and cabooses are equipped with marker sockets in the lower position.

28,562. July 23.—Authorizing C.P.R. to build spur for Summit Sand and Gravel Co., Manvers Tp.

28,563. July 23.—Authorizing C.P.R. to remove its station agent at Thorncliffe, Ont.

28,564 to 28,566. July 24.—Authorizing C.P.R. to remove agents from Gunton, Komarno and Methven stations, Man.

28,567. July 17.—Authorizing Grand Trunk Pacific Ry. to build across highways on its Melville-Regina branch, in Yorkton and Assiniboia Districts, Sask.

28,568. July 24.—Approving specifications of changes to be made in G.T.R. bridge over Niagara River at Niagara Falls, Ont.

28,569. July 24.—Authorizing Canadian National Rys. to cross highway between Sec. 14 and 15, Tp. 40; Range, 21; west 3rd meridian.

28,570. July 21.—Suspending, until further order, order 17,044, re crossing by Canadian Northern Ry. of public road between Lots 68 and 61, St. Eustache Parish, Que.

28,571, 28,572. July 25.—Approving clearances of coal tip and works to be erected over Grand Trunk Pacific Ry. for Dinant Coal Co. and Spicer Coal Co., Saskatoon, Sask.

28,573 to 28,586. July 25.—Authorizing Canadian National Rys. to cross certain highways on its Melfort-Humboldt Branch, Sask.

28,587. July 24.—Approving Michigan Central Rd. specifications of Laidlaw drain in Malahide Tp., Ont.

28,588. July 24.—Authorizing C.P.R. to build spur for Portage Milling & Transfer Co., St. Boniface, Man.

28,589, 28,590. July 17.—Ordering C.P.R. to protect crossings at Frederick and Princess Sts., Toronto, by day and night watchmen.

28,591. July 23.—Authorizing Hydro Electric Power Commission of Ontario and Niagara, St. Catharines and Toronto Ry. to operate trains over crossing at Lots 77 and 90, Stamford Tp., Ont.

28,592, 28,593. July 22.—Dismissing Quebec, Montreal and Southern Ry.'s application to remove its agents from stations at St. Roch, Baccquets, St. Jules, Rougemont, Ste. Angele and Henryville, and authorizing it to remove them from stations at Mount Johnson, St. Barnabe South, Sabrevois, Clarenceville, St. Louis and

St. Damasse, Que.

28,594. July 26.—Approving Midland Ry. of Manitoba (G.N.R.) standard freight tariff. C.R.C. 80.

28,595. July 25.—Authorizing City of Toronto to carry 16 in. water main under bridge on Dundas St., over Don River, C.P.R., G.T.R. and C.N.R.

28,596. July 25.—Authorizing C.P.R. to replace A-2 standard station building at Axford, Sask., with a portable building and box car body.

28,597. July 26.—Authorizing Canadian National Rys. to rebuild bridge over South Nation River, at mileage 78.26 from Montreal.

28,598. July 22.—Ordering C.P.R. to provide suitable accommodation for fruit shipments from Hamilton, Ont., to points in Maritime Prov.

28,599, 28,600. July 25.—Authorizing Canadian National Rys. to rebuild bridges over Chenail Ecart Creek, Hawkesbury, Ont., and over side road between Lots 15 and 16, Cons. 3 and 4, Whitechurch Tp., Ont.

28,601. July 28.—Ordering Kettle Valley Ry. to erect fences on south side of its track from mileage 56.3 to Osprey Lake, mileage 38.

28,602. July 23.—Authorizing Brantford Municipal Ry. Commission et al to cross with second tracks the Brantford St. Ry., in Brantford, Ont.

28,603. July 28.—Authorizing G.T.R. to rebuild bridge 61, across small creek on line of Bethune St., Peterborough, Ont.

28,604. July 28.—Authorizing Canadian National Rys. to rebuild its tracks across road allowance between Secs. 8 and 17, Tp. 17; Range, 8; west 4th meridian.

28,605. July 26.—Authorizing Canadian National Rys. to rebuild bridge over Mill Creek, Longueuil Tp., at mileage 59.25 from Montreal.

28,606. July 26.—Authorizing Saskatchewan Highways Department to carry highway over Canadian National Rys. in s.w. ¼ Sec. 18, Tp. 15; Range 12; west 2nd meridian.

28,607. July 28.—Authorizing C.P.R. to build spur for Imperial Oil Ltd., Brandon, Man.

28,608. July 28.—Authorizing City of St. Boniface, Man., to alter switch and track for N. M. Patterson & Co.

28,609. July 29.—Relieving Canadian National Rys. from providing further protection at crossing, 3 miles west of Port Hope, Ont.

28,610. July 30.—Approving C.P.R. clearances at ice house at Trenton, Ont.

28,611. July 29.—Ordering Canadian National Rys. to build third class station and extension to passing track at Elie, Man.

28,612. July 26.—Approving C.P.R. clearance at ice house at Smiths Falls, Ont.

28,613. July 30.—Ordering Great Northern Ry. to build crib, from bridge 539 on west side of stream, north, approximately 400 ft. between Princeton and Brookmere, B.C.

28,614. July 30.—Authorizing C.P.R. to build spur for Western Supply & Equipment Co., Lethbridge, Alta.

28,615. July 31.—Relieving Maine Central Rd. from providing further protection at crossing in Hereford Tp., Que.

28,616. July 31.—Authorizing C.P.R. to build crossing over its track at Caithness, B.C.

28,617. June 7.—Ordering Canadian National Rys. to build freight house near main thoroughfare, Melfort, Sask., and to provide team track; stock pens to be removed from leg and placed farther east, Y to lead off St. Brieux Subdivision

and to be removed altogether from elevator trackage; Imperial Oil Co.'s warehouse to be removed from elevator track and placed on same spur as Carrot River Valley Flour Mills' elevator.

28,618. Aug. 1.—Fixing basis for Joint Class Freight Tariffs to apply on Interline traffic between the G.T.R., C.P.R., and C.N.R., together with points of interchange.

28,619. July 31.—Approving supplement 13 to Express Classification 3.

28,620. July 31.—Authorizing Temiscouata Ry. to file tariffs increasing first class passenger fare to 4c a mile.

28,621. Aug. 1.—Dismissing complaint of Kilgour Mfg. Co., Hamilton, Ont., against a belated demurrage bill on 101 cars of lumber.

28,622. Aug. 1.—Dismissing application of Dominion Millers' Association and others for revision of rule 9 or general order 201, Aug. 1, 1917, and restoration of demurrage tolls in effect prior to Aug. 20, 1917.

28,623. Aug. 1.—Ordering C.P.R. Telegraph and Great North Western Telegraph Co. to place lines and wires underground in part of Montreal, between Craig, Commissioners, St. Lawrence and McGill Sts., inclusive, and on Victoria Square.

28,624. Aug. 5.—Relieving C.P.R. from providing further protection at crossing of Cremazie Road, near Jacques Cartier station, Que.

28,625. Aug. 1.—Approving Special Tariff of Terminal and Switching Charges of Express Traffic Association of Canada, C.R.C., 3-T-13.

28,626. Aug. 6.—Extending to Oct. 6, time within which C.P.R. shall install electric bell at crossing of Anderson St., Grenfell, Sask.

28,627. Aug. 11.—Approving Express classification for Canada, no. 4.

28,628. Aug. 9.—Dismissing application of municipality of Waldeck, no. 166, Sask., for order directing C.P.R. to build overhead bridge across its tracks between Secs. 32 and 33; Tp. 16; Range 11; west 3rd meridian.

28,629. Aug. 6.—Extending to Aug. 31 time within which G.T.R. shall instal better trackage facilities for repair work in its Chatham yards as required by order 27,940, Dec. 16, 1918.

28,630. Aug. 1.—Dismissing C.P.R. application for authority to continue in effect allowance made to Canadian Sugar Refining Co., of 1¼c a 100 lb. on account of cartage at Cote St., Paul, Montreal.

28,631. Aug. 1.—Ordering that cost of protection at crossing of G.T.R. Union Stock Yards branch and Toronto Suburban Ry. at Keele St., Toronto be paid three-fourths by G.T.R. and balance by City of Toronto.

28,632. Aug. 6.—Authorizing British Columbia Public Works Department to make highway crossing over Grand Trunk Pacific Ry. at mileage 1186.25.

28,633. Aug. 8.—Approving location and details of proposed G.T.R. station at Yonge Mills near Brockville, Ont.

28,634. Aug. 11.—Authorizing Canadian National Rys. to extend siding across Cameron St., Cumberland, Ont.

28,635. Aug. 1.—Dismissing complaint of Mer-advance charge of 2c per 100 lb. on grain from Chants Grain Co., Ltd., Fort William, Ont., against Fort William by reason of C.P.R. embargoes which prevented shipping prior to Mar. 15, when advanced rates took effect.

28,636. Aug. 8.—Ordering C.P.R. to stop no. 3 westbound, and no. 4 eastbound passenger trains daily at Herbert, Sask.

28,637. Aug. 9.—Amending order 28,602, July 28, re crossing of Brantford Municipal Ry. by Brantford & Hamilton Electric Ry.

Lining and Loading Cars of Potatoes for Protection from Cold.

An investigation, to determine the best method of lining and loading cars of potatoes, so as to protect them from the cold, has been conducted by the United States Department of Agriculture, and the recommendations made are embodied in the Department's Market Document no. 17, which covers the subject very

In lining the car, the first thing is to cover all broken places with paper or board, and then line the whole inside of the car with paper, lapping the edges at least 4 in., and lathing all wall and ceiling seams, particular care being exercised to make the roof as heat proof as possible.

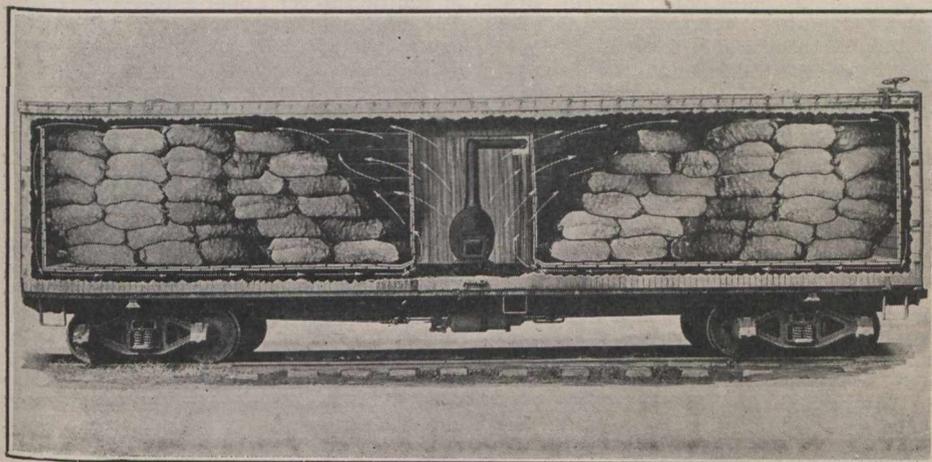


Fig. 1. Warm air circulation in correctly lined and loaded car of potatoes.

fully, with numerous detail diagrams of the interior rearrangement of cars. The proper arrangement of ordinary box cars is the principal subject dealt with.

It is stated that approximately 75% of all cars prepared to protect potato shipments from cold during the winter, are either lined or loaded incorrectly. Protection from cold depends largely upon a constant current of warm air from the heater directly to the ceiling, spreading between the ceiling and top potatoes, thence through openings at the opposite end of the load down to the space beneath the false floor to the heater again. The basic principle of the form of protection outlined, lies in the fact that warm air is lighter than cold, and that unless there is a complete circulation channel around the load, the warm air will form a strata at the top of the

Three rows, each of three 2 x 4 x 6 in. blocks, are spiked to the end walls, on which are spiked vertically, three 2 x 4 in. x 7 ft. pieces, which form the end studding for the false end wall boards, providing a 6 in. end air space. The side walls are treated the same way, with 10 blocks on each side between the door and end wall, but the upper blocks have the 4 x 6 in. surface to the car wall, while the lower ones have the 2 x 6 in. surface to the wall. To these are spiked the studding, which has a slight batter, owing to the lower blocks protruding further.

On the floor, in each end, are laid longitudinally, four 2 x 6 in. x 15½ ft. stringers, which provide for a 6 in. space between the car and false floors. The inner ends of these stringers are block-

Longitudinal floor board, and wall board part way up the side, are next laid. These form a false wall and flooring through the full end interior of the car to the door edge. These inner ends are next boarded up, with a vertical studding, braced to the opposite studding by longitudinal pieces top and bottom, to form secure bulkheads for the potato load.

The false wall for one end of the car, prior to the application of the bulkhead, is shown in fig. 2, in which the way the various layers and parts are built up, may be noted. The stove is placed in the center between the bulkheads.

Produce, and other insulated cars, are recommended to be treated in much the same way. The floor, and walls to a height of 2 ft., should be papered, and an end wall, and single board flooring, applied in the manner already described, except that as the false side wall is omitted, the cross boards of the false flooring are cut short, so that heat circulation may be provided between the load of potatoes and the walls. Refrigerator cars can be treated in much the same way.

By this process of false flooring and false walls, and with the load of potatoes not built up within 8 in. from the

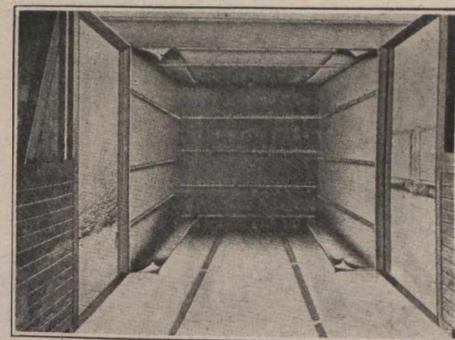


Fig. 3. Properly papered box car for potatoes. The ceiling, floor and walls of box cars should be papered before installing the false floor and walls.

ceiling, a continuous circulation of warm air from the stove will ascend, and move towards both ends under the roof, down the ends, and back to the center under the false flooring.

Crown Colonies' Railways—Lieut.-Col. L. C. Amery, Under Secretary for the Colonies, is reported to have said in the British House of Commons recently, in the discussion of the colonial estimates, that railways in the crown colonies must be multiplied. In the overseas dominions there are 13 miles of railways per 1,000 square miles; in the crown colonies only 4.8 miles. Hence there is a prima facie case for a very great programme of railway construction. He is of the opinion that every sovereign spent in developing the colonies would bring manifold return in a very short time.

Passenger traffic on the Quebec and Saguenay Ry., between Quebec and Murray Bay, using the Quebec Ry., Light and Power Co.'s line to St. Jochim, is reported to have developed considerably since daily train service was put on in June. The trains are being operated for the Dominion Government by the contractors.

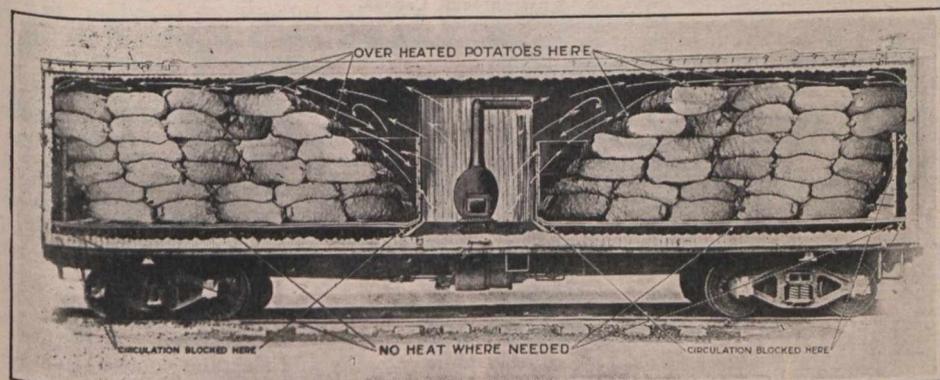


Fig. 2. Warm air circulation in an incorrectly lined and loaded car of potatoes. The warm air from the stove cannot reach space beneath the false floor, where it is needed.

car, and remain there, overheating at that point, and leaving the lower part of the car underheated.

For box cars, the estimated amount of material required for lining an 8 x 8½ x 36 ft. car, with 5 ft. doors, is as follows:

- 13 pieces, 2 x 4 in. x 14 ft. long.
- 8 pieces, 2 x 6 in. x 16 ft. long.
- 1,300 sq. ft. of 1 in. lumber, 16 ft. long.
- 2,250 sq. ft. of building paper.

End wall boards are next nailed to the end studding, and cross floor boards the full length of the stringers. This is followed by longitudinal stripping on the studding for the side walls. The walls and floor are then papered, using continuous strips from the top of the false wall on one side, down and across the floor, and up the other side, securing the upper part of the wall papering by lathing the seams.

The Prince of Wales' Canadian Tour by Rail and Water.

The principal portion of the Canadian tour which the Prince of Wales is now making is over the Canadian Pacific Ry. and its British Columbia Coast and Lake and River Steamship Lines, but parts of it will be over the following railways: Algoma Central & Hudson Bay, Canadian National, Esquimalt & Nanaimo, Grand Trunk, Grand Trunk Pacific, Kettle Valley, Timiskaming & Northern Ontario.

The Prince's first railway experience in Canada was at Quebec on Aug. 22, when, after motoring from the city to the north end of the Quebec Bridge, he was taken over it and back again on a special Canadian National Rys. train, to which were attached fitted up flat cars for observation purposes. Among those present were: Lieut.-Col. C. N. Monsarrat, Chairman of the Bridge Commission; Ralph Modjeska, one of the members of the commission; Phelps Johnson, President, G. H. Duggan, Chief Engineer, and G. F. Porter, of the St. Lawrence Bridge Co., representing the builders.

The special train, which will be used throughout the railway portion of the Prince's tour, has been provided by the C.P.R. In addition to the locomotive, which will be provided by the different

pliance in C.P.R. equipment, to the telephone that brings the Prince in touch with all parts of the train.

In order to distinguish it from all other cars on the line, the Killarney bears the Prince's feathers and motto. The car is entered from the rear by an observation platform large enough to accommodate several arm chairs. The first compartment is also devoted to observation, a compact little room fitted with a lounge, easy chairs, a table and electric fans. On rainy days or in cold weather the scenery may be viewed more pleasantly through the large windows on either side, than from the platform outside. A speed recorder adds interest to the journey and an air pressure gauge indicates the application of the brakes by the locomotive man.

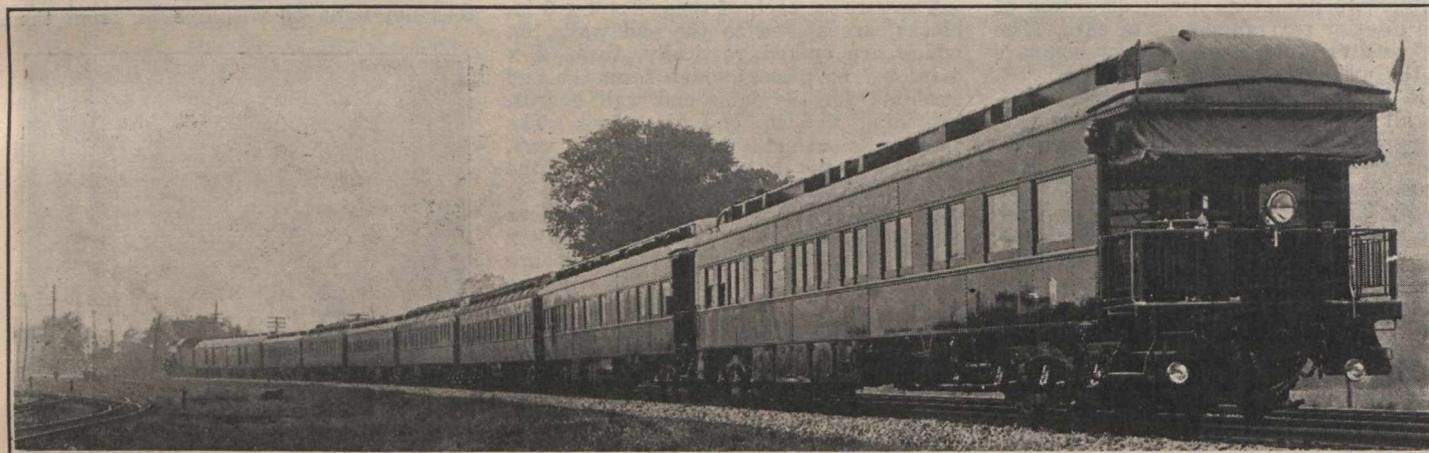
Next to the observation compartment is a section devoted to the Prince's secretary, after which is the bedroom to be occupied by the Prince. A rich simplicity characterizes this compartment, which is finished in white mahogany inlaid with a fine line of ebony outlining the panels. Built into the walls across the end is the bedstead, finished with little ornamentation in the white mahogany of the room. Over the bed may be pulled

and chef's bedroom, have been fitted into limited space beyond the dining room.

The compartment car Empire is reminiscent of an English coach, for the seats are partitioned off and joined only by the narrow corridor that runs down the length of the car. At each end is a commodious drawing room, with a sofa, in addition to the upper and lower berths. The color scheme of this car is grey and green, the grey of the marbled wall finish contrasting happily with the green of the heavy friezette plush upholstery. In each room is to be found an individual heating control.

The members of the Prince's immediate suite occupy the Killarney and dine with him in the dining room laid for six. Six more are accommodated in the Cromarty. The dining car is a pleasant place where tables for four and for two are placed at the windows down each side of the car. The rich brown tones of the Cuban mahogany walls and ceilings combined with the green hangings and accentuated with inlaid lines of satinwood harmonize beautifully. This car will accommodate 30 persons at a sitting.

The sleeping cars present only one feature of exceptional interest to the travel-



Canadian Pacific Railway Train conveying the Prince of Wales through Canada.

In addition to the locomotive, the train consists of two steel baggage cars, tourist car Chinook, two sleeping cars, Carnarvon and Chester; dining car Canada, compartment car Empire, private car Cromarty, owned by J. K. L. Ross, one of the C.P.R. directors; and Lord Shaughnessy's official car, Killarney, at the rear.

lines over which the party travels, the all steel train consists of two baggage cars, tourist car Chinook, sleeping car Carnarvon, dining car Canada, sleeping car Chester, compartment car Empire, private car Cromarty, owned by J. K. L. Ross, one of the C.P.R. directors, and Lord Shaughnessy's car Killarney.

Several of the cars, notably the Chinook, the compartment, tourist and baggage cars, have been completed for the occasion, but are specially interesting as they are the first of new series that have been adopted for the entire C.P.R. system, and are equipped with everything that is modern in railway car building. After this journey they will be drafted into the regular service. The Prince of Wales will live on the train for about two months, making the Killarney his headquarters throughout the trip. The train is accordingly equipped with modern devices and conveniences, thus enabling the Prince and his suite to enjoy as nearly as possible the comforts of a stationary dwelling. Nothing has been overlooked from the handle set at the bedside to regulate the temperature of the stateroom, which is a standard ap-

roller curtain to protect the occupant from the dust and draughts of the ventilators in the ceiling. The door is a full length mirror and an oval glass is set above the dressing table. The fittings of the dressing table and toilet are brass in harmony with the woodwork and a large receptacle is screwed into the wall to hold a thermos bottle. Next to the Prince's bedroom is a second stateroom with two berths similar to the first assigned to the secretary. Then in a niche in the wall is a shower bath of white tiles and porcelain.

The central portion of the car is devoted to the dining room which is tastefully decorated in royal blue. Beneath the little extension table is a heavy blue pile carpet with six chairs upholstered in tapestry to match. The curtains and even the drawers of the sideboard carry out the color scheme, for the silver table service reposes between divisions of blue tapestry velvet. Between the sideboard and the window is a secretaire with pens and paper. Above it is a miniature bookcase. With steel walls finished in imitation mahogany, a kitchenette, pantry, icebox, service counter, charcoal heater

ing public well acquainted with the details of the C.P.R. sleeping cars. Tucked away in a corner is a dispensary as shipshape as the doctor's office on a ship. A special chair has been arranged for the patient if such there be, and the showpiece of the little office is a patent light fixture with which the physician can examine the throat.

In one of the baggage cars the dark-closet and workroom of the official photographer have been arranged. There are shower baths and sleeping compartments in the baggage cars too, and cold storage cupboards where the chef keeps his supplies. An auxiliary generator is also installed here, to provide electric light throughout the train if it is stationary for any length of time.

The locomotive in addition to the regular signal flags has two staffs each bearing the royal standard, with the Prince's insignia. From the royal standards in front of the locomotive, to the electric searchlight at the rear end of the car Killarney, the train is 780 ft. long, and its total weight without passengers is figured at about 1,000,000 lb. The locomotive and 9 cars, with interior decor-

ations and furnishings, are said to have cost over \$750,000.

E. W. Beatty, President, C.P.R., is represented throughout the trip by A. B. Calder, Assistant General Passenger Agent, Montreal. The Canadian National Railways is to be represented, during the portion of the trip over its

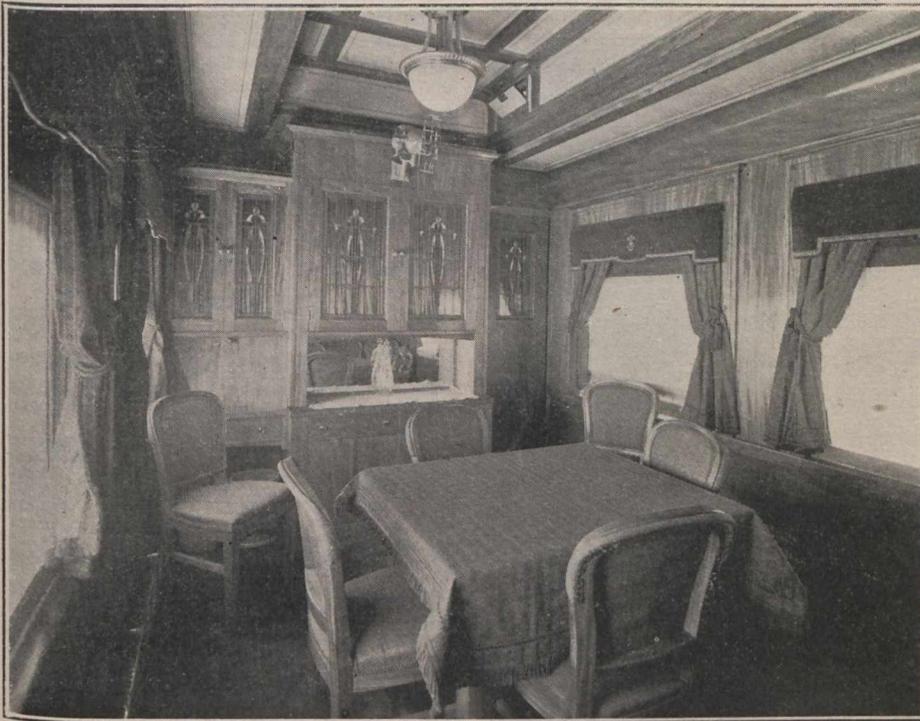
Canadian National Rys.—Sept. 4. Leave Oba, 10.30 p.m. Sept. 5. Arrive Orient Bay, 7 a.m. There the Prince and party will leave the train to spend three days fishing the Nipigon River, and under canvas. The arrangements for this are being made by the Canadian National Rys., co-operating with McKirdy & Sons,

a.m. Sept. 10. Leave Winnipeg 7 pm. Sept. 11. Arrive Saskatoon, 11 noon, leave 6 p.m. Sept. 12. Arrive Edmonton 10 a.m. Sept. 13. Leave Edmonton, 12.30 a.m. Sept. 13. Arrive Calgary, 8.30 a.m. Sept. 15. Leave Calgary 3.45 p.m., arrive High River 5 p.m. Sept. 16. Leave High River 7.50 p.m., arrive Calgary 9 p.m. Sept. 17. Leave Calgary 6.15 a.m. or earlier. Arrive Banff 10 a.m., leave 6 p.m., arrive Lake Louise, 7.20 p.m. The party will spend the night at Chateau Lake Louise, 3½ miles from the station. Sept. 18. Leave Lake Louise 12 noon, arrive Field 1.50 p.m. The Prince will go independently to Field, and will visit Yoho Valley, Takakaw Falls and Emerald Lake. Sept. 20. Leave Field 8 a.m., arrive Revelstoke 1.50 p.m., leave 5.30 p.m., arrive Sicamous 8 p.m. Sept. 21. Leave Sicamous 2 p.m., arrive Kamloops 5.10 p.m., leave 6.10 p.m. Sept. 22. Arrive Vancouver, 10 a.m. Sept. 23. Leave Vancouver by C.P.R. s.s. Princess Alice, 1.30 p.m., arrive Victoria 6.15 p.m.

Esquimalt & Nanaimo Ry. — Leave Victoria and arrive Qualicum at times to be arranged. Short stops will be made at Duncans, Ladysmith and Nanaimo. The Prince will leave for an island trip, independent of the train, returning to Victoria, Sept. 28.

Canadian Pacific Ry.—Sept. 28. Leave Victoria by C.P.R. s.s. Princess Alice 12 midnight. Sept. 29. Arrive Vancouver, 7.30 a.m. The Prince will proceed to New Westminster by motor and open the exhibition. The train will be sent to New Westminster to meet him.

C.P.R. and Kettle Valley Ry.—Sept. 29. Leave New Westminster 1.30 p.m. Sept. 30. Arrive Penticton 1 a.m. The route from Hope to Penticton is via the



Dining Room, Private Car Killarney.

lines, by A. J. Hills, Assistant to the President, and the Grand Trunk Ry. is to be similarly represented by H. R. Charlton, General Advertising Agent. R. G. Chamberlin, Chief of Investigation Department, C.P.R., Montreal, has been appointed by the Dominion Government, as Commissioner of Police of Canada, and as such is in charge of police arrangements during the Prince's entire Canadian tour.

The schedule provided for the C.P.R. royal train to leave Quebec, Aug. 24 at 2 p.m., arrive at St. Martins Jct. at 6.30 p.m., leave there at 8 p.m., and reach the Government House private siding at North Toronto, Aug. 25 at 9 a.m. But the Prince decided to motor from Quebec to Three Rivers, with some of his staff, arrived there at 6.25 p.m. and boarded the train which was waiting there for him, reaching Toronto, Aug. 25, at 10.10 a.m. After spending three days in Toronto the Prince left again from the private siding, North Toronto, Aug. 27 at 11.30 p.m., arriving at Ottawa Central Station on the morning of Aug. 28.

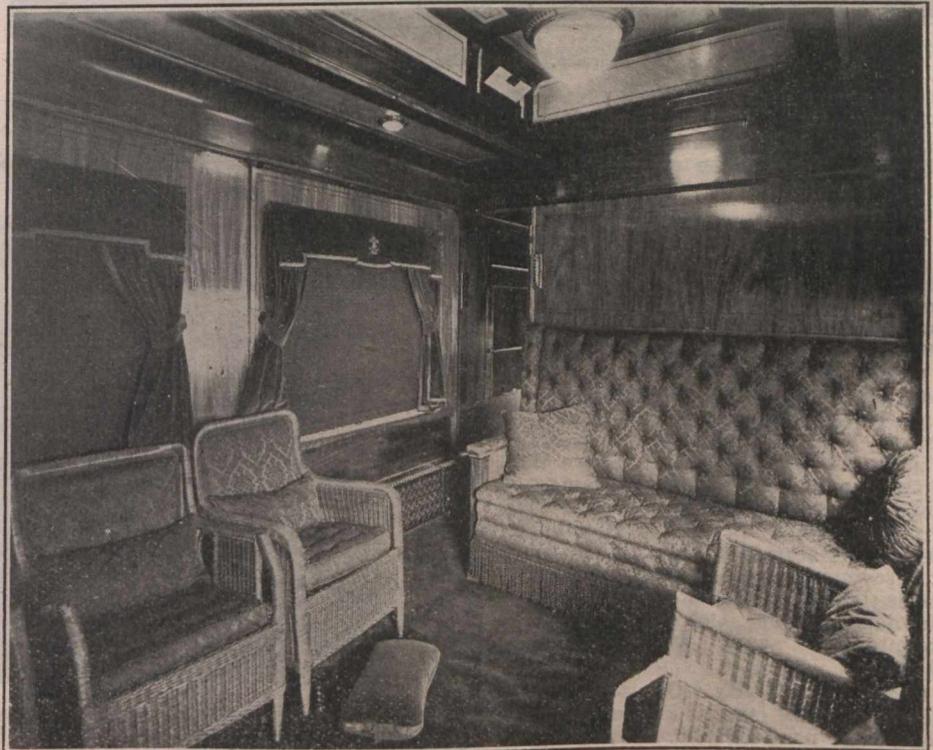
The itinerary for the balance of the trip is as follows, subject to alteration:—

Canadian Pacific Ry.—Sept. 1. Leave Ottawa Central Station 11.30 p.m. Sept. 2, arrive North Bay, 9.55 a.m.

Timiskaming & Northern Ontario Ry.—Sept. 2. Leave North Bay 10.30 a.m., arrive Cobalt 2.30 p.m., leave 5.30 p.m.; arrive Timmins, 10 p.m. Sept. 3. Leave Timmins 1.45 p.m., arrive North Bay 10.20 p.m.

Canadian Pacific Ry.—Sept. 3. Leave North Bay 11.30 p.m. Sept. 4. Arrive Sault Ste. Marie, 10 a.m.

Algoma Central & Hudson Bay Ry.—Sept. 4. Leave Sault Ste. Marie 1.30 p.m., arrive Oba, 10 p.m.



Sitting and Observation Room, Private Car Killarney.

outfitters, etc. The train will be sent on from Orient Bay to Nipigon, and will leave there with the Prince and party Sept. 8 at 11.50 a.m., reaching Port Arthur 3.15 p.m.

Canadian Pacific Ry.—Sept. 8. Leave Port Arthur 4 p.m., arrive Fort William 4.15 p.m., eastern time, leave 7 p.m., central time. Sept. 9. Arrive Winnipeg 11

Kettle Valley Ry., through the Hope Mountains. From Penticton a steamboat and motor trip will be made, visiting Kelowna and Vernon. The C.P.R. s.s. Sicamous will be used on Okanagan Lake. Sept. 30. Leave Penticton 6.30 p.m. Oct. 1. Arrive Nelson, 10 a.m. The train will be sent by car ferry and rail from Nelson to Kootenay Landing and

the party will leave Nelson by C.P.R. steamboat Nasookin for Kootenay Landing, calling at Balfour en route and arriving at Kootenay Landing at 8.30 a.m.

Canadian Pacific Ry.—Oct. 1. Leave Kootenay Landing 9 p.m. Oct. 2. Arrive Macleod, 10 a.m., leave 10.30 a.m.; arrive Lethbridge 1 p.m., leave 5 p.m. Oct. 3. Arrive Medicine Hat 9 a.m., leave 10.30 a.m.; arrive Maple Creek 1.30 p.m., leave

Grand Trunk Ry.—Oct. 25. Leave Toronto at time to be arranged, arrive Kingston at 10 a.m. Oct. 27. Leave Kingston, arrive and leave Brockville, and arrive Vaudreuil, at times to be arranged.

Canadian Pacific Ry.—Oct. 27. Leave Vaudreuil at time to be arranged, arrive at Windsor St. Station, Montreal, 12.30 p.m. Oct. 31. Leave Windsor St. Station,



Bedroom, Private Car Killarney.

2 p.m.; arrive Swift Current 5 p.m., leave 5.30 p.m. Oct 4. Arrive Moose Jaw, 10 a.m., leave 12.30 noon; arrive Regina 2.30 p.m. Train to be placed on Grand Trunk Pacific Ry. siding near Government House.

Grand Trunk Pacific Ry.—Oct. 6. Leave Regina 3 p.m., arrive Edenwald 4.30 p.m., where there will be a three days' duck shooting expedition. Oct. 9. Leave Edenwald at time to be arranged, arrive Qu'Appelle 11.50 p.m.

Canadian Pacific Ry.—Oct. 10. Leave Qu'Appelle 1 a.m., arrive Brandon 10 a.m., leave 12 noon; arrive Portage La Prairie 2 p.m., leave 2.30 p.m.; arrive Winnipeg 4.30 p.m. Oct. 11. Leave Winnipeg 2 a.m., arrive Fort William, 2.30 p.m., central time, leave 3.50 p.m., eastern time. Oct. 12. Arrive Biscotasing 10 a.m. A stop of 4 days will be made at Biscotasing to visit Northern Ontario woods, lakes and rivers. Oct. 17. Leave Biscotasing 9 p.m. Oct. 18. Arrive West Toronto 8.25 a.m., arrive Hamilton 10 a.m.

Grand Trunk Ry.—Oct. 18. Leave Hamilton 9.30 p.m., arrive Niagara Falls, 10.30 p.m. Oct. 20. Leave Niagara Falls 12 noon, arrive Brantford 2.30 p.m., leave 6 p.m. Oct. 21. Arrive Guelph 10 a.m., leave 3 p.m., arrive Stratford 5 p.m., leave 6 p.m. Oct. 22. Arrive Woodstock 11 a.m., leave 12 noon; arrive Chatham 2 p.m., leave 3 p.m.; arrive London 3 p.m., arrive Windsor 6.30 p.m. arrive London 4.30 p.m. Oct. 23. Leave

Canadian Pacific Ry.—Oct. 24. Leave Windsor 12 noon, arrive London, 3.20 p.m.; arrive North Toronto, 8.20 p.m.

Canadian Pacific Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1919, compared with those of 1918:

	Gross	Expenses	Net	Increases or
			decreases	
Jan. ..	\$13,028,328	\$11,474,816	\$1,553,512	\$ 385,519
Feb. ..	11,064,167	10,083,051	981,116	390,218
Mar. ..	12,374,182	10,835,138	1,539,044	*1,453,737
Apr. ..	13,108,905	11,020,281	2,088,624	*1,366,765
May ..	13,569,411	10,535,650	3,033,761	*654,015
June ..	13,577,274	10,586,852	2,990,421	178,274

\$76,722,267 \$64,535,789 \$12,186,478 *\$2,520,506

Incr. \$ 4,709,981 \$ 7,320,487

Decd. \$ 2,520,506

*Decreases.
Approximate earnings for July, \$13,238,000 and for 2 weeks ended Aug. 14, \$6,740,000, against \$11,920,000 and \$5,641,000, respectively, for same periods, 1918.

Grand Trunk Railway Earnings, Expenses, Etc.

The figures as reported are in pounds sterling, and are converted into currency at \$4.87.

Gross earnings, working expenses, net earnings and increases or decreases compared with those for 1918, from Jan. 1, 1919:

	Gross	Expenses	Net	Increases or
			decreases	
Jan. ..	\$ 4,405,403	\$ 5,121,778	x\$ 716,377	*\$ 81,816
Feb. ..	4,090,800	4,401,019	x 310,219	660,372
Mar. ..	5,517,223	4,676,174	841,049	763,616
Apr. ..	5,360,896	4,604,585	756,311	93,017
May ..	5,275,671	4,606,533	669,138	*36,525
June ..	4,951,329	4,647,928	303,401	*707,611

\$29,601,321 \$28,058,018 \$1,543,303 \$691,053

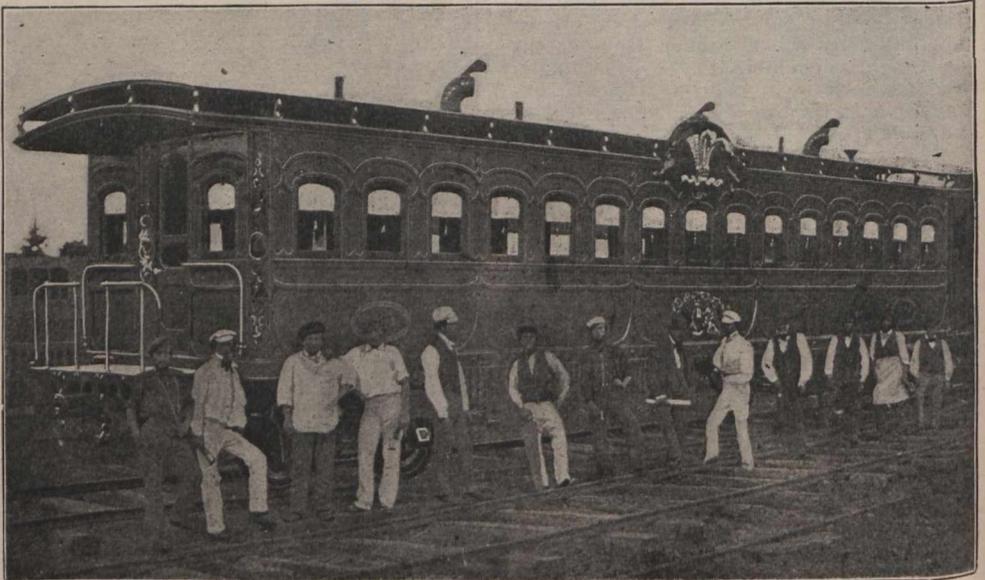
Incr. 5,612,675 4,921,622 691,053

Decr. 1,398,664

xDeficits. *Decreases.
Approximate earnings July, \$6,024,212, and for 2 weeks ended Aug. 14, \$2,853,735, against \$5,336,248, and \$2,494,407, respectively, for same periods, 1918.

Canadian National Railways Earnings.

The gross earnings of the system from Jan. 1,



Private Car used by the Prince of Wales, afterwards King Edward VII, during his Canadian Tour in 1860.

Montreal, 1.30 p.m., arrive and leave St. Annes, and arrive Ottawa, at times to be arranged.

A Winnipeg press report states that it is expected that the destruction of the trans-shipping elevator at Port Colborne, Ont., will have a serious effect on freight rates, and will add to the cost of transporting the western grain crop to the east.

compared with those for the same period of 1918, are as follows:

	1919	1918
January	\$ 6,744,018	\$ 4,696,567
February	6,000,342	4,421,504
March	6,827,491	5,710,660
April	6,909,632	7,165,890
May	7,518,244	6,580,745
June	6,009,585	6,868,864

\$40,009,585 \$35,444,230
Approximate earnings for July, \$7,657,402, and for 2 weeks ended Aug. 14, \$3,702,367, against \$5,733,299 and \$3,219,358, respectively for same periods, 1918.

Canadian National Railways Construction, Betterments, Etc.

Ties for Eastern Lines. Tenders were received to Aug. 25, for 1,400,000 ties to be made and delivered by Oct. 1, 1920, as follows: on National Transcontinental Ry., district 5, south of St. Lawrence River; and 1,000,000 on the Halifax Division Intercolonial Ry. Tenders were also received to Aug. 25 for 1,375,000 ties, to be made and delivered by Oct. 1, 1920, as follows: 1,000,000 on lines between Port Arthur and Pembroke, Ont.; 50,000 on lines in Central Ontario; 25,000 on lines between Ottawa and Quebec; 200,000 on lines between O'Brien and Quebec; and 100,000 on Lake St. John District lines.

Stores Building, Sydney. Tenders are under consideration for the erection of a store building at Sydney, N. S.

Halifax Ocean Terminals. Tenders were received to Aug. 23 for the construction of transit sheds 21 and 22, at Halifax, N. S., and to Aug. 27, for the construction of docks, marginal and other paved and macadamized roads and streets at Halifax Ocean Terminals.

Truro-Belmont Second Track.—Work is reported to have been started by the Bate, McMahon Co., on their contract for building a second track between Truro and Belmont, N.S., 7.57 miles. A press report stated recently that the grading would be started at Onslow and be gone on with in either direction. The work includes the erection of a new bridge over the Salmon River, some smaller bridges and a subway near the Graham and Mackenzie mill.

Fredericton Station.—A press report states that negotiations are in progress for the purchase of a site on Regent St., Fredericton, N.B., on which to erect a union station, and that plans for the building will be prepared at an early date.

Moncton Express Building.—Tenders were received to Aug. 25 for the erection of a frame building, 110 ft. long at Moncton, N.B., for express business.

Moncton Freight Shed, Etc. We are officially advised that the freight sheds to be built at Moncton, N. B., will be a one story building 400 x 40 ft., brick walls, steel beams, flat roof, and provided with continuous doors along the track side. A two-story and basement brick office building 41 x 41 ft. will be built adjoining. The contract for these buildings has been let to Engineers and Contractors, Ltd., St. John, N. B. The buildings are to be gone on with at once, and it is expected they will be completed by Nov. 1.

Edmundston Car Shop. Tenders are under consideration for the erection of a car shop at Edmundston, N. B.

St. Malo Shops.—The fire protection plant at the Transcontinental Ry. shops at St. Malo, Quebec, is reported to have been completed and to have been approved by Quebec fire department officers.

The machinery for the shops continues to arrive, and it was reported recently that it was expected to have everything in place for the full operation of the plant by the end of the year.

Grenville Subdivision. Tenders are under consideration for the construction of concrete culvert, abutments and piers between L'Original and Ottawa, on the

Grenville subdivision, covering about 50 miles of line.

Ties for Western Lines. Tenders were received to Aug. 25 for the supply of 3,525,000 ties to be made and delivered Oct. 1, 1920, as follows: 600,000 on the line between Port Arthur and Rainy River, Ont.; 50,000 on Duluth, Winnipeg and Pacific Ry. in Minnesota; 25,000 on Canadian National Ry. lines in Minnesota; 50,000 on C. N. R. lines in Manitoba; 1,500,000 on C.N.R. lines between Winnipeg, Man., and O'Brien, Que.; 300,000 on C. N. Ry. lines in Alberta; and 1,000,000 on C.N.R. lines in British Columbia.

Port Arthur Elevator Construction.—Work is reported to have been started on the addition to the Canadian Northern Ry. elevator at Port Arthur, Ont., by the contractors, the Barnett McQueen Co. The work is expected to be completed for the handling of the 1920 crop.

Fort William, Ont.—A press report states that the company proposes to widen its right of way between Empire Ave., and Frederick St., Fort William, Ont.

Western Lines Betterments.—Tenders were received to Aug. 25 for the supply of all material and labor for the following works: Freight office and extension to freight shed at Saskatoon, Sask.; turntable foundations at Dauphin, Man., and Kamsack, Sask.; track scale foundations at North Battleford, Big Valley and Swan River, Sask.

A. E. Warren, General Manager Western Lines, on returning to Winnipeg, Aug. 18, from a trip over the lines to Vancouver, is reported to have stated that improvements estimated to cost \$1,000,000 are being made, or are being arranged for on the line from Calgary to Drumheller, Alta. The line in the vicinity of Drumheller is being double tracked, additional yard accommodation is being provided, and many of the bridges are being replaced by concrete structures, while at one point a tunnel is being built which will result in the elimination of three bridges.

Gravelbourg-Swift Current Extension.—A press report states that Gibbs Bros., who have the contract for grading 27 miles have been authorized to extend their grading operations from Neidpath, the end of the present contract, on to Swift Current, Sask., as a relief measure.

Thunder Hill Branch. We are officially advised that the contract for grading and building culverts on this branch, mileage 101.5 to 115.5, has been let to D. R. McDonald, Netherhill, Sask.

Prince Albert to Paddock Wood.—A press report states that construction will be started immediately on a branch line from Prince Albert to Paddock Wood, Sask.

Vancouver Island Lines.—Tenders are under consideration for the supply of 2,000 telegraph poles, 90 per cent. to be 25 ft. and 10 per cent. to be 30 ft. long, for the company's lines from Victoria, towards Alberni. Delivery to be made within one month after receipt of order.

Tourist travel on the Pacific coast steamships operated by the C. P. R., and by the Grand Trunk Pacific Ry., is reported to be the heaviest since 1914.

Railway Finance, Meetings, Etc.

Algoma Central and Hudson Bay Ry.—Algoma Eastern Ry.—The shareholders of these two railway companies are called to meet at Sault Ste. Marie, Ont., on Sept. 17, the first mentioned at 10 a.m., and the second at 11 a.m., to receive directors' reports and statements of accounts for the year ended June 30; for the purpose of ratifying the acts of the directors since the last meeting of shareholders, and for the transaction of other business. R. Home Smith, Toronto, is President and Alex. Taylor is Secretary of both companies.

Canadian Northern Ry. A press report states that the \$10,000,000 two and a half year to five year 6 per cent. collateral trust Canadian Northern Ry. notes, placed on the market recently by Wm. A. Read & Co., New York, are secured by the deposit of \$14,286,000 of C. N. Ry. 4 per cent. bonds, due 1914, guaranteed as to principal and interest by the Dominion Government.

Canadian Northern Ry.—There has been deposited with the Secretary of State at Ottawa a duplicate original of trust agreement, dated June 1, made between the Canadian Northern Ry. and the National Trust Co., securing certain 5½% secured notes of the Canadian Northern Ry.

Canadian Pacific Ry. The directors on Aug. 11 declared the following dividends, payable Oct. 1, to shareholders of record at 3 p.m., Sept. 2, for the quarter ended June 30: Common stock, 2½ per cent., being at the rate of 7 per cent. a year from revenue and 3 per cent. from special income account. A dividend of 2 per cent. for the half year ended June 30, on the preference stock, payable on the same date was also declared.

Edmonton, Dunvegan and British Columbia Ry.—The Board of Railway Commissioners, is being asked to recommend the Dominion Government to sanction an agreement entered into between the Edmonton, Dunvegan and British Columbia Ry. and the Alberta and Great Waterways Ry., on May 3, 1918.

Timiskaming & Northern Ontario Ry.:

	May, 1919	May, 1918
Passenger earnings	\$ 77,249.49	\$ 64,992.67
Freight earnings	148,569.02	182,645.02
Total earnings	225,818.51	237,637.69

Railway Employes Statistics.

The Railways Department report gives the following figures for the years ended June 30, 1917 and 1918, respectively:

	1917-1918.	1916-1917.
Number	143,493	146,175
Salaries and wages.....	\$152,274,953	\$129,626,187
Ratio to gross earnings	46.14%	58.34%
Ratio to operating expenses	55.59%	58.34%

The Canadian Ticket Agents' Association will hold its annual meeting on Sept. 23 at 2 p.m. at Prince George Hotel, Toronto. Following is the subsequent programme: Sept. 23, theatre party at Shea's Theatre in the evening. Sept. 24, leave Toronto 10 a.m. by G.T.R. for Muskoka Wharf, where a Muskoka Navigation Co.'s steamboat will be waiting, spent afternoon on Lakes Muskoka and Rosseau, arriving at Monteith House about 6 p.m., where the night will be spent. Sept. 25, sailing, etc., on Lakes Rosseau and Joseph, staying at some hotel for the night. Sept. 26, return by steamboat to Muskoka Wharf, thence by G.T.R. train, arriving at Toronto at 4.45 p.m.

Mainly About Railway People Throughout Canada.

F. F. Busteed, C.E., of Vancouver, formerly Engineer of Grade Revision, C.P.R., in British Columbia, has been spending the summer at Craig Lodge, Seton Lake, Lillooet, B.C.

Andrew Carnegie, who died at Lenox, Mass., Aug. 11, was in his early days in Pennsylvania Rd. service for about 13 years. He later entered the steel rail trade and was mainly instrumental in its development. He was born at Dunfermline, Scotland, Nov. 25, 1835 and came to North America at the age of 13.

Hon. Frank Broadstreet Carvell, K.C., who has been appointed Chief Commissioner, Board of Railway Commissioners for Canada, was born at Bloomfield, Carleton County, N.B., Aug. 14, 1862, and educated in the public schools and Boston University, graduating with the degree LL.B., in 1890. He commenced practice at Dorchester, N.B., as an attorney, in 1890, and was made a K.C. in 1907. He represented Carleton, N.B., in the Liberal interest in the New Brunswick Legislature from 1899 to 1900, and from 1904 represented the same constituency in the House of Commons. He joined the union government which was formed during the war, as Minister of Public Works, resigning on his present appointment.

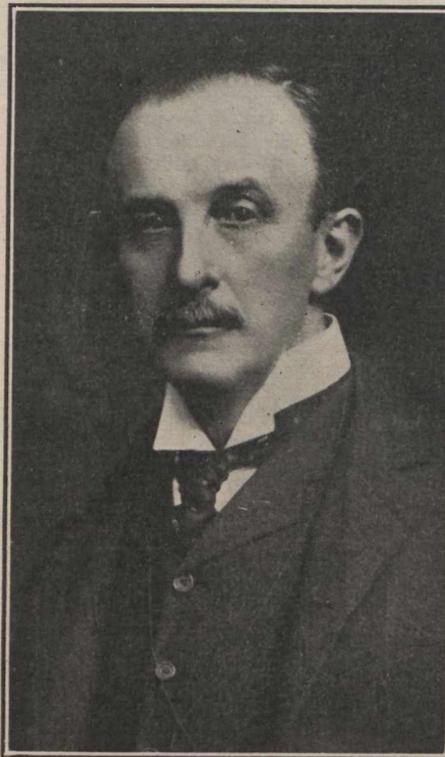
R. G. Chamberlin, Chief of Investigation Department, C.P.R., Montreal, has been appointed by the Dominion Government as Commissioner of Police of Canada, and as such is in charge of police arrangements during the Prince of Wales' entire Canadian tour.

D. C. Coleman, Vice President, Western Lines, C.P.R., returned to Winnipeg, Aug. 4, after a trip over the company's lines in the prairie provinces and British Columbia. He went to Calgary later on and was one of the speakers at the industrial conference which opened there Aug. 13.

Sydney E. Dewey, General Eastern Freight Agent, G.T.R., New York, who died suddenly at Buffalo, N.Y., Aug. 8, was born at Beckenham, Kent, Eng., July 4, 1879, and entered G.T.R. service Jan. 1, 1896, since when he had been, to May 10, 1893, clerk, Division Freight Agent's office, Toronto; May 10, 1903 to Mar. 1, 1904, Soliciting Freight Agent, Hamilton, Ont.; Mar. 1, 1904 to Apr. 16, 1906, Travelling Freight Agent, Hamilton, Ont.; Apr. 16, 1906 to Jan. 14, 1907, Contracting Freight Agent, New York; Jan. 14, 1907 to Oct. 23, 1911, Travelling Freight Agent, New York; Oct. 23, 1911 to Feb. 16, 1914, Commercial Agent, Pittsburg, Pa.; Feb. 16, 1914 to Feb., 1916, Commercial Agent, New York, and from Feb., 1916, General Eastern Freight Agent, New York.

Sir Henry Lumley Drayton, K.C., who has resigned the position of Chief Commissioner, Board of Railway Commissioners for Canada, to enter the Dominion Government as Minister of Finance and Receiver General, was born at Kingston, Ont., Apr. 27, 1869, and educated in England and Canada, commencing his legal career in 1886 as a law student at Toronto. He was called to the Ontario bar in 1891 and commenced practice in Toronto, being appointed Assistant City Solicitor in 1895, resigning in Sept., 1900 to re-engage in private practice. On Jan. 29, 1904, he was appointed Crown Attorney for the County of York, Ont., and resigned in Nov., 1909, to resume

private practice. He was appointed a K.C., Jan. 20, 1908, and on Apr. 25, 1910, was appointed counsel for the City of Toronto, and subsequently was one of Toronto's representatives on the Ontario Hydro Electric Power Commission. In July, 1912, he was appointed Chief Commissioner, Board of Railway Commissioners, following the death of J. P. Mabee. On the outbreak of war he was in London, Eng., and under the acting High Commissioner rendered good service in connection with the aiding of Canadians who were stranded at various points on the continent on account of the war, and was created a knight bachelor in June, 1915. He was sworn in as Minister of Finance and Receiver General, and as a member of the Privy Council for Canada, Aug. 2.



Sir Alfred W. Smithers, M.P.,
Chairman of the Board, Grand Trunk Railway Co.

E. C. Gill, of the C.P.R. Publicity Department in Europe, sailed from Liverpool, Eng., early in August for a tour through Canada, to obtain information with regard to prospects for British settlers and manufacturers in the Dominion.

Grant Hall Vice President, C.P.R., returned to Montreal, Aug. 7, after a five weeks trip through Western Canada, during which he visited the various points on the company's system where new construction has been started recently. He was accompanied by W. B. Lanigan, General Traffic Manager, Montreal, and from Winnipeg by D. C. Coleman, Vice President, Western Lines. They were guests at a breakfast given by Moose Jaw citizens Aug. 2.

D. B. Hanna, President, Canadian National Rys., has been re-elected a director of the British Empire Trust Co., London, Eng.

William D. Hannah, Chief Fuel Inspector, G.T.R., Montreal, has retired after nearly 40 years of continuous service with the company. He was born at

Newton Stewart, Scotland, Sept. 1, 1844, and entered G.T.R. service in 1880. He has occupied positions as assistant agent, night yardman at Toronto, and general inspector, station agent, fuel inspector, and Chief Fuel Inspector at Montreal. On his retirement he was presented by the staffs of the Stores and Purchasing Departments with a purse of money.

Robert Wetmore Hannington, who has been appointed Solicitor for British Columbia, Canadian National Rys., Vancouver, B.C., was born at Dorchester, N.B., graduated from Dalhousie University in law and was called to the bar in 1892. He went to Nelson, B.C., in 1897 and commenced practice there, and in 1908 moved to Vancouver, where he continued practice. He was appointed City Solicitor, Victoria, B.C., in 1915, and held that position to the date of his present appointment. He is a son of the late Hon. D. L. H. Hannington, a former Premier of New Brunswick, and at the time of his death senior judge of the New Brunswick Supreme Court.

Lieut.-Col. F. C. Hawkes, O.B.E., of the Indian State Railways, who served in Mesopotamia from 1915 to 1919, latterly as Assistant Director of Railways, was married in England recently to Miss C. M. Bovey, second daughter of the late Dr. H. T. Bovey, formerly Dean, Applied Science Faculty, McGill University, Montreal, and afterwards Rector of the Imperial College of Science and Technology.

Alfred J. Heath, of the Refund Department, C.P.R., Montreal, died there suddenly July 25. He was born at St. John's, Nfld., in 1857, and entered C.P.R. service at St. John, N.B., in 1889, and prior to his transfer to Montreal in 1901 was District Passenger and Ticket Agent there.

Brig.-General C. L. Hervey, D.S.O., engineer and contractor, Montreal and Lancaster, Ont., was a lieutenant in the Corps of Guides when war broke out and was later promoted to captain. When the Imperial authorities called for the formation of a Canadian Overseas Railway Construction Corps, the work of which is fully described in this issue of Canadian Railway and Marine World, he was appointed Major in command of no. 1 company. In September, 1916, he was transferred to the Canadian Railway Troops and promoted to Lieutenant-Colonel and Officer Commanding the 4th Battalion, C.R.T. In July, 1918, he was seconded to the Imperial Army and promoted to Brig.-General, and since returning to Canada has been placed on the reserve of officers with that rank.

T. E. Hillman, who died at Whitestone, N.Y., recently, was born at Worthington, Eng., Oct. 24, 1848. From 1889 to 1891 he was Engineer in Charge of the St. Clair Tunnel (G.T.R.) with supervision of trial borings, location, construction on tunnel, approaches and connecting railway lines. He was later engaged as chief engineer in locating and building several electric railways and hydraulic plants in Ontario, including that of the Dominion Power and Transmission Co. at Decew Falls. In 1910 he supervised test borings, on Bow River, Alta., for the foundation of the C.P.R. irrigation dam.

H. J. Humphrey, who has been appointed Superintendent, Trenton Division, Ontario District, C.P.R., Toronto, was born at Berry's Mills, N.B., Jan. 26,

1879, and entered railway service in June, 1896, since when he has been, to Aug., 1897, telegraph operator at various points, Intercolonial Ry.; Aug., 1897, to Aug., 1901, telegraph operator, Boston & Maine Rd.; Aug., 1901, to April, 1902, telegraph operator, Intercolonial Ry.; May 9, 1902, to Sept. 6, 1903, telegraph operator, C.P.R., Calgary, Alta.; Sept. 6, 1903, to June 1, 1907, dispatcher, C.P.R., Calgary, Alta.; June 1, 1907, to Nov. 1, 1909, dispatcher, C.P.R., Medicine Hat, Alta.; Nov. 1, 1909, to April 10, 1911, dispatcher, C.P.R., Calgary, Alta.; April 10, 1911, to July 1, 1912, Chief Dispatcher, C.P.R., Macleod, Alta.; July 1, 1912, to Jan. 8, 1915, Car Service and Fuel Agent, Saskatchewan Division, C.P.R., Moose Jaw; Jan. 8, 1915, to Jan. 1, 1916, Superintendent of Car Service, Western Lines, C.P.R., Winnipeg; Jan. 1, to Nov. 6, 1916, Superintendent of Car Service, Eastern Lines, C.P.R., Montreal; Nov. 6, 1916, to Feb., 1917, Superintendent, Farnham Division, Quebec District, C.P.R., Farnham; Feb. to Apr. 2, 1917, Superintendent, Laurentian Division, Quebec District, C.P.R., Montreal; Apr. 2, 1917 to Aug. 1, 1919, Superintendent Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me.

S. J. Hungerford, Assistant Vice President, Canadian National Rys., E. W. Oliver, General Superintendent, Niagara, St. Catharines and Toronto Ry., and W. R. Robertson, Superintendent, N. St. C. & T.R., were in a head on collision between the special car in which they were travelling on the N. St. C. & T.R., between Welland and Forthill, Aug. 15, and a regular car, due to the motorman disobeying a crossing signal. Both cars were damaged considerably, but no one was hurt further than being somewhat badly shaken.

George E. Hyde, who died at Cluny, Alta., Aug. 1, was, from 1911 to 1914, an engineer in Natural Resources Department, C.P.R., Calgary, Alta., and prior to that, was Chief Engineer, St. Marys and Western Ontario Ry., a C.P.R. subsidiary.

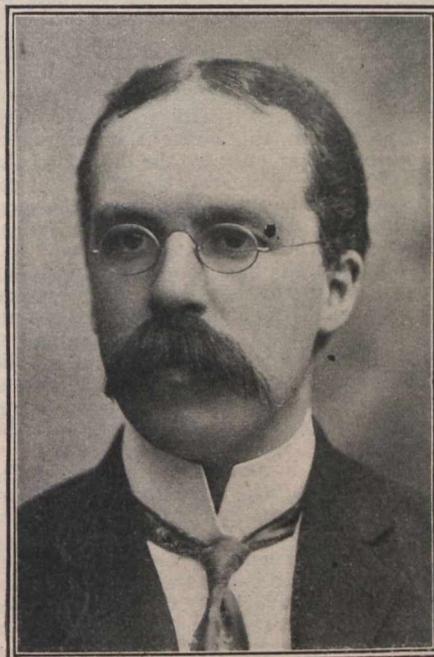
W. B. Lanigan, Freight Traffic Manager, C.P.R., Montreal, made a trip to the Pacific Coast in July and August.

Lorne Macdonald, formerly Division Freight Agent, G.T.R., Toronto, and promoted recently to Assistant General Freight Agent, Montreal, was entertained to dinner by the Toronto staff, July 29, and presented with a gold repeater watch, and a gold mounted umbrella for Mrs. Macdonald.

Mrs. A. D. MacTier, wife of the Vice President, Eastern Lines, C.P.R., Miss MacTier and Captain Stewart MacTier, of Montreal, made a trip to the Pacific coast recently.

Simon James McLean, who has been appointed Assistant Chief Railway Commissioner for Canada, was born in Quebec, June 14, 1871, and was educated at private and public schools there, and at Cumberland, Ont., and later, at the Ottawa Collegiate Institute, and from 1890 to 1894 was a student in the University of Toronto, Political Science Department. Among the academic positions held by him at various times, are 1894-5, Mackenzie Fellow, University of Toronto; 1895-6, University Fellow in Economics, Columbia University, New York; 1896-7, University Fellow in Economics, Chicago University, 1897-1902, Professor of Economics, and Sociology, University of Arkansas; 1902-06, Associate Professor of Economics Leland Stanford Jr. Uni-

versity, California; 1906-08, Associate Professor of Political Economy, University of Toronto. He is a B.A. and LL.B. of Toronto University; M.A. of Columbia University, Ph.D. of Chicago University, and a member of the Ontario bar. He has made a special study of transportation problems in various parts of the world, and has an intimate knowledge of transportation matters, both legislative and administrative, and has had a wide experience in direct contact with business men, railway and labor representatives, both in Canada and the U.S. As a tribute to his insight into such matters he was elected to the chairmanship of the transportation section of the Commonwealth Club of San Francisco. He has been a prolific writer on transportation subjects, having contributed largely to technical periodicals, reviews, etc. From 1898 to 1901 he acted in an advisory capacity to the Railways and Canals Department, and prepared a special report which was subsequently pub-



S. J. McLean,
Assistant Chief Railway Commissioner.

lished by that Department. In 1901 he was appointed special commissioner on Railway Rate Grievances for Canada, and conducted investigations in leading towns throughout the Dominion. The findings of this investigation were embodied in a report which recommended that a railway commission be organized for Canada, with power over rates and classification, and that it should have transferred to it the functions hitherto exercised by the railway committee of the Privy Council. These recommendations were adopted by the government, and embodied in the Railway Act of 1903. From 1904 to 1905 he was expert agent of the U.S. Census Bureau, and of the Interstate Commerce Commission, and conducted investigations to determine the valuation of railway property in the Western States, and in 1908 he acted as chairman of conciliation boards to investigate disputes in two mining cases. He was appointed to the Board of Railway Commissioners in Sept., 1908 for 10 years, and was reappointed in 1918 for a second term.

J. A. McKenzie, town ticket agent, G.T.R., Woodstock, Ont., fell from the roof of the verandah at his house, while

doing some work on it, Aug. 11, and fractured his hip.

Sir William Mackenzie, ex-President Canadian Northern Ry., and Miss Mackenzie, returned to Toronto, Aug. 8, from England.

M. H. MacLeod, Vice President, operation, etc., Canadian National Rys., returned to Toronto, Aug. 18, after an extended trip over the various lines west of Toronto. He was accompanied for the greater part of the trip by A. E. Warren, General Manager Western Lines; J. R. Cameron, Assistant General Manager, Western Lines; H. A. Dixon, Chief Engineer, Western Lines; R. G. Reid, General Master Mechanic, and T. Turnbull, Engineer Maintenance of Way.

M. M. Mahoney, heretofore Superintendent of Transportation, Canadian War Mission, Washington, D.C., has been appointed Secretary of the mission, succeeding J. Watson Bain, resigned.

A. Palmer, foreman of a G.T.R. bridge gang, St. Thomas, Ont., died in the General Hospital, Chatham, Ont., Aug. 11, as the result of a wound in the throat, believed to have been self inflicted.

J. G. Rutherford, C.M.G., one of the members of the Board of Railway Commissioners, Ottawa, has been appointed chairman of a commission which has been empowered by the Dominion Government to investigate the possibilities of the Canadian northland, as a permanent meat and wool producing area, particularly in regard to the establishment of herds of musk-ox and reindeer, and he has also been appointed as a royal commissioner to enquire into the conditions pertaining to race meetings in Canada, and betting in connection therewith.

Robert Arnett Sewell, who has been appointed Superintendent of Car Service, Eastern lines, C.P.R., Montreal, was born at Brampton, Ont., Sept. 2, 1880. He entered transportation service with the Canadian Express Co., as clerk at Brampton, Ont., in Jan., 1895, and remained in that service until May, 1898, when he entered C.P.R. service, since when he has been, to Dec., 1898, assistant agent, Cheltenham, Ont.; Dec., 1898, to Apr., 1899, operator at various points on the Eastern Division; Apr., 1899, to Aug., 1903, operator, relieving agent and dispatcher at various points on the Ontario Division; Aug., 1903, to Jan., 1912, agent and dispatcher at various points on the Western Lines; July, 1914, to Dec., 1916, agent, Oshawa, Ont.; Dec., 1916, to Nov., 1917, Chief Dispatcher, Toronto; Nov., 1917, to Oct., 1918, Inspector of Transportation, Eastern Lines, and for a short time, acting Superintendent, Trenton Division, Ontario District; Oct., 1918 to Aug. 1, 1919, Assistant Superintendent, Montreal Terminals Division, Quebec District, Montreal.

John S. Shaughnessy, who died at Chicago, Ill., Aug. 10, was a brother of Lord Shaughnessy, Chairman, and former President, C.P.R. He was, for a time, several years ago, in Minneapolis, St. Paul and Sault Ste. Marie Ry. service.

Sir Alfred Waldron Smithers, M.P., Chairman of the Board, Grand Trunk Ry. Co., London, Eng., who was knighted recently, was born in 1850 and has been a member of the London Stock Exchange for nearly 40 years. He was elected a director of the G.T.R. in 1895 and Chairman of the Board in 1909. He is also Chairman of the English Association of American Share and Bondholders and

M.P. for the Chiselhurst Division of Kent. He arrived in Canada Aug. 10, to confer with the Dominion Government in regard to the G.T.R.'s future, and to go over the company's lines.

Guy Tombs, whose resignation of the position of Assistant Freight Traffic Manager, Canadian National Rys., Montreal, to become Traffic Manager for the Canadian Export Paper Co., was announced in our last issue, was presented recently with a gold watch and chain by the staffs of the Ontario and Quebec lines, with an address and a cut glass punch set with tray by the Montreal male office staff and with a gold signet ring by the female staff.

M. Frank Tompkins, who has been appointed General Freight Agent, lines Matepédia, Que., and Edmundston, N.B., to Port Arthur and Armstrong, Ont., Canadian National Rys., Moncton, N.B., was born at Margaree, N.S., Dec. 6, 1878, and entered Canadian Government Rys. service Nov. 23, 1896, since when he has been, to Feb. 1, 1900, telegraph operator at various points; Feb. 1 to May 1, 1900, freight clerk, Truro, N.S.; May 1, 1900, to Sept. 1, 1902, freight clerk, Sydney, N.S.; Sept. 1, 1902, to July 1, 1903, accountant in Superintendent's office New Glasgow, N.S.; July 1, 1903, to July 1, 1904, telegraph operator, New Glasgow, N.S.; July 1, 1904, to Jan. 1, 1911, relieving agent at various points; Jan. 1, 1911, to Nov. 30, 1914, chief clerk, Division Freight Agent's office, Halifax, N.S.; Nov. 30, 1914, to June 1, 1917, Division Freight Agent, Halifax, N.S.; June 1, 1917 to Jan. 1, 1919, Assistant General Freight Agent, Canadian Government Rys., Moncton, N.B.; Jan. 1, to Aug. 1, 1919, Assistant General Freight Agent, lines Matepédia, Que., and Edmundston, N.B., to Port Arthur and Armstrong, Ont., Canadian National Rys., Moncton, N.B.

A. T. Weldon, who has been appointed Assistant Freight Traffic Manager, all lines east of but not including Port Arthur, and Armstrong, Ont., Canadian National Rys., Montreal, was born at Dorchester, N.B., Mar. 6, 1876, and entered transportation service in 1890, since when he has been, to Apr., 1900, in different capacities in the Freight Department, Intercolonial Ry.; Dec., 1901, to Aug., 1904, in Division Freight Agent's office, I.R.C., Halifax, N.S.; Aug., 1904, to May 1, 1907, Secretary, Halifax Board of Trade; May 1 to Nov. 18, 1907, General Sales Agent, Port Hood-Richmond Ry. Coal Co., Halifax, N.S.; Nov. 18, 1907, to 1909, Division Freight Agent, I.R.C., Halifax, N.S.; 1909 to Oct. 1, 1914, General Freight and Passenger Agent, Black Diamond Steamship Co., Montreal; Oct. 1, 1914, to June 9, 1917, Assistant General Freight Agent, Canadian Government Rys., Moncton, N.B.; June 9, 1917, to Dec. 31, 1918, General Freight Agent, Canadian Government Rys., Moncton, N.B.; Jan. 1, to Aug. 1, 1919, Assistant Freight Traffic Manager, lines east of Matepédia, Que., and Edmundston, N.B., Canadian National Rys.

Inverness Coal and Ry. Co.—As stated recently, the Eastern Trust Co. is acting as receiver for this company. An application has been made to a Nova Scotia court for permission to lease the collieries. A press report states that there is every probability that the railway will be taken over by the Dominion Government, and merged in the Canadian National Rys.

The Liberal Party's Attack on the Dominion Government's Railway Policy.

At the convention in Ottawa, early in August, of delegates representing the Liberal party throughout Canada, the following resolution, moved by Hon. G. P. Graham, ex-Minister of Railways and seconded by Hon. R. Lemieux, M.P., ex-Postmaster General, was adopted without discussion:—

"Whereas the construction of the National Transcontinental Ry. wholly upon Canadian soil, including terminal facilities, and in the completion of the projected steamship connection with Europe and the far east, thus affording the best possible transportation between the Orient and the mother country, and opening up a large portion of Canada not before developed, and providing for lowering of the freight rates was undertaken by the Liberal government and Parliament of Canada; and,

"Whereas, the accomplishment of the purpose for which this transportation system was designed has been thwarted by the studied hostility of the Borden administration, this convention expresses its opinion that only by the defeat of the present government can the beneficial results which should accrue from the construction of this great national transcontinental route be secured; and,

"Whereas, the government by its policy in dealing with the Canadian Northern Ry. System, which in addition to granting of subsidies and guaranteeing of bonds also made large loans of public money and thus involved the Dominion of Canada in financial obligations which resulted in the government assuming the ownership of the said system; and,

"Whereas, in addition to assuming the enormous liabilities incurred by the purchase of the Canadian Northern Ry. System the Borden government forced through parliament, in contravention of legislation already on the statute books, an act, under which \$10,000,000 was paid to C.N.R. interests, the identity of whom has never been disclosed, this convention condemns, with all possible vigor this entire unbusinesslike transaction and demands full investigation into the conditions surrounding the purchase of the C.N.R. and the destination of the moneys paid.

"The government now owns and operates some 16,000 miles of railway. We believe that the present system of management by a board, the majority of the members of which devote but a small portion of their time to this work, is unwieldy, inefficient and extravagant, and that under it and the present administration public ownership and operation will not receive a fair trial.

"Adequate facilities and tonnage for ocean traffic are a vital concern to the commerce of Canada, and the utter lack of foresight on the part of the government in neglecting to see that such facilities and tonnage were provided for the immediate after-the-war period is not only humiliating to the Canadian people but is materially impairing our export trade.

"At this time, when the country should be in a position to take full advantage of opportunities to secure its proper share of the export business on which the financial, industrial and agricultural future of Canada depends, we are confronted with the lamentable situation that no adequate provision has been made

for the transportation of the products of the farm, the factory and the forest to the markets of the world.

"With the knowledge of enormous destruction of tonnage by the havoc of war in its possession, the failure of the government to protect the trade of Canada against the condition that now confronts it shows an absence of business ability which merits the severest condemnation of the people of Canada.

"This convention declares its fullest confidence in the future of Canada, believing that a wise and economical development of our natural resources and a judicious and vigorous immigration and colonization policy coupled with strict economy and efficient management in every department of government will solve the transportation and other difficult problems now confronting the country."

Sir George Cartier's Great Work for Railways.

In referring to the monument to the late Sir George Etienne Cartier, which has been erected at Quebec, the Toronto Globe says:—"As an advocate of railways he rendered distinct service. In 1852 he rendered two bills to the legislature, one to authorize the Grand Trunk Ry. Co. to build between Toronto and Montreal, and the other to incorporate a company to construct a railway from opposite Quebec to Trois Pistoles, and for the extension of that railway to the eastern boundary of the province. During the construction of the Grand Trunk the company's credit on several occasions became dangerously low, and Cartier led in the agitation for aid. Similar emergencies arose a generation later in the construction of the Canadian Pacific. Indeed, Sir George Cartier himself had considerable to do with the inception of the C.P.R. Late in the sixties he had taken a leading part with William McDougall in the negotiations in England, which resulted in the purchase of the great prairie regions of the west from the Hudson's Bay Co. In 1872 he introduced the legislation connected with the C.P.R. scheme, providing for grants of 50,000,000 acres of land and \$30,000,000 in cash.

Grand Trunk Ry. Notice is given that there has been filed with the Secretary of State at Ottawa a certificate that the shareholders of the company had, at a special meeting held in London, Eng., on July 30, passed a resolution assenting to and accepting the Grand Trunk Act, 1919, which authorized the creation of perpetual 4 per cent. consolidated debenture stock to a total amount of £2,500,000.

Montreal Incline Ry.—The Montreal Administrative Commission is reported to have decided Aug. 8, not to operate the Incline Ry. The commission had an inspection of the property made with the result that it was found it would cost from \$5,000 to \$10,000 to put it in a thorough state of repair, and that the work would take about two months to complete.

Vehicle Traffic on Quebec Bridge—The Levis County Council, passed a resolution recently asking the Dominion Government to open a road for vehicle and general traffic on the Quebec bridge. Copies of the resolution have been sent to other public bodies interested, with the request that they petition the government similarly.

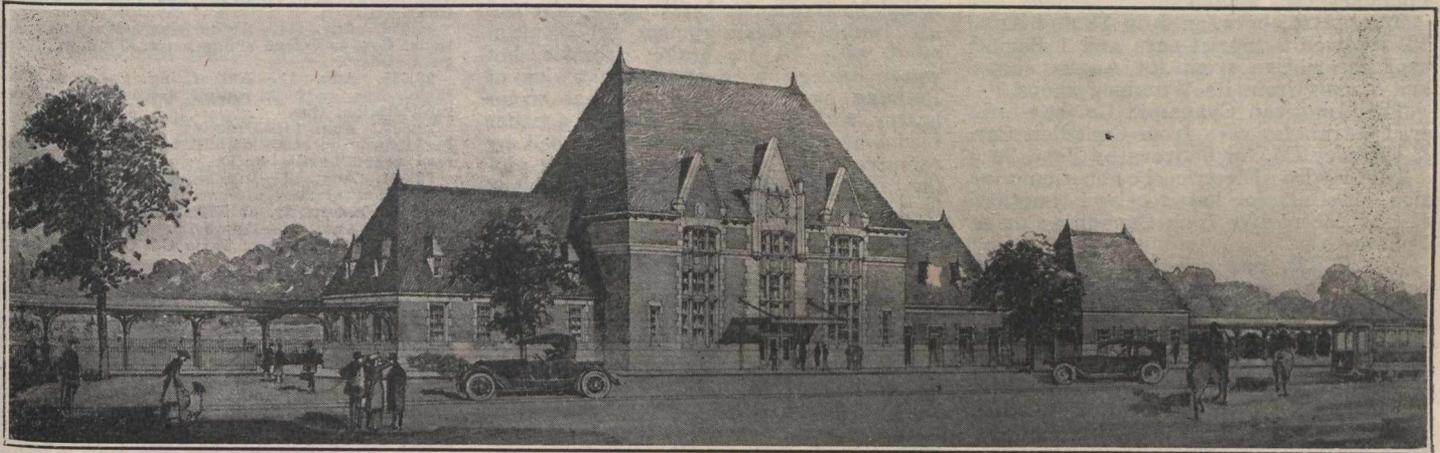
Canadian Pacific Railway Construction, Betterments, Etc.

Freight and Passenger Traffic Notes.

Three Rivers' New Station—The company has had plans prepared for a new station at Three Rivers, Que. The design is of the French chateau style, and the building will have a large general

C.P.R. representatives to be present at its next meeting in order to discuss a proposal to build a line from Linwood on the Guelph and Goderich line to Waterloo. It is reported that the com-

Traffic on the Edmonton, Dunvegan and British Columbia Ry., into the Peace River country is reported to be increasing. During the week ended Aug. 9, it was reported that 28 carloads of cattle, 20 carloads of horses, 6 cars of settlers'



The Canadian Pacific Railway's New Passenger Station at Three Rivers, Que.

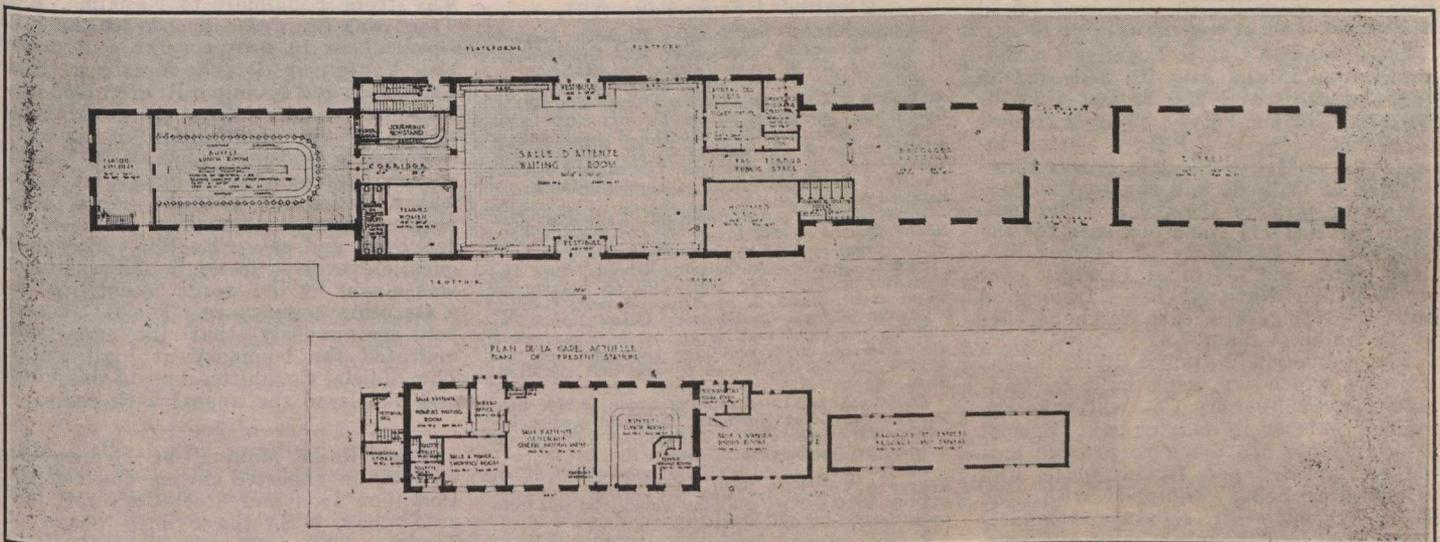
working room with ladies waiting room, ticket offices, etc., surrounding it in the center; while at the ends will be the baggage and express offices. The building will have a concrete foundation, brick walls, reinforced concrete floors and roof, steel frame, main walls of Citadel, Quebec, brick, trimmed with Deschambault limestone, copper roof. The main waiting room walls will be marble wainscot and Caen stone or marble above tile floor. The lunch room and lavatories

pany has made surveys for such a line and has obtained estimates as to probable traffic, etc.

Bridge in Victoria—The agreement proposed to be made between the City of Victoria and the C.P.R., as owners of the Esquimalt and Nanaimo Ry. for the erection of a new bridge at Johnson St., Victoria, has been under discussion at several city council meetings recently. The questions involved have to do with building of the highway approaches, and

effects, and 64 cars of general freight were dispatched from Edmonton, and that 509 passengers bought tickets at Edmonton station.

Vancouver, B.C., merchants are carrying on a campaign to attract Alberta wheat to that city for export. They are directing their attention to the question of freight rates from the point of production to Vancouver, and shipping rates to China and Japan, and also the question of the provision of elevators



Ground plans of Canadian Pacific Railway Stations at Three Rivers, Que. The upper plan is that of the new station, the lower plan that of the old station.

will be finished with marble dadoes and tile floors. The wood trimming generally will be red oak.

Kingston Freight Terminals—With respect to a press report as to the laying-out of a new freight terminal at Kingston, we are advised that the only work contemplated is the building of a new freight shed on a new location with the necessary tracks to serve it. The work has been under consideration for some time.

Linwood to Waterloo Extension—A press report from Kitchener, Ont., states that the local board of trade has asked

the traffic over the bridge. It is expected that the agreement will be finally settled at an early date. (Aug., pg. 432).

Canadian Exports of Railway Track Material. Figures compiled by the U.S. Bureau of Statistics show that during June, Canada exported the following railway track material, the figures given representing the weight and the value: Spikes, 53,028 lb., \$61,683; steel rails, 717 tons, \$41,928; also switches, frogs, splice bars, etc., \$26,806 and car wheels and avles, \$10,550.

and wharves, at Vancouver, and of the necessary vessels.

The Fredericton, N. B., Board of Trade, Aug. 12, is reported to have taken up with C. A. Hayes, Vice President Traffic, Canadian National Rys., questions in connection with the projected service on the extended St. John and Quebec Ry. The service proposed to be given is a tri-weekly one, and Mr. Hayes is reported to have advised the Board of Trade that if the results of the tri-weekly service indicate that prospects are such as to justify the expense, a daily service will be provided.

Railway Rolling Stock Orders and Deliveries.

Canadian National Rys. have received 10 Pacific type locomotives, noc. 5,100 to 5,109, class J4-A, 38% from Montreal Locomotive Works.

Canadian National Rys. have ordered 20 all steel mail cars; 20 all steel first class passenger cars and 13 compartment observation cars from Canadian Car and Foundry Co., Montreal.

The C.P.R., between July 15 and Aug. 13, received 2 tourist cars and 1 Pacific type locomotive from its Angus shops and 2 vans from its Winnipeg shops.

The American Cyanamid Co. has ordered 6 transfer cars from Canadian Car & Foundry Co. for delivery by Sept. 20.

The Hydro Electric Power Commission of Ontario has received another electric locomotive from Canadian Car & Foundry Co.

The G.T.R. has ordered 9 steel mail cars, 44 box cars, 2 stock cars and repairs for a number of hopper and box cars from Canadian Car & Foundry Co. The mail cars are to be delivered between Sept. 22 and Oct. 31, the box cars between Oct. 1 and 17.

The Canadian National Rys., 20 all steel mail cars, ordered from Canadian Car & Foundry Co., will be built according to the specifications prepared by the Post Office Department's Railway Mail Service branch, as approved by the Board of Railways Commissioners and which are summarized on pg. 472 of this issue. The general dimensions will be as follows:—

Length over end sills	73 ft. 6 in.
Length between truck centers	57 ft. 6 in.
Length over buffers, about.....	77 ft. 6 in.
Width over side sills	9 ft. 9 $\frac{1}{2}$ in.
Width over all at eaves	10 ft. 1 $\frac{1}{2}$ in.
Width to clear story	5 ft. 11 $\frac{1}{4}$ in.
Height track to roof at center	14 ft. 2 in.
Height over lamp jacks, about	14 ft. 5 in.
Height rail to eave mouldings	11 ft. 2 $\frac{1}{2}$ in.
Height track to sill at end	3 ft. 7 $\frac{1}{2}$ in.
Height track to sill at center	3 ft. 9 in.

The Canadian Car & Foundry Co., between June 13 and Aug. 21, delivered 30 baggage cars, and 250 ballast cars to Canadian National Rys.; 30 steel frames for tourist cars, to C.P.R.; 1 electric locomotive to Hydro Electric Power Commission of Ontario, and repaired 200 refrigerator cars for the G.T.R. The company repaired 177 wood box cars for the Grand Trunk Pacific Ry. at its Fort William plant, and delivered 13 stock cars to Canadian National Rys., from, and built 150 refrigerator cars for the G.T.R., at its Amherst plant.

The Canadian National Rys'. 9 dining cars which are being built by Canadian Car & Foundry Co., will have the interior finished in quarter oak. Special arrangements are made to provide ample refrigerator and locker space, and refrigerator being equipped with the Bohn system, with separate compartments for poultry, meat, milk and vegetable lockers. The kitchen will be equipped with removable carving tables, hot tables for cooked meats and poultry, and special arrangements for heating cups and dishes. The cars will also be equipped with humidors for cigars and with mineral water lockers, and special type of water filter to provide the best filtered water for drinking purposes. They will be electrically lighted throughout, with fans in body of car and exhaust fans in kitchen. The cars will be equipped with the latest type of clasp brake and special arrangements are made in the end construction with steel reinforcements to prevent telescoping in case of collision. The chief dimensions are:

Length over buffers	81 ft. 10 in.
Length over end sills	73 ft. 6 in.
Width over side sills	9 ft. 9 $\frac{1}{2}$ in.

The Canadian National Rys'. 18 steel sleeping cars which the Canadian National Rys. ordered from Canadian Car & Foundry Co., will be of the C.N.R. standard type with 6-wheel trucks with 5 in. x 9 in. axles, McCord journal boxes, rolled steel wheels, latest type of clasp air brakes, Westinghouse L.N. equipment with 18 in. brake cylinder, hot water heating with the largest size of Pullman standard type of hot water heater, with 2 $\frac{1}{2}$ in. duplicate coils, under feed water tanks with water raised by compressed air and C.N.R. standard piping arrangements; the interior finished in mahogany with latest design of frieze, short nap plush. The cars will have 12 sections, one drawing room and one smoking room. The lower berths will be fitted with 2 coat hangers each and upper berths with one each; C.N.R. standard curled hair mattresses and C.N.R. standard type and weight of blankets and linen. The cars will be electrically lighted throughout, with lights in both upper and lower berths and with electric fans in the corridor, semi-incandescent lamps, and fire extinguishers to meet the Board of Railway Commissioners' requirements. Delivery is to be made between Oct. 1 and Nov. 27. The dimensions are:—

Length over end sills	73 ft. 6 in.
Length of berth accommodation	37 ft. 6 in.
Length of smoking room end	17 ft. 1 $\frac{1}{4}$ in.
Length of drawing room end	18 ft. 11 $\frac{1}{4}$ in.
Width over side sills	9 ft. 9 $\frac{1}{2}$ in.

Orders by the Board of Railway Commissioners.

(Continued From Page 480).

28,638. Aug. 6.—Authorizing Canadian National Ry. to rebuild bridge over Mud Creek, Ont., at mileage 125.40 from Todmorden, Ont.

28,639. Aug. 6.—Extending to Dec. 1 time within which G.T.R. shall complete spur for M. M. Cummings, Westboro, Ont.

28,640. Aug. 9.—Ordering G.T.R. to install a 30 in. concrete pipe culvert 24 ft. long between Lots 54 and 53, St. Malachie d'Orstown Parish, Que., and to regrade ditch on north side of track between Lots 52 and 53.

28,641. Aug. 6.—Authorizing Canadian National Rys. to rebuild bridge over Donovan Creek, Ont., at mileage 127.50 from Todmorden, Ont.

28,642. Aug. 6.—Authorizing Grand Trunk Pacific Ry. to build car feery slip on portion of water front, Block C, at Prince Rupert, B.C.

28,643. Aug. 6.—Authorizing Grand Trunk Pacific Ry. to build road diversion in lieu of road allowance on north and east boundaries of n.e. $\frac{1}{4}$, Sec. 22, Tp. 27, Range 6, west 2nd meridian, Sask.

28,644. Aug. 11.—Amending order 18,870, Feb. 18, 1913, re Great Northern Ry. train service between Vancouver, B.C., and Blaine Wash., on Vancouver, Victoria and Eastern Ry.

28,645. Aug. 12.—Dismissing application of A. Cooper & Co., Fort William, Ont., for order requiring that C.P.R., Neebing siding, be put into operation again and placed on tariff list.

28,646. Aug. 6.—Authorizing Canadian National Rys. to build new crossing over arm of Sydenham Lake, Ont., at mileage 166.10 from Todmorden, Ont.

28,647. Aug. 8.—Extending to Aug. 31, time within which Canadian National Rys. shall make alterations to station at Baldur, Man., required by order 28,413, June 4.

28,648. Aug. 9.—Ordering G.T.R. to build culvert at point east of White Station, Godmanchester Tp., Que.

28,649. Aug. 11.—Ordering G.T.R. to build subway for vehicular and pedestrian traffic under its tracks at St. Pauls Ave., Brantford, Ont.

28,650. Aug. 12.—Relieving Grand Trunk Pacific Ry. and C.P.R. from maintaining towerman to operate crossing near Forrest, Man., between 6 p.m. and 8 a.m.

28,651, 28,652. Aug. 12.—Authorizing Canadian National Rys. to cross two highways in Chatham Tp., Que.

28,653. Aug. 12.—Authorizing C.P.R. to build connecting tracks between its Queen's Wharf Branch and the Toronto Harbor Commissioners'

tracks and to cross Bathurst and Housey Sts. at grade in Toronto.

28,654. Aug. 9.—Authorizing Canadian National Rys. and Montreal Terminal Ry. to operate over interlocking plant at crossing of Imperial Oil Co. spur, Pointe aux Trembles Parish, Que., without first stopping.

28,655. Aug. 13.—Ordering Grand Trunk Pacific Ry. to appoint station agent at Darmody, Sask., by Sept. 15.

28,656. Aug. 11.—Amending order 28,540, July 12, re speed limitation by C.P.R. at crossing of highway, 2 $\frac{1}{2}$ miles east of Oshawa, Ont.

28,657. Aug. 11.—Approving agreement July 24, 1919, between Bell Telephone Co. and Norland Independent Telephone Co., Victoria County, Ont.

28,658. Aug. 11.—Authorizing Canadian National Rys. to extend siding across John St., Longueuil, Que.

28,659. Aug. 11.—Authorizing Canadian National Rys. to build siding extension at Evan-turel station, Que.

28,660. Aug. 14.—Ordering G.T.R. to build 5 ft. highway on east side of bridge carrying public road near Danville station, Que., over its tracks.

28,661. Aug. 13.—Dismissing J. L. Atkinson's application re road crossing on Vancouver, Victoria & Eastern Ry. at Kilgard, B.C.

28,662. Aug. 14.—Approving Temiscouata Ry. on Standard Passenger Taric C.R.C. 72, on basis of 4c a mile.

28,663. Aug. 8.—Authorizing C.P.R. to cross at grade 27 highways on its Archive-Wyemark Branch, Sask.

28,664. Aug. 14.—Authorizing C.P.R. to build siding across road allowance between Secs. 23 and 24, Tp. 20, Range 10, west 2nd meridian, Sask.

28,665. Aug. 14.—Approving C.P.R. plan of half interlocking plant at crossing of C.P.R. and St. John Ry. on Main St., Fairville, N.B.

28,666. Aug. 14.—Relieving G.T.R. from providing further protection at crossing near Waterville, Que.

The Esquimalt and Nanaimo Railway and Foreshore Coal Rights.

The Imperial Privy Council gave judgment, Aug. 2, on the Esquimalt and Nanaimo Ry.'s appeal against the decision of British Columbia courts in the action brought by H. W. Treat to establish his rights to minerals under the foreshore of lands granted to the company in connection with the construction of the railway from Esquimalt to Nanaimo, B.C. Treat was granted a license by the B.C. Government to prospect for coal under the Vancouver Island foreshore. The Esquimalt and Nanaimo Ry. received certain grants of land from the government in aid of the construction of its railway, which lands ran down to the water-edge. The company claimed that Treat was a trespasser when he began prospecting along the foreshore of the lands conveyed, and entered action. The main question involved in the action was what was meant by the words "coast line" in a statutory conveyance. The B.C. courts held unanimously that the expression indicated the boundary at high water. The Judicial Committee upheld this view, and dismissed the appeal with costs.

Steel Rails Making at Sydney—In view of the reported closing down of the Dominion Iron and Steel Co.'s rail mill at Sydney, N.S., the Sydney Board of Trade and the town council held a joint meeting Aug. 8. A letter was read from General Superintendent Rice of the Dominion Iron and Steel Co., saying that all rail contracts for the Dominion Government had been completed July 31, and that the other rail contracts would be finished up in a week. He outlined what other work it was proposed to do before the plants were close down. The meeting decided to bring the matter to the Dominion Government's attention, and to urge that orders be given to the company in order that the various plants may be continued in operation. A press dispatch of Aug. 18 stated that the plants would be closed down on Aug. 23 for an indefinite period.

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

Canadian Western Ry.—The Dominion Parliament has conditionally extended for five years 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. (May, pg. 235).

Esquimalt and Nanaimo Ry.—A press report states that this company, which is a C.P.R. subsidiary, will ask tenders shortly for the construction of 12 miles of line, from near the present terminus at Port Alberni, towards the Great Central Lake, Vancouver Island, B.C. (July, pg. 381).

Essex Terminal Ry.—The Dominion Parliament has granted a conditional extension of five years within which the company may build its authorized branch line from Ojibway to Pelton, Ont., 7 miles, and to connect the same with the Michigan Central Rd., the Pere Marquette Rd., and the Windsor, Essex and Lake Shore Rapid Ry. (June, pg. 313).

Grand Trunk Ry.—A press report of Aug. 12 stated that work has been started on the extension of the company's yards at East London, Ont. The yards will, it is said, be extended from Rectory St. to Hale St., Pottersburg, involving the laying of about eight miles of new tracks, and a considerable amount of grading.

Grand Trunk Pacific Ry.—The Regina city commissioners are reported to be considering taking steps to compel the company to fulfil its agreement to build a railway station and hotel in the city, for which concessions were granted to the company's subsidiary, the G.T.P. Branch Lines Co. in 1911-12. The city granted a site exempt from taxation, on the company agreeing to build a \$250,000 station and a \$1,000,000 hotel.

A Prince Rupert, B.C., press report of Aug. 13, stated that the construction of the car ferry slip at that place was well under way, and that it is expected to be completed in October. The estimated cost is \$50,000. Details of construction were given in our last issue. (Aug. pg. 431).

High River, Saskatchewan and Hudson River Ry.—The Dominion Parliament has granted a conditional extension of time for five years, within which the company may build its projected railway, from any point in Tps. 25 to 28, Range 1, West 4th Meridian, Alta., to Saskatoon, Sask., to the Saskatchewan-Manitoba boundary between Tps. 52 to 56, and thence to a junction with the Hudson Bay Ry. at Pas, Man., under construction by the Dominion Government. (Mar., pg. 135).

Hudson Bay Ry.—A press report states that the construction of 10 miles of line will take the track to a point on the Nelson River, whence there is navigable water to Port Nelson on Hudson Bay, Man.

Kettle Valley Ry.—A press report states that work has been restarted on the construction of the branch line from Princeton to the Copper Mountain district, B.C. The contractors' men stopped work in April, and it is reported that very little work has been done since then. Tierney Bros., the contractors, is expected to have had the line completed in June. (July, pg. 381).

Pacific Great Eastern Ry.—The question of the diversion of the Pacific Great Eastern Ry. in the Quessnel district, British Columbia, is being discussed by public bodies throughout the district. Vanderhoof people are particularly anxious that the line be diverted to pass through that place, and a deputation visited Prince George recently to place their case before delegates of the Victoria, Vancouver and New Westminster Boards of Trade, who were on a trip over the line.

The British Columbia Premier is reported to have announced that a survey party will be sent out shortly to go over the location between Clinton and Ashcroft for the sole purpose of seeing that the best location has been obtained for the line.

Track is expected to be laid to Williams Lake by the end of October. (Aug., pg. 434).

Quebec and Saguenay Ry.—A suggestion has been made that after this line to Murray Bay has been completed and taken over by the Canadian National Rys. should be extended to Chicoutimi, Que. (Aug., pg. 434).

St. John and Quebec Ry.—The final inspection of the extension from Gagetown to a connection with the C.P.R. at Westfield, N.B., was made, Aug. 23, and the line was opened for through traffic to St. John, N.B., Aug. 25. (Aug., pg. 434).

Timiskaming and Northern Ontario Ry.—Recent press reports state that the engineering party sent out from North Bay, Ont., to make a survey of the country between Cochrane, the present terminus of the T. and N.O.R. and James Bay, is making satisfactory progress. The party was reported to have more than half completed the trip to James Bay, at the end of July. The report states that the party has had several accidents, and encountered a good many difficulties. The country through which they have passed is stated to contain considerable muskeg, and other ground in which construction would be difficult. It is expected that the party will return to headquarters in the autumn. (June, pg. 314).

The Toronto, Hamilton and Buffalo Ry. is reported to have served notice of appeal against the Board of Railway Commissioners' suspended order with respect to the building of a bridge over its tracks on Main St. West, Hamilton, Ont., towards which it was ordered to pay 70% of the cost.

The question of the removal of the company's coaling dock at Hamilton, and replacing it by a modern coaling plant on a new site, is again being considered by the Hamilton City Council's special committee. One of the members of the committee asserted at a meeting, Aug. 16, that the company could make money by scrapping the present plant and building a concrete coaling plant at the Aberdeen yards. The present dock blocks the extension of Homewood and Stanley Aves. and Herkimer St.

"A grinding application of the brakes does a car no good."

"In other words, you've got to handle a car as you would bad news."

"Eh?"

"Brake it gently."—Kansas City Journal.

Pay of Inspectors of Highway Crossings, Etc.

The Board of Railway Commissioners passed general order 269, Aug. 7, as follows: Re regulations regarding plans and specifications required to be filed with the board, dated Jan., 1919, being standard rules for the construction of highway, farm, wire, and pipe crossings, and general requirements for interlocking appliances at rail level crossings, junctions, and drawbridges: Upon its being represented to the board by the G.T.R. that the pay of inspectors for inspecting all crossings should be increased to \$11 a day, instead of \$3, as provided in the case of wire crossings by general order 267, amending the standard conditions and specifications for wire crossings, the Canadian National Rys. and the C.P.R. concurring in the above representations, it is ordered that the said regulations be amended by striking out the words "three dollars" after the word "exceed," in the sixth line of paragraph 7, page 14, and before the word "per," and substituting therefor the words "eleven dollars"; and by adding after the word "applicant," in the sixth line of the said paragraph 7, the words, "such payment to cover both wages and expenses."

Steel Rail Deliveries to Railways.

We are officially advised that up to Aug. 2 the Dominion Iron and Steel Co. had delivered 103,673 gross tons of steel rails, completing orders placed by the Dominion Government in Nov., 1918. The rails have been distributed to the following railways:—

	Gross tons
Canadian Government Rys.	34,718
Canadian Government Rys. (stocked).....	432
Canadian Northern Ry.	2,278
Canadian Northern Ry. (stocked).....	975
Canadian Pacific Ry.	31,288
Grand Trunk Ry.	33,321
Timiskaming & Northern Ontario Ry.....	161
Total	103,673

Edward Fitzgerald's Appointment—Sir R. M. Kindersley, Governor, Hudson's Bay Co., in presiding at a general court of the company in London, Eng., recently, said among other things: "In view of the ever-increasing duties which devolved upon Sir Augustus Nanton and other members of the advisory committee in Canada, the board secured the services of Edward Fitzgerald recently. For many years he was Assistant General Purchasing Agent for the C.P.R. He will occupy the post of Deputy Chairman of the advisory committee in Canada, devoting his whole time to the company's interests."

Calgary Industrial Congress—Among the principal speakers at the industrial congress at Calgary, Alta., in August, were D. C. Coleman, Vice President, Western Lines, C.P.R.; A. E. Warren, General Manager, Western Lines, Canadian National Rys.; J. S. Dennis, Chief Commissioner of Colonization and Development, C.P.R., and Robt. Dollar, President Robt. Dollar Steamship Co.

Hudson Bay Ry.—We are officially advised in connection with a recent press report that the Canadian National Rys. had absorbed the Hudson Bay Ry., that this is not the case. The line from Pas, Man., towards Nelson, is being handled by the Canadian National Rys. staff for the present for the Dominion Government.

Aerial Transportation Notes.

The British Minister of Munitions is reported in a London cablegram to have contracted for the sale of 700 aircraft engines and a great number of airplanes for Canada and the United States.

Vickers Limited, according to a press cable, is about to start a combined passenger and mail service between London, Eng., and Flushing, Holland, by aircraft, as the first of similar services to France, and Central Europe.

The Canadian Air Board's Vice Chairman is reported to have stated recently that it is hoped to start surveying operations by hydroplanes before long, and that other lines of operations to be established will be the carrying of mails, forest patrol work and public inspection.

The Northern Canada Trades Ltd., of which E. L. Janney is President, is reported to have bought three aeroplanes of the J.N.4 type, and to be converting them into hydroplanes. They will, it is said be used for explorations in Ungava Territory, and for supplying the company's trading and other parties.

Major-General Seely is reported to have stated in the British House of Commons, Aug. 16, that the Imperial Government intended to offer prizes aggregating £64,000 for plans for the best types of commercial seaplanes, and large and small aeroplanes. The paramount essential element which will govern decisions will be safety.

A direction finder invented by Dr. Bellini and Capt. Tosti, and perfected by the Marconi Wireless Telegraph Co., is reported as capable of enabling an aviator to steer a true course either at night or through fog. The finder is said to have been tested by the British Admiralty in connection with marine work, and to have proved satisfactory.

Capt. R. E. Long, formerly in charge of the Canadian Air Force's technical section is reported to have been appointed Secretary of the Canadian Air Board, established recently by the Dominion Government. Other appointments to be made will include a superintendent of flying operations, a superintendent of the certificates branch and a medical officer.

A London, Eng., press cable of Aug. 4, stated that it was expected that the first passenger airship would leave Barrow-in-Furness during the month, travelling via Lisbon and Sierra Leone to Rio de Janeiro, South American and return. The airship is reported to be 535 ft. long, with a capacity of 1,250,000 cubic ft., and a full power speed of 60 miles an hour.

The Aero Club of Manitoba has been formed by former air service men. Membership is open to any one who has served in any capacity with the air forces of any of the allied countries. The objects are to promote good fellowship among those interested in flying, to promote flying, to safeguard flyers and render charitable and financial aid to flying men in case of need.

The Aerial Service Co. Ltd., has been organized at Regina, Sask., to carry on business in commercial flying. R. J. Groome, is President of the company which has a hangar four blocks west of Albert St. The minimum charge for a flight is \$15, and a schedule of rates for single and return trips to Moose Jaw and other points in the province is reported to have been drawn up.

A recent press report stated that arrangements were being made for a flight from Halifax, N.S., to Vancouver, B.C., that it was hoped to start the trip on Sept. 30, with short stops at Montreal, Toronto, Port Arthur, Winnipeg, Calgary and Vernon, B.C., and to make Vancouver in 40 hours from the time of starting. D. K. Trim is mentioned as the pilot and W. H. Walsh as the navigating officer. Both were former officers of the Royal Air Force.

The American Express Co. was reported, Aug. 15, to have practically completed arrangements for the establishment of a daily passenger and baggage service between London, Eng., and Paris, France. It is stated that the service will be inaugurated in October. The company is also reported to be arranging for an aeroplane service in connection with the arrival and departure of trans-Atlantic steamships at Liverpool and Southampton.

The Canadian Aero Co. Ltd., has been incorporated under the Dominion Companies Act with authorized capital of \$50,000 and office at Brantford, Ont., to establish, equip, maintain and operate services of aircraft of all kinds for the carriage of passengers, mails, express and freight between such points within or without Canada as may from time to time be determined upon. The provisional directors include W. S. Brewster and G. D. Heyd, Brantford.

Capt. E. C. Hay, of the Dominion Flying Corps, left Vancouver, Aug. 7, at 4.13 a.m., with the object of flying to Calgary, Alta., within 18 hours. The route taken was to Vernon, 225 miles; thence to Grand Forks, 125 miles, to Cranbrook, 175 miles, to Lethbridge, 225 miles, and to Calgary, 120 miles, a total of 870 miles. He arrived in Calgary at 8.50 p.m., thus making the trip in 16 hr. 37 min., the actual flying time being 13 hours. This is the first flight made over the Rocky Mountains.

Handly-Page, Ltd., has been incorporated under the Dominion Companies Act with a capital of \$2,500,000 and offices at Morrisburg, Ont., to manufacture, buy, sell and have aeroplanes of all kinds; to build cars, shops, boats, piers, wharves, aerodromes and other structures, and to carry on a variety of other operations connected therewith. The provisional directors are: W. H. Workman, Rear-Admiral Mark Kerr, C.B., London, Eng.; H. C. Clark, Montreal; F. R. Chalmers, W. H. McGannon, Morrisburg, Ont.

The Dominion Parliament at its last session passed an act authorizing the Canadian Pacific Ry. to establish, maintain and operate services by air craft between such points and places within Canada as may be found desirable, and to exercise and employ such powers as may be necessary for such purposes. These powers are to be exercised subject to all regulations put in force by the government; a clause to this effect having been inserted in the act at the instance of the government which also secured the elimination of the power asked for the carry on business without, as well as within, Canada.

The Dominion Government has passed an order in council approving of regulations recommended by the Air Board as follows:—No aircraft shall fly over any city or town except at such altitude as will enable it to land outside the city or

town should the means of propulsion fail through mechanical breakdown or other cause; provided that this prohibition shall not apply to any flight undertaken for a special purpose approved by the Air Board, or any area comprised within a circle with a radius of one mile from the center of an aerodrome approved by or under the control of the Air Board. No person in any aircraft shall carry out any trick flying, or exhibition flying, over any city or town area or populous district; or carry out any trick flying or exhibition flying over any regatta, race meeting, or meeting for public games or sports, except where specially arranged for in writing by the promoters of such regatta or meeting; or carry out any flying which, by reason of low altitude or proximity to persons or dwellings, is dangerous to public safety; or drop or cause to permit to be dropped from the aircraft any article capable of causing injury or damage. Where any aircraft flies in contravention of any provision of these regulations, the owner and the pilot or commander shall be deemed to have contravened them, provided that it shall be a good defence if the contravention is proved to have been due to stress of weather or other unavoidable cause, or to have been approved by the Air Board. Any person contravening any of the regulations shall be liable to imprisonment for not exceeding 6 months or to a fine not exceeding \$1,000, or to both such imprisonment and fine.

Arrangements Between Dominion and Provincial Governments to Relieve the Drought Situation in the Prairie Provinces.

In view of the serious situation with respect to feed for live stock that has arisen in certain parts of the western provinces owing to drought, it has been found necessary for the Dominion Government to give some assistance to farmers and stockmen in the dry area in order to carry their cattle over winter. The dry area may be defined as all that part of the provinces of Alberta, Saskatchewan and Manitoba lying roughly south and west of a line drawn from Wetaskiwin to Camrose, north to Chipman, east to Lloydminster, south to Chauvin, then to Elbow, Moose Jaw, Weyburn, Virden, Souris and south to the International Boundary.

Conferences have been held between representatives of the railways, provincial governments and the Dominion Government, and a scheme of assistance practically agreed upon.

Hay taken into the dry area over the C.P.R., the C.N.R. or the G.T.P.R., will be carried at no cost to the purchaser, as this will be met by the railways, the provincial government, and the Dominion Government paying equal shares. The same arrangement applies to the transportation of hay-making machinery from points in the dry area to northern districts where hay can be cut, and back to the point of origin.

Assistance will be given to owners of less than 100 cattle or 300 sheep, and assisted shipments will be limited to two carloads for each owner. The exact amount of assistance has not yet been decided upon, but if the railways and the provincial governments are prepared to do likewise, the Dominion Government will pay one-third of the cost of transportation of cattle and sheep to some feeding ground, and back to the

dry area next summer. In the event of this not being agreed to, it is proposed that the railways should pay one-half of the return transportation only, leaving one-quarter of the return freight to be paid by the provincial government and the remaining one-quarter by the Dominion Government. This latter arrangement will mean that the owner must ship the cattle and sheep out at his own expense, and if they are returned before Aug. 1, 1920, and the other conditions are fulfilled, they will be returned to him without charge.

The above arrangements only apply to shipments over the C.P.R., the C.N.R. and the G.T.P.R. As the railways in

Northern Alberta, the Edmonton, Dunvegan and British Columbia and the Alberta and Great Waterways are unwilling to make any freight concessions, the provincial and Dominion Governments will each pay one-half of the cost of transportation on hay, hay making machinery and live stock moved over these two lines, under the same conditions.

The order in council authorizing the Dominion Government's share in the above arrangement has been passed, and it is hoped that it will be possible to put the scheme into operation at an early date, so that the serious feed situation in the prairie provinces may be somewhat relieved.

The Conservation of Track Material

The following committee report was presented at the Roadmasters' and Maintenance of Way Association of America's last annual meeting:

All members of the committee realize the importance of the subject to be considered and the saving which can be effected by close supervision of track material, both in and out of track.

Rails—One of the largest expenditures which the railway companies make is for new steel rails. A large number of rails are permanently damaged in track on account of the maintenance forces being unable to properly take care of the rails, resulting in battered and chipped ends. On a number of roads these rails are taken out of track, a sufficient amount sawed off each end, rail re-drilled and used again on branch lines. The average cost per ton for this work, including labor, sawing, drilling, oil and saw blades, is approximately 40c a ton. The committee recommends this as good practice.

Angle Bars—Cracked angle bars can be welded by the acetylene gas process and made use of again. The cost of this work is from \$1.50 to \$2.00 a pair, and we believe that it would be better economy to scrap the defective angle bars rather than weld them. Worn and bent joints can be straightened and built up for 20c a joint and made use of again. The bar is heated in an oil furnace, placed in die and swedged under a drop hammer. In this manner bar is swelled to its original section by means of pieces of steel $1\frac{1}{2} \times \frac{1}{8}$ in. thick placed in the center of bar.

Track Bolts—A large number of good usable track bolts can be recovered wherever rail is being renewed, if bolts are oiled before renewals are made, at a cost as follows: per mile for oiling: 4 hours labor, 30c an hour, \$1.20; 1 gal. kerosene oil at 10c a gal. and 1 gal, black oil at 13c a gal., cost of labor recovering bolts $4\frac{1}{2}$ c a bolt. Bolts which are recovered to be used in sidings and industrial tracks have an approximate life of 8 years.

Track Spikes—Old spikes can be straightened and used again in sidings and industrial tracks at a cost of not to exceed 70c a 200 lb. keg. There are a number of different ways of straightening old spikes, but the most approved way and the one recommended by your committee is with a press, where from 2 to 4 spikes may be straightened at a time. This is a decided advantage over other methods, on account of bringing the head back to its original position, where with

the hand method or trip hammer it is impossible to straighten the heads up.

Worn Switch Points can be made use of in several different ways: First, by cutting off a sufficient amount of worn point and replaning same. The cost of labor for this method is not less than \$10 a point. Second, the worn point can be built up by the acetylene gas process at an approximate cost of \$2.25 a point, but a point so built up should only be used in sidings.

Frogs—Worn and broken frogs can be repaired at a large saving over the cost of new frogs. To repair these frogs in the shops cost considerably more than by the acetylene gas process. To repair 90 lb. spring rail frog in shop, bolts, rivets, new wing rail, including labor and price of rail costs, \$70. A new frog of this kind costs \$160. A no. 9, 100 lb. spring rail frog, new short point, bolts and rivets, including labor costs, \$45 to repair. Cost of new frog, \$152. Rigid frogs can best be repaired with the gas process at approximately the following cost: New point and both wing rails built up and bolted, including the gas and labor charge, from \$12 to \$14 a frog, and by shop process \$25, saving by gas process \$13 a frog, with the additional advantage that the frogs can be built up under traffic, if necessary, at a slight additional cost.

Tie Plates—No tie plates should be discarded as scrap, unless they are entirely unfit for further use, but should be made use of on storage tracks and industrial sidings. Plates of heavier section can be re-punched and used on lighter section of rail to prevent rails cutting into ties. This conserves ties.

Track Ties—To conserve ties in track they should be inspected in accordance with the association's recommended practice. Ties removed from track should be carefully sorted and those fit for sidings or temporary track piled separately. Ties fit for fuel should either be disposed of to company employes, or to outside parties, to be used for that purpose, or they can be unloaded and used for engine fuel. Good use of old track and switch ties can be made for cribbing and docking. No old ties should be burned except those which are absolutely worthless for any other purpose.

Fences—To conserve lumber supply, the committee recommends a more extensive use of wire fencing and concrete posts.

Crossing Plank—To further conserve the supply of crossing plank which is a very large item, the committee recom-

mends the following for consideration: Concrete slabs for highway crossings, macadam crossings and the paving block crossings. Either of these methods for crossings would successfully take the place of our plank crossings, if properly installed, requiring less attention and the cost would not exceed plank crossings, and in some cases would cost less.

Track Tools—In order to conserve tools, careful inspection should be made at frequent intervals, and defective tools should be sent to shop for repairs.

Coal—We are told that there will be a great shortage of coal this winter; therefore we should conserve it at every point. Coal is used by the track forces in the tool houses, labor camps, blacksmith shops, derrick cars, ditching machines and riding cars. If only a few shovelfuls are saved each day it will help to cut down the shortage. Coal can be saved in a number of different ways: Where it is used for camps, instead of unloading on the ground, a platform should be provided for it to be unloaded on and only a small amount unloaded at a time, as coal deteriorates when left out in the air any length of time and camp help will only use the lump coal. When spilled along the track it should be loaded up promptly or disposed of to outside parties and not thrown over the bank out of sight. In camps and tool-houses, fires should only be kept burning when necessary.

Other Supplies, such as wicks, chimneys, oil cups, lanterns, torpedoes and fuses should be furnished gangs in such quantities that all will be used, and not left lying around the camps and tool houses until useless.

Oils and Gasoline—Now that on a number of roads tie-tamping machines and motor cars are used, there is a great saving to be made in oils and gasoline if operators of such machines are carefully instructed in regard to their duties. We should all remember to look after the little things; the large ones will be taken care of also.

Scrap—Now that material is hard to get, a close watch should be kept on the scrap piles. Your committee recommends that all scrap be picked up by section forces weekly and placed for loading at designated points and that all scrap be loaded up on the divisions once a month, at this time the roadmaster or some competent foreman should accompany the train and all material that can be made use of again, should be sorted out and held for future use. Only material that is scrap should be disposed of. Other material scattered along the track, such as marker lamps, grease plugs, air brake hose, etc., should be shipped direct to the motive power department to be used over again.

Attempt to Defraud the C.P.R.—John Casserley, a laborer, was sentenced to three months imprisonment at Calgary, Alta., Aug. 12, for attempting to defraud the C.P.R. He checked a trunk from Edmonton to Pincher Creek, and claimed that it had been opened in transit, and that \$500, in addition to wearing apparel, had been taken. An action was brought to recover \$565, but the company, after investigation, secured an admission that there had not been any loss. The company then prosecuted Casserley for attempting to obtain money by false pretences.

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.

Board of Railway Commissioners—Hon. F. B. CARVELL, K.C., ex-Minister of Public Works, has been appointed Chief Commissioner, vice Sir Henry L. Drayton, K.C., who has entered the Dominion Government as Minister of Finance and Receiver General.

S. J. McLEAN, Commissioner, has been appointed Assistant Chief Commissioner.

Canadian National Rys.—F. BRADLEY, heretofore, sleeping and dining car inspector, has been appointed equipment inspector, sleeping, dining and parlor car, hotel and news department, Winnipeg, vice J. A. McAllan, transferred.

J. D. CAMERON, latterly in military service overseas has been appointed City Freight Agent, Victoria, B.C.

R. W. HANNINGTON, heretofore City Solicitor, Victoria, B.C., has been appointed Solicitor for British Columbia, C.N.R. Officer, Vancouver, B.C.

W. M. HOLLISTER, has been appointed sleeping and dining car inspector, Winnipeg, vice E. L. Clarke, resigned.

J. A. McALLAN, heretofore equipment inspector, sleeping, dining and parlor car, hotel and news department, Winnipeg, has been appointed sleeping and dining car inspector, Winnipeg, vice F. Bradley, transferred.

S. MORRISON has been appointed acting District Engineer, Pacific District, Office, Vancouver, B.C.

M. F. TOMPKINS, heretofore Assistant General Freight Agent, Moncton, N.B., has been appointed General Freight Agent, with jurisdiction over lines Matapedia, Que., Edmundston, N.B., and east, Office, Moncton, N.B.

A. T. WELDON, heretofore Assistant Freight Traffic Manager, Moncton, N.B., with jurisdiction in the Maritime Provinces, has been appointed Assistant Freight Traffic Manager, with jurisdiction extended to include all lines east of, but not including Port Arthur and Armstrong, Ont., Guy Tombs, Assistant Freight Traffic Manager, lines west of Matapedia, Que., and Edmundston, N.B., to, but not including Port Arthur and Armstrong, Ont., having resigned to enter commercial business. Office, Montreal.

J. A. WINTER, has been appointed sleeping and dining car inspector, Winnipeg, vice P. Cotton, appointed dining car steward.

The Pacific District has been divided as follows:—Division 1, Edson, Alta., to Boston Bar, B.C., including Boston Bar; Superintendent, J. E. NELSON, Kamloops Jct., B.C.

Division 2, Boston Bar to Vancouver, including Port Mann, and Vancouver terminals and Vancouver Island lines; Assistant Superintendent, L. E. MUNCEY, Vancouver, B.C.

The jurisdiction of the dispatching office at Kamloops Jct., will include the entire district.

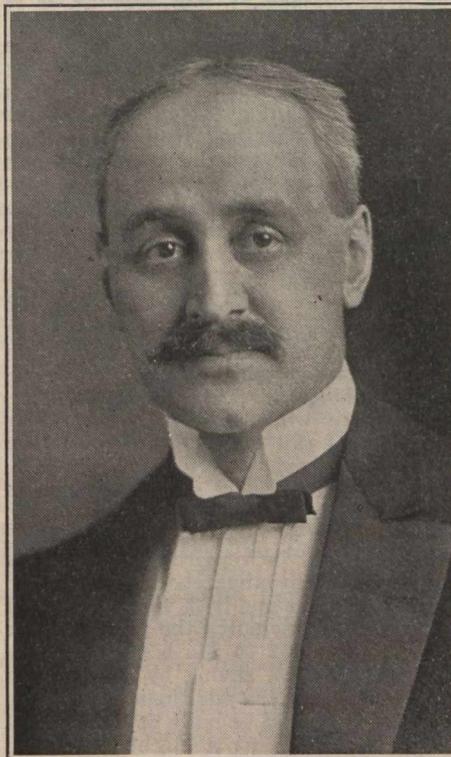
Canadian Pacific Ocean Services Ltd.—T. R. PERCY, heretofore chief clerk, Passenger Department, C.P.R., Montreal, has been appointed General Agent, Passenger Department, C.P.O.S., Yokohama, Japan.

Canadian Pacific Ry.—H. J. HUM-

PHREY, heretofore Superintendent, Brownville Division, New Brunswick District, Brownville Jct., Me., has been appointed Superintendent, Trenton Division, Ontario District, vice R. W. Scott, transferred. Office, Toronto.

G. S. LYTLE, heretofore Car Service Agent, Manitoba District, Winnipeg, has been appointed Car Service Agent, Saskatchewan District, vice J. A. Berry. Office, Moose Jaw.

F. S. ROSSETER, heretofore Assistant Superintendent, Sudbury Division, Algoma District, Sudbury, Ont., has been appointed Assistant Superintendent, Toronto Terminals Division, Ontario District, vice W. J. Stinson, transferred. Office, West Toronto.



A. T. Weldon
Assistant Freight Traffic Manager, Eastern
Lines, Canadian National Railways.

R. W. SCOTT, heretofore Superintendent, Trenton Division, Ontario District, Toronto, has been appointed Superintendent, Toronto Terminals Division, Ontario District, vice T. Collins transferred. Office, Toronto.

R. A. SEWELL, heretofore Assistant Superintendent, Montreal Terminals Division, Quebec District, Montreal, has been appointed Superintendent of Car service, Eastern lines, vice O. M. Lavoie, promoted. Office, Montreal.

W. J. STINSON, heretofore Assistant Superintendent, Trenton Division, Ontario District, Trenton, has been appointed Assistant Superintendent, Trenton Division, Ontario District, Havelock, vice R. de B. Girouard, transferred.

W. J. SUTCLIFFE, heretofore chief clerk to Auditor of Freight and Telegraph Receipts has been appointed Assistant Auditor of Freight and Telegraph Receipts, vice J. Bonner, superannuated. Office, Montreal.

E. G. WHITE has been appointed Superintendent of Department of Colonization and Development. Office, Montreal.
Central Vermont Rd. (U.S.R.A.)—I.

AUSTIN has been appointed acting Track Supervisor, Montpelier, Vt., vice W. Z. Penell.

W. Z. PENELL, heretofore Track Supervisor, Montpelier, Vt., has been appointed Track Supervisor, St. Albans, Vt., vice W. Bibby, resigned to enter G.T.R. service.

Edmonton, Dunvegan & British Columbia Ry.—C. DOWLING, Traffic Manager, Edmonton, Alta., is reported to have resigned to enter other service in Eastern Canada.

Grand Trunk Ry.—W. GILLESPIE, heretofore Mechanical Superintendent Central Vermont Ry., St. Albans, Vt., has been appointed General Foreman, Scrap and Reclamation yard, G.T.R., Montreal.

A. D. McCARTHY has been appointed Assistant Superintendent, Montreal Terminals, vice F. J. Miller, resigned.

C. S. OGILVIE, heretofore Assistant Engineer, Ottawa, Ont., has been appointed Assistant Engineer, Montreal Division, vice C. Murgatroyd, resigned. Office, Montreal.

Grand Trunk Pacific Ry.—R. H. MERRITT, heretofore City Ticket Passenger and Ticket Agent, Calgary, Alta., has been appointed City Passenger and Ticket Agent, Seattle, Wash.

United States Railroad Administration—F. E. DEWEY has been appointed appointed General Assistant, New England District, Eastern Region. Office, Boston, Mass.

Windsor-Detroit Bridge or Tunnel Project.

In connection with the proposal to construct a bridge or tunnel underneath the Detroit River to provide for highway traffic between Detroit, Mich., and Windsor, Ont., it is reported that the general opinion is more favorable to a bridge than to a tunnel. Plans for such a bridge are reported to have been prepared by J. A. L. Waddell, of Kansas City. A preliminary survey of the water front on both sides of the river is reported to have been made, and a site selected tentatively. It is suggested that the bridge entrances shall be close to the water's edge on both sides of the river, instead of by long inclines, which would bring them too far back, particularly on the Canadian side. Foot passengers could be carried to and from street level to the bridge level by elevators, and vehicle traffic would move along spiral roadways. The spiral on each side of the river, would have a diameter of 340 ft., and would make three turns to reach the bridge level of 130 ft. The cost of such a bridge and spirals is estimated as about the same as for a twin tunnel under the river, with the added advantage of eliminating the possible danger from automobile exhausts. The Dominion Prime Minister has informed the Mayor of Windsor that owing to the retrenchment made necessary by the war, no government aid can be given towards the construction of a bridge or tunnel between Windsor and Detroit for many years to come.

Railway Cartage Rates Increased—Railway companies in Canada have issued supplement 52 to C.R.C. no. E3280, effective Sept. 4, providing increases in cartage rates applicable in cities and large towns on their eastern lines.

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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, SEPTEMBER, 1919.

PRINCIPAL CONTENTS.

Aerial Transportation Notes	492
Appointments, Transportation	494
Birthdays of Transportation Men.....	471
Board of Railway Commissioners,—	
Orders by, Summaries of.....	480
Traffic Orders	496
Canadian National Rys. Construction, Etc.....	485
Canadian Overseas Railway Construction	
Corps' Organization, Etc.....	467
Canadian Pacific Ry. Construction, Etc.....	489
Carbonization of Locomotive Cylinder Fittings	475
Car Loading of Potatoes.....	481
Electric Railway Department.....	498 to 505
British Columbia Electric Ry., A Peculiar	
Trouble	505
Finance, Meetings, Etc.....	501
Freight and Passenger Rate Increases.....	498
Notes	504
Peterborough Radial Ry. One-Man Cars.....	500
Personal	503
Projects, Construction, Etc.....	501
Wages, Working Conditions, Etc.....	502
Express Companies, Among the.....	520
Mainly About Railway People.....	486
Marine Department.....	506 to 519
Air Tool Devices for Shipbuilding.....	512
Canadian Government Merchant Marine	
Shipbuilding, Etc.....	506
Dominion Canal Statistics.....	511
Mail Subsidies and Steamship Subventions...	515
Sault Ste. Marie Canals Traffic.....	517
Shipbuilding, General	514
Vessels Registered	515
Welland Ship Canal Construction.....	513
Wreck Commissioner's Enquiries.....	519
Prince of Wales' Canadian Tour.....	482
Railway Development.....	491
Railway Earnings	484
Railway Mail Car Specifications.....	472
Railway Mechanical Methods and Devices.....	473
Railway Rolling Stock Orders and Deliveries	490
Railway Statistics	474
Railway Track Material, Conservation of.....	493
Railways, Public Ownership of.....	477
Telegraph, Telephone and Cable Matters.....	519
Temiscouata Ry. Fares Increased.....	478

The C.P.R. Management asks its Conductors' Co-operation.

The following letter from Alfred Price, General Manager, Eastern Lines, C.P.R., reproduced in facsimile of his handwriting, was sent recently to all passenger train conductors under his jurisdiction:

"This letter is being addressed to all passenger conductors on Eastern Lines, but it is nevertheless intended as a very personal message to you. Ever since the early eighties, when its passenger train service was first inaugurated, the courtesy of C.P.R. conductors and other train and station employes, has been proverbial. Even from the beginning, practically all employes who had to deal directly with the public, took a pride in the new enterprise and the reputation for courtesy established by the pioneers in the service has been perpetuated by the newer and younger men.

"The responsibilities you have to assume, and the many duties you have to perform, are fully appreciated. It is well understood that in addition to conforming to numerous exacting train rules, you have jurisdiction over employes and the care of every passenger on your train, and that there are many things to worry, perplex and annoy you. It is common knowledge that occasionally there are unreasonable, disagreeable and even quarrelsome people to deal with, and under such circumstances it is extremely hard to maintain one's equanimity. It is, however, in just such a situation that you have an opportunity of showing your real worth to the company by preserving a courteous, calm and dignified demeanor. Remember that you are carrying passengers from day to day who are not accustomed to railway travel, and who find everything in connection with their first trip exceedingly strange. Such passengers need special consideration. Some women are accompanied by irritable and obstreperous children, who are most trying upon their nerves. A little kindly attention from you will help them to stand the strain. You may be handling American, European and Asiatic travellers, who are making their first trip on a C.P.R. train. They have heard of C.P.R. efficiency and courtesy, and are on the lookout for a demonstration of both. If you are true to the traditions of the service, you will not disappoint them. Every day you are collecting tickets from people who control the routing of large volumes of freight. They are judging the C.P.R. by you, and if they are impressed by your efficiency, courtesy and patience, their further patronage will probably be assured.

"It is recognized that the C.P.R.'s present unexampled position is due in large measure to the quality of the work of its employes, and to their unswerving loyalty and devotion to the company's interests. We have no monopoly of most of the traffic we are handling, and competition is growing keener every day. If therefore the C.P.R. and its employes are to continue to prosper, the company must retain the admiration, the confidence and the good will of its old friends, and it must also win new friends in ever increasing numbers. As there are such vast multitudes of people who travel on C.P.R. trains—over 15,000,000 a year—it would not be even remotely possible for the company's officials to meet any large proportion of them, so as to foster and develop amongst them the proper

sentiment; while you and the other employes through whom the public transacts its business with the company come into personal contact with all these people. This gives you and the other passenger conductors of the system the unparalleled opportunity of making friends for the company of over 40,000 persons every day of the year. Feeling assured of your pride in being a vital part of our great transportation organization, and of your attachment to and interest in all that pertains to its welfare, you can without doubt be depended upon to do your part in binding more closely to it the old friends, and winning to it the new friends, who are so necessary to its continued prosperity."

Lifting of Canadian Northern and Grand Trunk Pacific Rails for War Purposes.

During 1917 and 1918, Canadian Railway and Marine World published considerable information about the removal of rails from the Canadian Northern and Grand Trunk Pacific Railways for use on the British western front. Following is the official report on the work, by Alex. Ferguson, engineer in charge, as issued recently by the Railways Department:—

"On May 21, 1917, instructions were given to proceed with the work of lifting track from the Grand Trunk Pacific and Canadian Northern roadbeds between Imrie and Resplendent, Alta., to provide steel rails for the use of the British armies in France, as authorized by order in council. An organization was immediately created, and the work of lifting track and of transforming the two lines into one was commenced.

"The G.T.P.R. track between Imrie and Leaman Jct., 13.6 miles; between Obed and Pochontas, 42.25 miles; and between Geikie and Resplendent, 34.8 miles, was lifted, and the rails and angle bars shipped to Three Rivers, Que.

"The Canadian Northern track between Leaman Jct. and Obed, 79.9 miles, and between Snaring Jct. and Geikie, 22.05 miles was lifted, and the rails relaid on the G.T.P.R. between Leaman Jct. and Obed, and between Snaring Jct. and Geikie.

"The G.T.P.R. rails between Pochontas and Snaring Jct. were lifted and relaid partly with 60 lb. steel and partly with 80 lb. Canadian Northern rails in order to release the G.T.P.R. rails for shipment to France, and at the same time preserve rail connection with the coal mines at Pochontas. This portion of the G.T.P.R. line is being operated as a spur and is, as yet, considered merely temporary.

"The first shipment of steel rails for Three Rivers left Edmonton on June 17, 1917, and the last on Oct. 26, 1917. The total shipments amounted to 23,408 gross tons of rails and 1,110 gross tons of anglebars.

"During Oct., Nov. and Dec., 1917, a considerable amount of work was done on the construction of highways between Otley and Carrot Creek and between Peers and Fulstow, in order to give the settlers access to the G.T.P.R. line. Before the close of the fiscal year arrangements were made for the completion of these roads and for the construction of a roadway from Rosevear on the G.T.P.R. to Horner."

Traffic Orders by Board of Railway Commissioners.

Midland Railway Standard Freight Tariff

28,594, July 26. Re application of Midland Ry. of Manitoba, under sec. 330 of the Railway Act, 1919, for approval of its Standard Freight Tariff C.R.C. 80. Upon reading what is filed in support of the application, and the report and recommendation of the board's Chief Traffic Officer, it is ordered that the said tariff, to take effect on Aug. 24, 1919, to apply locally in Manitoba between points on the company's railway north of Midland Jet., cancelling the company's Standard Freight Tariff C.R.C. 5, be approved; the said tariff, together with a reference to this order to be printed in at least two consecutive weekly issues of the Canada Gazette.

Joint Class Freight Tariffs

28,618, Aug. 1. Re joint class freight tariffs, to apply on interline traffic between Grand Trunk, Canadian Pacific, and Canadian National Railways. Upon reading the submissions filed on behalf of the said railway companies, the Canadian Manufacturers' Association, the Boards of Trade of Toronto and Montreal, Dominion Canners, Ltd., and others; and upon the report and recommendation of the board's Chief Traffic Officer it is ordered

1. That within the territory covered by order 3258, July 6, 1907, as amended, in what is known as the International Rates Case, and in conformity with the relevant provisions thereof, also with the station groupings of the respective companies as shown in their tariffs between points west of Toronto on the one hand, and points east of Toronto on the other, joint tariffs of class rates be compiled to apply between stations on the Canadian Pacific and Grand Trunk Rys., the Canadian Pacific and Canadian National Rys., respectively, on the basis of the so-called schedule A scale, with the addition of the following figures to be incorporated in the rates themselves.

1	2	3	4	5	6	7	8	9	10	classes
8	7	6	4	2½	2½	2½	2½	2½	2½	2½
cents per 100 lb.										

the rates so compiled to include the service of transfer from the one company to the other; subject, however, to a minimum joint charge of 100 lb. at the 1st class rate, but not less than 75c.

2. That the joint class freight tariffs carrying out the requirements of this order be published and filed so as to become effective not later than Oct. 1, 1919.

3. That the following be made the points of interchange of interline freight traffic between the said companies under the terms of this order. Lennoxville, Montreal, Ottawa, Brockville, Peterborough, Toronto, London, Mount Forest, Orillia, North Bay, Actonville, Ste. Rosalie, Renfrew, Kingston, Milton, Guelph, Woodstock, Tillsonburg, Inglewood, and Essa (Utopia).

Following is the report of the board's Chief Traffic Officer, which was concurred in by the board and adopted as its judgment:

"Since everything likely to be of value appears to have been submitted, I think this old question should be disposed of. It is perhaps unnecessary to review the various stages prior to the filing of G. T. R. (C. R. C. no. E. 3842) and C. P. R. (C. R. C. no. E. 3439) Tariff to Joint Mileage Class Rates to apply on interline traffic between themselves, to become effective May 1, 1918. This tariff having been objected to, it was sus-

pending by order 27160, Apl. 26, 1918, following a hearing at Ottawa on April 16. The last hearing was held at Ottawa on May 7, 1918. On Sept. 25, 1918, the tariff was withdrawn and cancelled, order-in-council P. C. 1863 having issued in the meantime, and none has been substituted.

"The G.T.R. had, and still has, a joint tariff to and from points on the Central Ontario Ry., (now part of the Canadian National) via Trenton, but the rates are claimed by Dominion Canners, Ltd., to be excessive and restrictive of trade. It appears, generally speaking, to be a little higher than the tariff first referred to, the basis of which may be explained as follows: Taking the old standard tariff in effect before the 15 per cent. case, representing, of course, single line movements, the general rates for the same mileage blocks were made by adding 4c per 100 lb. to the 1st class rates up to 110 miles; for the blocks over 110 to 220 miles 2c were added to the 1st class rates; and for all distances beyond 220 miles the single line standard rates were adopted as the joint rates for like mileages. To the 1st class joint rates so arrived at 15 per cent. was added so as to bring the schedule in line with the judgment in the 15 per cent. case. Then the rates for classes 2 to 10 were graduated from those 1st class rates in conformity with the scaling of the standard tariff. Of course, had this tariff been permitted to go into force, or if it were now resubmitted on the same plan, it would now include the further 25 per cent. increase.

"These were the rates for haulage only; an additional charge of 4c per 100 lb., to cover cost of transfer of l. c. l. freight from one line to the other, being provided for.

"The greatest objection to this tariff was that it had as its general basis the maximum or standard eastern scale, which, in practice, is applied to only a small proportion of the traffic moving under the classification ratings. The great bulk of such traffic is directed from or to the manufacturing and jobbing centers, and is subject in the east to the lower scale of what is known as Schedule A. It is to this schedule that the joint tariffs should be related, in my opinion, if they are to be of any practical service. Two points have, however, to be kept in view. Both the standard tariff and Schedule A are one company's scales, and the board has had frequent occasion to rule that they cannot be applied as of right to joint hauls. The other point is that while physical connection exists at the point of transfer of the suggested tariff, thus enabling the interchange of carload traffic without handling, on the other hand, at several of them l. c. l. shipments have to be transhipped and teamed. Cartage cost varies, even in the case of the big cartage corporations with which the railway companies have contracts. The present rates, regardless of classification, of those cartage companies, are 6c per 100 lb. at Montreal; 5c at Toronto; 4½c at Windsor and Walkerville, and 4c at the other cartage points. Some of the interchange points shown in the tariff referred to are such cartage points; at the others the companies must rely on the best terms they can make with the local carters.

"Careful consideration has decided

me to recommend that within the territory covered by order 3258, July 6, 1907, as amended, in what is known as the International Rates Case, and in conformity with the relevant provisions thereof, also with the station groupings of the respective companies as shown in their tariffs between points west of Toronto on the one hand, and points east of Toronto on the other, joint tariffs of class rates be compiled to apply between stations on the C. P. R. and G. T. R., the C. P. R. and C. N. R., and the G. T. R. and C. N. R., respectively, on the basis of the so-called Schedule A scale, with the addition of the following figures to be incorporated in the rates themselves.

1	2	3	4	5	6	7	8	9	10	classes
8	7	6	4	2½	2½	2½	2½	2½	2½	2½
cents per 100 lb.										

the rates so compiled to include the service of transfer from the one company to the other; subject, however, to a minimum joint charge of 100 lb. at the 1st class rate, but not less than 75c. It is not my purpose that these additional figures should be understood to represent merely an approximation to the average cost of transferring the freight; they are intended to include that, and as well, some addition to Schedule A, because of its application to a joint service. The unfairness of applying the tapering rate of the extending mileage of a single carrier to the same aggregated mileage, but shorter individual hauls, of two carriers will not be overlooked. In the sum total the railways may come out ahead of the transfer costs; but on the other hand, the board will not be committed to the principle of single line rates for a two line service.

"The companies' proposition provided 10 transferpoints, as follows: Lennoxville, Montreal, Ottawa, Brockville, Peterborough, Toronto, London, Mount Forest, Orillia and North Bay. These do not sufficiently cover the field, and my proposal to add the following 10 more, making two facing pages, instead of a single page, of the tariff, is satisfactory to the companies, the additions being Actonville, Ste. Rosalie, Renfrew, Kingston, Milton, Guelph, Woodstock, Tillsonburg, Inglewood, Essa (Utopia).

"As the work of compilation will take some time during the vacation season. I think Oct. 1, might reasonably be named as the effective date, if these recommendations are approved.

"I give below a comparison up to 500 miles of the 1st, 5th, 6th, and 10th class rates, as proposed in the joint mileage tariff first referred to, as increased by 25 per cent., and including in the 1st class the 4c for transfer, with the rates, including transfer, herein recommended. It will be understood that the mileages are selected, there being intervening groups taking lower rates than shown for the farther distances.

Miles.	Proposed.				Recommended.			
	1st	5th	6th	10th	1st	5th	6th	10th
50	44	20	19	13	40	18	17	12½
75	53	24½	22	15½	48	22½	21½	15½
100	58½	27½	24½	19	51	24½	22½	17
125	61½	29	25½	20	57	27	24½	18
150	64½	30	27½	22	60	28	25½	20
200	73	34½	32	23	62½	30	27	21½
250	79	37½	34½	25½	68½	32½	30	24½
300	90½	43	40	29	74½	35½	32½	25½
350	99	47½	44½	32	77	37	34½	25½
400	104½	50½	47½	33	83	40	37	28
450	113½	54½	52	36½	88½	42½	40	30
500	119	57½	54½	39	91	44½	41½	31½

Temiscouata Railway Passenger Fares
28,620, July 31. Re application of Temiscouata Ry., for permission to increase its standard passenger fare to 4c a mile,

and re complaint of Municipality of Ste. Rose du Degele, Que., against the cancellation of second class fares by the company. Upon hearing the matter at Riviere du Loup, July 10, the applicant company, the Municipalities of Edmundston, Cabano, Riviere du Loup, and Temiscouata, the County of Madawaska, and the Towns of Notre Dame du Lac and Ste. Rose du Degele being represented, and what was alleged at the hearing; and upon reading the further submissions filed. It is ordered that the company be authorized to publish and file tariffs increasing its 1st class standard passenger fare to 4c a mile; and that this increased rate shall not become effective until the company has complied with the requirements of secs. 330 and 334 of the Railway Act, 1919. That the complaint of the Municipality of Ste. Rose du Degele be, dismissed.

28,662, Aug. 14. Re application of Temiscouata Ry., under sec. 334 of the Railway Act, 1919, for approval of its standard passenger tariff (C.R.C. no. 72, on the basis of 4c a mile: Upon the recommendation of the board's chief traffic officer, the said tariff having been filed on the basis permitted by the board in its order 28,620, July 31, it is ordered that the said tariff dated to become effective Aug. 25, be approved, the said tariff, with reference to this order, to be printed in at least two consecutive weekly issues of the Canada Gazette.

Belated Demurrage on Lumber Cars.

28,621, Aug. 1. Re complaint of Kilgour Manufacturing Co., Hamilton, Ont., against a belated bill of demurrage amounting to \$1,200, subsequently reduced to \$515, on 101 cars of lumber received at Hamilton from various points during Jan. to July, inclusive, 1917: Upon hearing the complaint at Toronto, June 24, 1918, the complainant, the Canadian Manufacturers' Association, the C. P. R. and the Canadian Car Service Bureau being represented at the hearing, it is ordered that the complaint be dismissed.

Demurrage Tolls Confirmed

28,622, Aug. 1. Re application of Dominion Millers' Association, Canadian Millers' Committee, Canadian Manufacturers' Association, Ontario Retail Lumber Dealers' Association, Toronto Board of Trade, Peterborough Board of Trade, and the Premier Potato Co., for revision of rule 9 of general order 201, Aug. 1, 1917, and the restoration of the demurrage toll in effect prior to Aug. 20, 1917. Upon hearing the application at Ottawa, July 8, 1919, the Canadian Manufacturers' Association, the Boards of Trade of Montreal and Toronto, the Canadian Lumbermen's Association, Canadian Car Demurrage Bureau, Michigan Central Rd. and the Grand Trunk, Canadian Pacific, and Canadian National Rys. being represented, it is ordered that the application be dismissed.

The Chief Commissioner, Sir Henry Drayton, gave the following judgment: "This complaint is made by shippers and consignees who desire that the present demurrage tolls should be decreased. No complaint is made as to the basis of the present tariff. On the other hand, shippers think it more equitable than the tariff in force in the United States. The whole question is the amount. The application is opposed by the railways, which are desirous of getting as many cars as possible on hand for the grain movement and of keeping terminals as free as possible, so as to prevent congestion and blocking the movement.

"Mr. Marshall, for the Toronto Board of Trade, and who supported the application, introduced figures which showed, for the period under review, under the increased demurrage tolls, affording as they do a direct incentive to shippers to load and to consignees to unload with all diligence, a saving of 90,820 car days.

"The shippers are not unanimous on the application. The Ford Motor Car Co. state: 'We have not felt any serious effect resulting from the higher demurrage charges, and if these higher charges have resulted in the more prompt release of equipment and the reduction of congestion, we cannot see that it would be wise to reduce to the old basis, as we feel that it would only be inviting a return of old conditions of car shortage and congestion when the volume of traffic is again restored.'

"Mr. Tilston, who appeared for the Montreal Board of Trade, said: 'This matter has been considered very carefully by my committee, and from what we know of the car shortage, if we are going to succeed in moving the crop in the autumn, it will be very undesirable for the board to make any reduction in the present demurrage rates. The present rates of \$1, \$2, \$3, \$4, and \$5 are more equitable to the honest dealer who is doing his best to unload his cars within the free time limit. The board should not make any reduction in these penalties.'

"The present situation is not normal. Usually some 62 per cent. of the country's grain moves via Buffalo. Owing to the requirements of the United States movement, Buffalo is this year closed to our grain. If anything like a proper movement of grain overseas is to be made, full facilities must be given the traffic. The car supply must be sufficient, and terminal congestion so often arising out of delayed cars avoided as much as possible. The car days saved under the higher tolls, and amounting to 90,820, would, allowing 6 days for the short movement from the Bay ports to Montreal, and with a loading of 1,600 bush. to a car, afford transportation for no less than 25,212,800 bushels to our chief sea port. In the public interest no reduction can be made under the present circumstances, and the application ought to be dismissed."

Cartage Allowance to Canada Sugar Refining Co.

28,630. Aug. 8. Re C.P.R. Co.'s application for authority to continue in effect the allowance made to the Canada Sugar Refining Co. of 1¼c per 100 lb. on account of cartage at Cote St. Paul, Montreal, as published in Tariff C.R.C. E3369: Upon hearing the application at Ottawa, Mar. 18, the Canadian Pacific, Grand Trunk and Canadian National Railways, and the Canadian Manufacturers' Association being represented, it is ordered that the application be refused and that C.P.R. Tariff C.R.C. no. E3369, in so far as it provides for a cartage allowance of 1¼c per 100 lb. to the Canada Sugar Refining Co. at Cote St. Paul, be disallowed; general order 252 to remain in effect.

Advanced Rate Charged on Grain.

28,635. Aug. 1. Re complaint of Merchants' Grain Co., Fort William, Ont., that it was charged an advance of 2c per 100 lb. on grain from Fort William, by reason of embargoes placed by the C.P.R., which prevented the complainant shipping prior to Mar. 15, on which date the advanced rates took effect: Upon hearing the complaint at

Fort William, Mar. 5, the complainant and the C.P.R. being represented at the hearing, and upon reading the further submissions filed, it is ordered that the complaint be, and it is hereby, dismissed.

Location of Marker Sockets on Railway Cars.

The Board of Railway Commissioners passed general order 270, Aug. 7, as follows: Re order 10453, May 3, 1910, dealing with location of markers on G.T.R. passenger trains and general order 127, July 6, 1914, directing that all railway cabooses be equipped with marker sockets as provided by the order. Upon its appearing that railway companies have marker sockets at the corners of the roof on some of their passenger cars, in addition to the lower positions; upon the report of the board's Chief Operating Officer, that, in his opinion, and with a view to standardization in equipment and practice, the requirements as to passenger cars and cabooses should be the same, it is ordered as follows:

1. When passenger cars and cabooses are equipped with marker sockets in the lower position (the said lower position to be at such elevation as will permit of lamps and flags being placed therein from the platform or floor of the car without the use of steps), markers shall be carried in such lower sockets.

2. All passenger cars and cabooses hereafter constructed shall be equipped with marker sockets in the lower position.

3. All passenger cars and cabooses now in use, not equipped with marker sockets in the lower position, shall be so equipped on or before May 1, 1920.

4. Order 10453, May 3, 1910, and general order 127, July 6, 1914, are rescinded.

The St. John and Quebec Ry. has, it is reported, completed arrangements for running rights over the C.P.R. from Westfield to St. John, N.B., so as to give a through service over the recently completed extension from Gagetown to Westfield.



Department of Railways and Canals,
Canada.

WELLAND CANAL.

NOTICE TO CONTRACTORS.

Placing Stone Protection on Summit
Level Between Thorold and
Port Colborne.

SEALED TENDERS addressed to the undersigned and marked "Tender for the placing of Stone Protection on the Summit Level of the Welland Canal between Thorold and Port Colborne," will be received at this office until 12 o'clock, noon, on Monday, September 8, 1919.

Specification and form of contract to be entered into can be seen at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa, and at the office of the Superintending Engineer, St. Catharines, Ont.

An accepted bank cheque for the sum of \$1,500, made payable to the order of the Minister of Railways and Canals, must accompany each tender, which sum will be forfeited if the party tendering declines entering into contract for the work at the rates stated in the offer submitted.

The cheques thus sent in, will be returned to the respective contractors whose tenders are not accepted.

The lowest or any tender not necessarily accepted.

By order, J. W. PUGSLEY,
Secretary.

Department of Railways and Canals,
Ottawa, August 25, 1919

Electric Railway Department

Increases in Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry. J. L. Retallack, Public Utilities Commissioner for British Columbia, gave a ruling, Aug. 6, as to the scope of evidence admissible under the Public Utilities Act in the 6c fare case. The matter came before him July 10, under the provisions of the act passed at the Legislature's last session, which authorized the B. C. Electric Ry. to charge a 6c fare on certain of its lines until such time as the Commissioner shall fix a rate. At the hearing July 10, W. G. Murrin, Assistant General Manager B. C. E. Ry., argued for the fullest scope, viz., the inclusion of evidence as to the whole of the company's investments and operations in the province, while E. G. McCrossen for the city argued for the limitation of the investigation to such of the company's investments as are necessary to its street railway service within Vancouver City, and of its operations and receipts therein.

The commissioner in his ruling stated that he had to deal with the subject matter of the mandatory enquiry under Sec. 11 (4) of the act, which was to determine the just and reasonable rate to be charged by the B. C. E. Ry. on any line of railway which enters or traverses any portion of the city; and with the application of the City of Vancouver for the determination of the just and reasonable car fare to be charged within the limits of the city, with consideration of the B. C. E. Ry. Co's receipts within such limits, but without consideration of any capital investment, operating or other costs of the company outside such limits, except such as directly affect the cost of street railway operations within such limits.

After reviewing the arguments submitted the commissioner ruled that evidence as to the company's investments, operating and administrative costs, fixed charges and receipts in the Victoria area, be excluded from the enquiry under the act. He also ruled that evidence as to the company's gas system in Vancouver be also excluded, and "for the reason of insufficient correlation that evidence of the company's investments in land or other property in the Vancouver area, for speculative or any other purposes, except directly for the purposes of its power, light and railway systems shall be excluded from the enquiry. The scope of the enquiry is further limited by the statute itself; and by the fact that certain lines are being operated under some new charters, and consequently beyond his jurisdiction. These are: The Burnaby Lake line east of Commercial Drive. The Kitsilano line from the north end of Granville St. bridge and from the Granville St. station. The siding south of False Creek from Granville St. to Main St. bridge. The Vancouver and Lulu Island.

Following a review of the remainder of the arguments, the commissioner said: "I therefore rule that in the enquiry under this act, evidence shall be accepted as to the B. C. E. Ry. Co's investments of capital, in the area contiguous to and inclusive of the delta of the Fraser River, the cities of Vancouver and New Westminster, the municipalities of Point

Grey, South Vancouver and Burnaby, the city and district of North Vancouver and the districts served by the New Westminster and Chilliwack line, and including its investments, present property values administrative costs, fixed charges and receipts, whether directly or through its subsidiary companies in its power and electric lighting systems in said district.

Upon the city's statement the commissioner pointed out that if its application were acted upon a decision would be necessary as to whether it would be just to secure such net return on the company's investment, either by continuing the present system of rates being more or less different rate for each governmental division of the district of Vancouver by establishing a basic rate, modified in relation to mileage, for the whole of said district, or by establishing the zone system throughout the district, viz., a fare figured in proportion to the density of population and mileage.

The commissioner concluded as follows: "I have not yet sufficient evidence, either, that the present system of rates is unfair and prejudicial to Vancouver, or as to the fairness and practicability of any other system, to justify me in giving a ruling now as to proportionate rates. Moreover, the other cities and municipalities which make up the district of Vancouver, are also interested in this issue. Therefore in order to obtain further evidence and to afford all parties likely to be affected an opportunity of being heard, I propose to give notice of and to hold a hearing to consider this particular issue, such hearing will not delay the general hearing under the act."

The commissioner then directed that for the convenience of all parties, the city's application and the enquiry under the act be consolidated.

The remainder of the sitting was occupied in fixing details of the procedure to be followed in carrying out the decision, and the commission adjourned to Aug. 19.

The following represented the different interests: British Columbia Electric Ry., W. G. Murrin and V. Laursen; City of Vancouver, E. G. McCrossen, E. F. Jones and Alderman McKae; Point Grey, G. G. McGeer; New Westminster, Burnaby and Surrey, W. G. McQuarrie, M. P.

Hamilton Radial Electric Ry.—A new schedule of fares was put in operation between Hamilton and Oakville, Ont., Aug. 18. The new rates from Hamilton are: To Burlington Beach, 30c single, 35c return; to Burlington, 25c single, 45c return; to Bronte, 35c single, 65c return; Oakville, 45c single, 85c return. The scale for individual workmen's tickets and for family tickets limited to six weeks is:

	Workmen's ticket 12 trips	Family ticket 26 trips
Kenilworth	\$.90	\$2.60
Ghent's .....	.90	2.60
Canal	1.20	3.90
Burlington	1.50	4.55
Burlington	1.20	.....
Pine Cove	1.80	5.20
Bronte	2.40	7.80
Oakville	3.60	9.10

Under the former schedule, a single trip to Burlington Beach, or Burlington cost 15c and a return ticket 25c, these

being the figures fixed in the Burlington Village and Saltfleet Tp. franchise by-laws. In 1918 the Board of Railway Commissioners authorized the company to charge a return fare of 64c to Burlington, subject to the village's consent. This consent was refused and the company stopped operating the line. Subsequently an arrangement was made to reopen the line, and at a later date an amendment was made in the Dominion Railway Act giving the Board of Railway Commissioners power to revise rates notwithstanding any contract between a company and a municipality. An officer of the Dominion Power and Transmission Co., which owns the H.R.R., is reported to have said, Aug. 13, that the company did not wish to increase the rate to the extent authorized by the board at present, but if the line continues to lose money there will have to be a further increase.

Lethbridge Municipal Ry.—Fares on this railway were advanced on July 1 to 10c cash, or 4 tickets for 25c. For children the fare is 5c cash, or 6 tickets for 25c. Workmen's tickets were abolished. Following is a comparison of the old and new fares.

	New	Old
Cash fare.....	10	5c
Adults' tickets.....	4 for 25c	5 for 25c
Children's cash fare.....	5c	.....
Children's tickets.....	6 for 25c	10 for 25c
Workmen's tickets (limited).....	.....	6 for 25c

We are advised that the change is merely an experiment, and that if it is found ineffective in producing a reasonable increase in revenue other changes may be made.

Moncton Tramways, Electricity and Gas Co.—The New Brunswick Board of Commissioners of Public Utilities, has issued its final order on the Moncton Tramways, Electricity and Gas Co.'s application, dated Aug. 28, 1918, for an increase of fares on its electric railway, and increased rate for natural gas and electric current. At the hearing in Nov., 1918, an interim order was granted, to run for four months, abolishing special rates and allowing the company to charge a straight 5c fare on its electric railway. At the final hearing the commissioners decided that as the rate of 8 tickets for 25c for workmen and school children was specified in the company's act of incorporation, it was not within their jurisdiction to alter it.

The final order directs "that the company be authorized to discontinue selling any tickets for street railway fares at the rate of 6 for 25c, and in lieu thereof be authorized to charge 5c for each and every street railway fare or ticket. This variation of the tariff to be in force and effect from July 1. This order is not to interfere in any way with the tariff now in force under which the company sells 8 tickets for 25c to workmen and school children, and which is to remain in force until otherwise ordered."

Montreal Tramways Co.—The Montreal Tramways Commission is reported to be giving consideration to the question of a revision of fares to be charged by the Montreal Tramways Co. during the current year. The fares for the past year are said to have averaged 4.8c a

passenger, while the average cost per passenger was 4.64c. For this year the commission will have to provide \$1,000,000 additional for wages. The accounts are being audited, and as soon as this work is completed the commission will be able to fix the fare to be charged.

Guelph Refuses to Lease Guelph Radial Railway to the Grand River Ry. Co.

Guelph, Ont., ratepayers on Aug. 11, by a vote of 1,285 to 437, refused to sanction the bylaw to lease the Guelph Radial Ry. to the Grand River Ry. Co. on the terms, detailed in Canadian Railway and Marine World for Aug., pg. 442.

The vote was the end of a short but exciting campaign. When the city council first approved of the agreement on July 15, its action was apparently generally approved by the citizens. The agreement contained a clause to the effect that it was not to become operative until approved by the Hydro Electric Power Commission of Ontario, with which the city has an agreement for the construction of an electric railway line from Toronto to London, etc. It was principally in connection with this point that the campaign was carried on. Sir Adam Beck, chairman of the commission, spoke at two meetings in opposition to the bylaw, and a great deal of work was done in the same direction by representatives of the municipalities of the district which are members of the Hydro Electric Railway Association of Ontario.

A press report of Aug. 15 stated that, as a result of the Guelph vote, a proposal to have a meeting of representatives of municipalities in Wellington County at Arthur at the end of the month had been called off. The meeting was to have been held to confer with C.P.R. officers as to the building of an electric railway from Guelph through Elora, Fergus, Drayton, Palmerston, Arthur and Mount Forest.

Change in Ontario Law Respecting Assessment of Electric Railway Structures, Etc.

An act to amend the Assessment Act, and other acts in connection therewith, passed at the Ontario Legislature's last session, contains the following sections:

"12. Section 44 of The Assessment Act is amended by adding the following as subsection 4:—

"(4) Notwithstanding anything contained in this section or any other section of this act the structures, substructures, superstructures, rails, ties, poles and wires of such an electric railway, shall be liable to assessment and taxation in the same manner and to the same extent as those of a steam railway are under the provisions of section 47 and not otherwise.

"13. Section 45a of The Assessment Act, as enacted by 8 Geo. V., cap. 20, sec. 39, is amended by adding at the beginning of subsection (2) the words "Subject to the provisions of subsection (3)" and by adding the following as subsection (3):

"(3) Notwithstanding anything contained in this section or in paragraph 7 of section 5, any restaurants, merry-go-rounds and switch-back railways carried on in connection with an electric railway owned, leased or operated by or for a municipal corporation or vested

in or controlled by a commission on behalf of a municipal corporation, shall be assessable."

The Assessment Act, R.S.O. 1914, chap. 195, provides as follows in sec. 47.

"(2) The assessor shall assess the land and property aforesaid as follows:

"(a) The roadway or right of way at the actual value thereof according to the average value of land in the locality; but not including the structures, substructures and superstructures, rails, ties, poles, and other property thereon:

"(b) The said vacant land, at its value as other vacant lands are assessed under this act:

"(c) The structures, substructures, superstructures, rails, ties, poles and other property belonging to or used by the company (not including rolling stock and not including tunnels or bridges in, over, under, or forming part of any highway) upon, in, over, under or affixed to any highway, street or road (not being a highway, street or road merely crossed by the line of railway) at their actual cash value as the same would be appraised upon a sale to another company possessing similar powers, rights and franchises, regard being had to all circumstances adversely affecting the value including the non-user of such property, and

"(d) The real property not designated in clauses (a), (b) and (c) of this subsection in actual use and occupation by the company, at its actual cash value as the same would be appraised upon a sale to another company possessing similar powers, rights and franchises. 4 Edw. VII, c. 23, s. 44 (2):

"(3) Notwithstanding anything in this section, superstructures, rails, ties, poles, act contained, the structures, substructures and other property on railway lands and used exclusively for railway purposes or incidental thereto (except stations, freight sheds, offices, warehouses, elevator, hotels, roundhouses and machine, repair and other shops) shall not be assessed.

"(5) A railway company assessed under this section shall be exempt from assessment in any other manner for municipal purposes except for local improvements."

Heretofore, while steam railways in Ontario were exempt from assessment and taxation on structures, substructures, superstructures, rails, ties, poles and wires on railway lands, electric railways were not exempt. The amendment given above exempts electric railways also and puts them in exactly the same position as steam railways.

The Ontario West Shore Railway's Funds.

In connection with the winding up of the Ontario West Shore Ry's affairs, T. Strothers, the trustee appointed by chap. 135 of the Ontario statutes of 1915, has on deposit with certain branch corporations \$139,360.92 derived from the sale of rails and other material of this unfortunate uncompleted electric railway. Under the terms of an act passed by the Ontario Legislature at its recent session, the trustee is entitled to purchase \$20,000 of the company's unsecured bonds, outstanding, and in the event of being unable to do so to pay interest thereon, until the fund is distributed. The fund is to be invested, subject to the Ontario Railway and Municipal Board's approval, and the interest arising from the securities purchased is to be paid

over half yearly, in pro-rata proportion to the municipalities of Goderich, Ashfield, Huron and Kincardine, and the holders of the \$20,000 of unsecured bonds if unpurchased, until maturity, when the fund will be distributed between them. The municipalities named guaranteed bonds for \$400,000 in aid of the construction of the railway.

Application was made to the Ontario Railway and Municipal Board, Aug. 12, by the Mayor of Goderich as representing the municipalities interested to have the fund invested for the next five years in the projected issue of Dominion war bonds. Counsel for the trustee asked that the investment of the fund be left in the Toronto General Trusts Corporation's hands provided that there would be no brokerage expenses in connection with the handling of the fund. The corporation promised interest at the rate of 5½ per cent. under the arrangement. Decision was adjourned pending further consideration by the municipalities.

The Montreal Tramways Co.'s Commissioners Street Line.

The Montreal Tramways Co.'s tracks on Commissioners St., Montreal, are about to be removed, and a press report states that they will not be replaced. Some years ago certain property rights on the street were taken to the courts, and the Supreme Court decided that the Montreal Harbor Commission's contention was correct. The chairman of the Montreal Tramways Commission is reported to have stated Aug. 19, that the court decision, having been given against the Montreal Tramways Co., there is nothing to be done but to remove the tracks, now that the Harbor Commission wants to deal with the property and the work of removing the tracks will be undertaken very shortly.

The Commissioners St. car line was closed to traffic, Aug. 25. It has never been a busy one, the busiest time being during the navigation season. The lines affected by the closing of Commissioners St. are the Ontremont and Delorimer routes. The first line swings off McGill St. to Commissioners St. for only a very short distance so as to make the turn, and the effect of the removal of the tracks will not seriously affect this service. The Delorimier line, however, runs right along the harbor front from Berri St. to McGill St., and gives the navigation service. The public will now have to use the Notre Dame St. line, and make their way to the water front.

It was reported recently that the Montreal Tramways Co. had been asked to remove its lines to the opposite side of Commissioners St., but the report of Aug. 24, states the company will not relay the tracks, as to do so would cost at least \$90,000.

The Harbor Commission proposes to lay some additional freight tracks on Commissioners St.

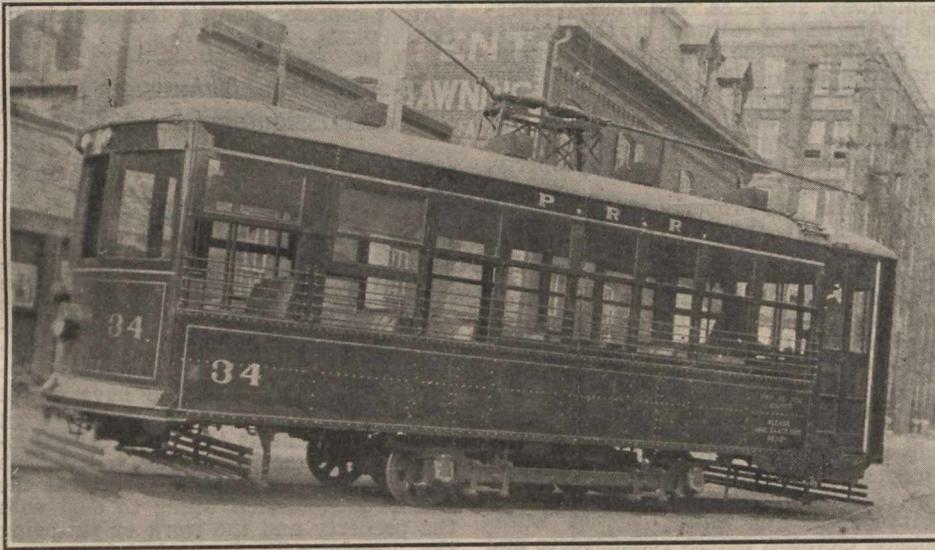
Poles on Quebec Streets—The question of poles carrying electric wires on the streets has again been brought forward in Quebec. W. J. Lynch, General Manager, Q.R.L. & P. Co., is reported to have said the company is willing and anxious to do everything in its power to avert accidents. All the companies interested, he said, should get together and discuss the matter with the city authorities.

One-Man, Safety Cars, on Peterborough Radial Railway.

The Peterborough Radial Ry., which is owned by the Ontario Government, and is operated by the Hydro Electric Power Commission of Ontario, placed in service recently two one-man, safety cars, which have the following general dimensions, etc.:

Length over all.....	27 ft. 9½ in.
Width over all.....	7 ft. 8 in.
Height overall.....	9 ft. 9½ in.
Height of rail to floor.....	2 ft. 3 15-16 in.
Wheel base.....	9 ft. 0 in.
Wheel size.....	24 in.
Seating capacity.....	34

The one-man safety car is, as its name implies, operated by one man, which has led people to believe that this form of operation is dangerous to the public safety. This impression, needless to say,



One-man, Safety Car, Peterborough Radial Railway.

is entirely erroneous, and it is claimed that these cars are safer in operation than the average city car operated by both motorman and conductor. It is called the one-man safety car for this reason. The operator has complete control over the car, and does not depend for his starting and stopping signals on a conductor. The passengers entering, leaving, and awaiting to enter, or to leave, are in his full view at all times. He operates the opening and closing of the one and only door from which entrance and exit is obtained. It is impossible for him to start the car while the door is still open, since on the particular position of the brake valve which operates the air cylinder controlling the opening of the door, the brakes are also fully applied. Similarly, it is impossible for him to open the door until the car has come to a complete stop, as when he throws his handle to the door opening position of the valve, the brakes are automatically fully applied. This feature eliminates any possibility of any person getting either on, or off, the car while it is in motion. Even if the operator was willing to let them, he could not do it. The step, of course, folds up when the door is closed, and there are no outside grab handles to permit anyone to ride outside who might insist on trying to get on while the car is in motion.

The air brakes are of extra capacity, permitting a very quick stop with full

service application, a stop which is nevertheless free from jar when properly applied. The car body is of the very latest design and is extremely light and easy riding, with no strength sacrificed in its almost entire construction of steel.

The controller is fitted with an improvement of the old form of dead man release. It is absolutely necessary for the operator at all times to keep his hand on the controller handle, and be wide awake to his job, unless the brakes are fully applied. When the brakes are fully applied, then, and then only, can he remove his hand from the controller handle. If he should happen to take his hand off the handle at any position of the controller, a plunger operated by air

automatically throws out the circuit brake. The brakes are automatically applied in full service position, the doors unlatched (not opened) and the car automatically comes to a complete stop. This feature does not allow any accident to occur, due to the operator taking a fainting spell, or becoming suddenly incapacitated. It also is important in this respect. Suppose that the operator is unnerved, through something unexpected happening, such as a child suddenly running out in front of the car, or an automobile crossing suddenly at a bad traffic intersection. He does not know what to do to stop the car, in other words he loses his nerve, all he has to do is to let go of everything and watch what happens. The breaker goes out, throwing off the power, the brakes go on, and is applied to the rail, the car stops itself.

Again, supposing several people have boarded the car, and some person in the lead requires change. The operator wishes to start the car, and after he has the car in motion, wishes to have both hands free in order to properly make change. There is a foot valve, which he places his foot on, and which performs the same function as the dead man release in the controllers. When he places his foot on this valve he can take his hand off the controller without throwing the breaker and applying the brakes. But should he remove his foot from this valve, the same thing happens as if he

removed his hand from the controller handle.

The simplicity of the automatic features of this equipment is very important. All operations of the sand service brakes, emergency brakes, door opening and door closing mechanism are on different positions of the handle on the compact brake valve. The acceleration rate and the breaking rate are much faster than in the average car, enabling the operator to make better schedules.

The equipment is for double end operation, with two trolley bases and poles, and is also supplied with trolley catchers. A bungalow type motor driven compressor assures an ample supply of air at all times. H. B. life guards are provided. The car body is of steel side plate construction, and semi-steel body structure throughout, making a very light strong car. The electrical equipment consists of two G.E. 258C motors and K63B controllers.

The cars were built by the National Supply Car & Equipment Co., St. Louis, Mo.

"Ottawa Electric Railway News."

The Ottawa Electric Railway has commenced the publication of the "O.E.R. News," a four page, 7 x 4½ in. folder, to be distributed in the cars. An article in the first issue, addressed "To our Patrons," says:

"The purpose of this little publication, which we propose to issue each week, is to foster the spirit of co-operation that is so essential in the development of an industry which, as in the case of a street railway, takes on the proportions of a public institution. Any industry that has for its patrons thousands of people in every walk of life, whom it must serve every day from January to December, must depend upon the co-operation of these people to successfully carry out much that is planned for the betterment of the service.

"It is our purpose to keep in close touch with our patrons in all matters that have to do with street railway operation. We want to establish a community interest in local street railway transportation for it is one of the most important industries in any city and the development and progress of a municipality may generally be measured in proportion to the character and extent of its street railway service. We shall keep you posted on any news concerning the service and shall tell you of our plans for its improvement and extension as the occasion arises. We invite correspondence on subjects pertaining to the service, and we want you to feel that this is your publication as well as ours. Get a copy of the O.E.R. News every week-end and keep in touch with the progress of events in street railway affairs."

Niagara, St. Catharines and Toronto Railway Strike—All the company's employes, conductors, motormen, power house men and trackmen, went on strike on Aug. 21 at 4 a.m., owing to the dismissal of certain conductors who were charged with dishonesty. The employes organization demanded that the evidence against the men be submitted to them. The management refused to comply, on the ground that in the case of a breach of criminal law, the evidence is crown property. When the employes realized this, they voted to return to work on Aug. 25 at 4 a.m.

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry. A press report states that the company has prepared plans for the construction of a transformer station at Barnett, B. C.

A press report states that work has been started on the reconstruction of 5 miles of track in district 2, south of Tucks, on the Lulu Island line, at an estimated cost of \$25,000. This line is owned by the C.P.R., but is leased to the B.C.E.R.

Grand River Ry.—We are officially advised that in addition to the 2 miles revision between Hespeler and Preston, now under construction, which has already been described, the company contemplates making a revision of the freight line between Kitchener and Waterloo, 2 miles, and a change of route in the City of Galt, so as to transfer its line to a private right of way. F. H. Midgeley, Galt, Ont., is Resident Engineer. (May, pg. 267).

Hamilton St. Ry.—A press report, states that the company is about to undertake the repair of its tracks on Herkimer St., Hamilton, Ont. (June, pg. 324).

Lake Erie and Northern Ry. has, according to a press report, made surveys for a spur line into the Holmdale district, Brantford, Ont., and we have been officially advised that the company is contemplating the building of a spur line into Paris, Ont.

Montreal Tramways Co.—It was reported Aug. 14, that the city council was about to proceed with the expropriation of Kelley St., in Ahuntsic, Bordeaux Ward, so as to enable the company to build the extension of its line authorized in the contract with the city. It is not considered likely that construction will be done this year.

The Montreal Tramways Commission was reported, Aug. 14, to have arrived at a decision to remove the present tracks on Bridge St., and to operate an autobus service thereon between Wellington St. and Mill St. The commission has authority to do this under sec. 89 of the contract, which provides that "If in the opinion of the commission the requirements of the population and of the traffic justify it, and the financial conditions permit, the company shall establish and operate within or without the limits of the city an autobus system on the streets which the commission shall designate, and under the conditions which it shall determine, provided that the establishment and the operation of such system shall not be a charge upon the company's revenues in the sense that the earnings of the autobus system shall be sufficient not to unjustly affect the company's passenger or freight rates."

Nova Scotia Tramways and Power Co. We are officially advised that the proposed extensions and improvements include the following: Track department—rehabilitation of present lay out, and the construction of about half a mile of new single track, in order to afford quicker access to the business district of the city. Power house—installation of new boilers; addition of two benches of retorts in the gas plant, and the extension of the gas main distribution. Electrical distribution department—a complete rehabilitation of the present aerial lines, and the extension of the present aerial lines, and the usual amount of short extensions to supply the normal growth of business. (Aug. pg. 449).

Ottawa Electric Ry.—The Ottawa, Ont., City Council has, according to a press report, authorized the construction of a loop for the St. Patrick cars on Cobourg, Murray and Charlotte Sts.

Sherbrooke Ry. and Power Co. A press report states that the company is preparing plans for an extension of its lines. The company operates 9 miles of line in Sherbrooke, Que., and vicinity.

Woodstock, Thames Valley and Ingersoll Ry.—A press report states that the route of the projected provincial highway through Western Ontario, in passing from Woodstock to Ingersoll, will follow the route of the Woodstock, Thames Valley and Ingersoll Ry. for some distance, and that some arrangement will have to be made between the company and the government in regard to the matter.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	June, 1919	June, 1918	12 mos. to June 30, 1919	12 mos. to June 30, 1918
Gross	\$411,605	\$488,873	\$7,062,550	\$5,986,437
Expenses	362,027	388,019	5,284,938	4,630,691
Net	49,578	100,854	1,777,621	1,355,746

Calgary Municipal Ry.—A press report states that it was reported to the city commissioners of Calgary, Alta., recently that the municipal railway had earned a profit of \$5,898.28 for July, against a profit of just over \$100 for July, 1918, and that the deficit on the operations for the seven months ended July 31, was about \$1,900. The following figures for July are given:—

	1919	1918
Passengers carried	1,465,044	1,134,180
Car mileage	277,046	288,257

Cape Breton Electric Co.:—

	May, 1919	May, 1918	5 mos. to May 31, 1919	5 mos. to May 31, 1918
Gross	\$46,350.66	\$28,916.96	\$230,884.91	\$193,106.22
Expenses	38,449.70	27,740.74	175,182.00	148,106.22
Net	7,900.96	11,176.22	55,702.91	45,724.30

Edmonton Radial Railway:—

	1919	1918
Receipts for June	\$53,274.94	\$41,084.01
Operating expenses and fixed charges	58,461.15	52,297.57
Deficit	\$5,186.21	\$11,213.56
Passengers carried	867,933	770,538

The City Comptroller has issued a report on the city finances for the 6 months ended June 30, which shows the receipts, operating expenses, etc., of the E.R.R. as follows:—

	1919	1918
Receipts	\$311,408.25	\$265,067.38
Operating expenses	228,690.10	193,699.57
Net receipts	\$82,718.15	\$71,367.81

This report does not show the fixed charges on the railways separately from the other civic utilities, but gives a total figure of \$381,534.83 for capital charges and depreciation. In another report it is stated that the deficit for the 6 months on the railway was \$44,434.29 against \$56,127.93, and that 5,625,864 passengers were carried against 5,383,584 for the corresponding period of 1918.

Hamilton St. Ry.:—

	1919	1918
Receipts for 3 months, ended June 30	\$219,238.71	\$212,256.33
City's percentage	17,539.09	15,460.50

London and Port Stanley Ry. The City Treasurer of London, Ont., was reported to have received on Aug. 13, \$48,391.60 covering rent and interest charges of the L. and P. S. Ry. for the half year ended June 30.

Sandwich, Windsor and Amherstburg Ry.—A press report states that the Windsor, Ont., City Council has served notice on the Sandwich, Windsor and Amherstburg Ry., of its intention to purchase the lines in the city upon the expiration of the franchise in 1922.

Toronto Civic Ry.:—

	July, 1919	Earnings	Passengers
1919	\$35,610.47	2,113,046	
1918	28,235.97	1,691,403	

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

	June, 1919	June, 1918	6 mos. to June 30, 1919	6 mos. to June 30, 1918
Gross	\$842,697	\$1,035,932	\$6,133,296	\$6,356,169
Expenses	543,040	582,154	3,643,296	3,455,413
Net	299,657	453,778	2,490,000	2,900,756

Toronto Suburban Ry.—A press report states that switches will be built into several industrial plants on the line between Toronto and Weston, Ont.

An unconfirmed press report states that the Canadian National Railways is planning to expend the T.S.R.'s Lambton-Guelph line to Kitchener, Stratford and London, and on to Windsor or Sarnia. (Mar., pg. 143).

Waterloo-Wellington Ry. Negotiations for the sale of this line, formerly the Berlin and Northern Ry., are in progress between W. H. Breithaupt, President, and the Kitchener, Ont., City Council. V. S. McIntyre, Superintendent of the city's electric railway, is reported to have completed an investigation of the Waterloo-Wellington Ry., and to be preparing a report for the Kitchener Light Commissioners. It is reported that the price asked by the company is about \$75,000.

The company's line is 3.15 miles long; it has outstanding \$17,800 of common stock, and \$2,400 of bonds, a total of 20,200. The total revenue from all sources for the year ended June 30, 1918, was \$8,159.93; the operating expenses were \$7,909.04; taxes \$244.25; interest on funded debt \$130 and interest in floating debt \$2,746.95. The net loss on the year's operations therefore was \$2,870.13.

Winnipeg Electric Ry. and allied companies:—

	June, 1919	June, 1918	6 mos. to June 30, 1919	6 mos. to June 30, 1918
Gross	\$112,615	\$293,140	\$1,874,640	\$1,811,338
Expenses	147,805	218,282	1,458,487	1,855,293
Net	\$35,190	74,858	416,153	426,045
*Deficit				

The net deficit after allowing fixed charges for June was \$95,307.61.

Proposed Sale of London Street Railway.

A press report of Aug. 18 stated that the mayor of London, Ont., had received a letter from the London St. Ry. Co., offering to sell the company's lines to the city, and giving an indication of the price which would be accepted. The par value of the company's shares is \$40, and the report states that the price asked approximates \$55 a share. The latter was expected to be given consideration by the city council's committee on Aug. 27, though it was stated later that the matter might be postponed.

Some days previous to the receipt of the letter, it was stated that while negotiations were going on, there was a difference between the city and the company representatives as to the method to be adopted for arriving at the value of the property. The city favoring the fixing of the purchase price by an agreement while the company wanted the appointment of arbitrators to make a valuation.

Electric Railways Employees' Wages, Working Conditions, Etc.

The British Columbia Electric Ry.'s street railway employes on Aug. 8 submitted a proposed new wages schedule together with notice of the re-opening of the present agreement, which will, therefore, automatically expire thirty days from that date. The new scale for city motormen and conductors asked by the men is 55c to 65c an hour, to be reached in 12 months, in place of 40c to interurban men the proposed scale is 65c 51c an hour, reached in 18 months. For to 69c, reached in 12 months, instead of 40c to 53c, reached in 18 months.

A totally new provision is for the payment of 70c an hour to city motormen and conductors on night runs, which the men propose shall be those after 6.30 p.m., except when completed before 8.30 p.m.

The proposed agreement provides for a guarantee of an 8 hour day for week days, and 6 hours for Sundays, instead of a minimum of 6 hours on week days, as under the old contract. The spread is proposed to be reduced from 11 hours to 10 hours.

Under the terms of the present agreement, either party can reopen it on giving one month notice, and it will be, therefore, necessary to come to some conclusion before Sept. 8. The matter will in all likelihood go before a conciliation board.

Guelph Radial Ry.—The Guelph, Ont., City Council has under consideration an application from Guelph Radial Ry. employes for an increase of wages. The men are reported to be asking for an 8-hour day, for 44c an hour for the first three months, and 47c thereafter, with time and a half for overtime.

Hamilton St. Ry.—The branch of the union to which the Hamilton St. Ry. employes belong, is reported to have been discussing the wage question. The present agreement between the men and the company will not expire until Mar., 1920, and the younger members are reported to be in favor of repudiating the agreement and demanding the same rates of pay as were granted recently to the employes of the Dominion Power and Transmission Co.'s suburban lines. It was reported Aug. 8, that the company had offered to pay 4c an hour additional by way of bonus, on condition that the agreement be extended for a year. The Minister of Labor was asked, Aug. 12, to send a representative to Hamilton to discuss the situation.

Moose Jaw Electric Ry.—A settlement was reported to have been effected, Aug. 15, between this company and its employes, and the car service was resumed Aug. 16. The wage schedule is said to have been adjusted temporarily, but the question which delayed the settlement was that of the recognition of the union. The terms of the settlement had not been made public at the time of writing. During the strike, the company made several efforts to carry on the service, but is said to have been able to operate only a limited service during the week preceeding the settlement.

The Ottawa Electric Ry. had, prior to June 3, had a signed agreement as to wages and working conditions with Division 279 of the Amalgamated Association of Street and Electric Railway Employes of America, which contained about 65 clauses, and was the result of boards of conciliation appointed in past years,

each year adding more and more to the agreement and binding the company to various concessions. All of the employes who worked on an hourly basis, with the exception of about 10, were members of Division 279. This agreement expired on June 30. On June 1, the company was presented with a draft agreement, to take effect on July 1, asking for an increase in the wage rate to 60c an hour, and many other concessions, such as double time for Sundays and legal holidays, two weeks holidays with pay for all employes, etc., which would amount in all to an increase of over \$600,000 a year. It was pointed out to the committee from the union that such an agreement was impossible, as the total profits from the business during the past fiscal year were less than \$300,000. Negotiations were carried on during June, but without reaching any agreement, as the men stated that they could not be satisfied with anything less than 60c an hour, although they agreed to drop many other concessions asked.

The men refused to apply for a board of conciliation and stated that on July 1 they would go on strike. The Superintendent urged them to apply for a board of conciliation and to comply with the law, but they did not agree to this. The company thereupon applied for a board which was appointed by the Labor Department. The men refused to appoint a member of the board to represent them, and the Labor Department appointed one for them. At a meeting of the board on June 30, the men notified the chairman that the board must bring in an award as to wages for their mass meeting at midnight or they would go on strike the next day. The chairman stated this was impossible and strongly urged them to wait until the board could make its award as in any case if the rates could be adjusted satisfactorily to both parties, they would be dated from July 1.

However, the men went on strike on July 1. The company stated publicly that it would not do anything to operate a service until the board had finished its work. The Minister of Labor, who was out of town, returned a few days later and notified the board to suspend its sittings until the men had returned to work and restored the conditions which prevailed before the strike. A mass meeting was held and the union refused to allow its members to return. Although the President of the international organization had wired, stating the strike was illegal and urging to men to return to work, also that they would receive no strike pay.

The company then announced in the press that it would not employ strike breakers, but asked for applications from men who wished to be trained for the positions of conductors and motormen, and who would be given a guarantee of 9 hours a day as permanent employes. A class of 100 was formed at once and several hundred applications were received and kept on a waiting list until this first class had become trained. On July 9 the company started operating 22 cars and commenced another class for training. The service was gradually increased until on July 18 the company had 56 cars running, out of a normal service of 100. It could undoubtedly have done much better than this but purposely held back in order to give the old hands a chance to return. On July 18

the union committee asked for a proposition from the company and were told that 150 employes who had been given a promise of permanent work would have to be retained in the service, at nine hours work a day; those who were employed as conductors and motormen to be booked at the bottom of the relief runs. This would mean that 150 of the men who were on strike could not return to work, but would be placed on a waiting list and called upon as vacancies occurred. After a very stormy meeting the men voted to return under these conditions and at the old maximum rate of 39c, at which rate the new employes had been engaged.

The Brotherhood of Railway Trainmen offered to act as mediators between the company and the striking employes, but their efforts were devoted in trying to induce the company to break faith with the new employes and restore the rest of the strikers who were left without employment. These negotiations failed. On July 25 a meeting was arranged between representatives of the company, the men's union and two members of the board of conciliation, and agreement was reached with regard to rates and also the status of the striking employes who were on the waiting list. This was reduced to writing and signed by the various parties, the company refusing to sign an agreement such as the man had asked for prior to the strike. The net result was that the men received increases ranging from 3c to 6c an hour, and that as far as the strike was concerned, the company won an unqualified victory. It was clearly established that the work of a car man in city service is not skilled labor, and that men can be trained in a few days. The company had the sympathy of the general public and the newspapers all through the strike. An attempt to cause a sympathetic strike through the Trades and Labor Council failed. The principal provisions of the agreement are as follows:

Wages to be paid conductors and motormen from Aug. 1, as follows, per hour: First year, 39c; second year, 41c; third year, 43c; fourth year and thereafter, 45c. On Sundays, New Year's Day, Victoria Day, Dominion Day, Civic Holiday, Labor Day, Thanksgiving Day and Christmas Day, 10c an hour extra over regular rates will be paid. The rate for overtime shall be time and one half on all days at the regular rate. This will not include Sundays and legal holidays mentioned above. An allowance of one hour will be made to spare men who show up at 6 a.m., noon relief, and 6 p.m., who do not get work. An allowance of 10 minutes will be made for crews taking out or putting in cars in barns.

The overtime rate, and Sunday and legal holiday rate mentioned above will apply to all departments and to all employes working on an hourly basis. The following rates will be paid per hour:

Air brake and fare box repairer, machinist, carpenter and armature winder.....	50c
Painter, pitmen, car changers.....	45c
Glazier, armature winders' assistant, electrical trouble and bench workers, pit helpers, oilers and greasers.....	42c
Car cleaners	35c
Car inspectors	40c
Apprentices, at rates arranged for on employment with 5c an hour increase every six months.....	
Linemen	45c
Ground men	39c
Chauffeurs	40c
Trackmen	40c

Laborers	37c
Switchmen	35c
Dynamo tenders, 1st class, main power plant, 8 hr. day	50c
Dynamo tenders, 2nd class, substations, 9 hr. day	44c

The new men, i.e., those taken into the service between July 1 and July 18, will be booked at the bottom of the list of conductors and motormen who are guaranteed 9 hours a day, and will remain so until such time as all the men who are at present working spare or are on the waiting list have been absorbed into the positions senior to those occupied by the new men today. The company, through its Superintendent, will do everything possible to adjust matters in the future so as to place the old employes into the positions they occupied prior to July 1. The committee representing the employes who are members of the employes union, agree that their members will do nothing, when either on or off duty, to force the men who are known as new employes to leave the service. All parties accept these new men as permanent employes and with full rights as such, with the one exception mentioned above, that until the old employes have been placed in their old positions, they will remain stationary at the bottom of the list of those men booked on 9 hours. Those men who have been unable to return to the other departments than the car service are considered as on a waiting list, and will be given the first available chance to return to their former positions as vacancies occur. The company guarantees that no discrimination will be used against any man in its employ because of his belonging to an association or union of employes.

Winnipeg Electric Ry.—A board of conciliation is the question of wages to be paid the company's trainmen and shopmen. The board consists of Chief Justice Mathers, chairman; J. T. Haig, K.C., representing the company, and R. S. Ward, representing the men.

Toronto Civic Railway Operating Results.

The Toronto Bureau of Municipal Research has issued the following statement of the results of operating the Toronto Civic Ry. from 1915 to 1919:

Year	Expenditures, including debt charges.	LOSS		
		Income	Amount	% of Income
1915	\$ 332,074.25	\$ 199,980.49	\$132,093.76	49.3
1916	343,975.17	225,031.38	118,943.79	66.1
1917	432,436.83	275,972.78	156,464.05	52.8
1918	460,082.87	331,724.00	128,358.87	38.7
Estimated, 1919 ..	629,677.93	340,000.00	289,677.93	85.2
Total.	\$2,198,247.05	\$1,372,708.65	\$825,538.40	60.1

In reviewing the city estimates for this year, the Commissioner of Finance, Thos. Bradshaw, said: "The recommendation to increase the fares of the civic car lines to an extent that would eliminate the annual deficit, though often repeated, and strongly urged, has met with no result. Nothing can more discredit the policy of public ownership in the eyes of the man on the street than this uneconomic policy in regard to a service which, from its present limited nature, is of advantage to a special section of the ratepayers only. Moreover, many others, who are not Toronto citizens at all by virtue of residence beyond the city limits, receive transportation at a nominal rate and do not even contribute to the yearly deficits as general taxpayers.

"The deficit for 1919 is estimated to reach about one-half of a mill on the assessment, and the suggestion has been made that all deficits should be capitaliz-

ed and made a part of the funded debt, which will be established when the Toronto Ry. is acquired, but it is felt that such a proposal could not have received due consideration. It is estimated that these accumulated deficits would amount to the large sum of approximately \$1,750,000 by Sept., 1921, and if this amount were added to the price to be paid for the tangible assets of the Toronto Ry., the total capital liability of the enterprise would be so greatly increased that the successful operation of the system under municipal ownership would be very seriously handicapped from the beginning. This augmentation without value savors too much of certain corporation methods, and their accompaniment of inflated and watered capital, with its well known disastrous and burdensome effects.

"It must, of course, be recognized that the heavier the capitalization of an enterprise, the greater must be the earnings in order to maintain it, and the logical result of over capitalization of the street railway of Toronto by the city, would be an inevitable increase in the citizens' transportation charges."

Ottawa Electric Railway Insurance and Sick Benefit Society.

F. D. Burpee, Superintendent, Ottawa Electric Ry., has issued the following bulletin to all employes:—"It has been suggested that an insurance and sick benefit society would be welcomed by a large number of the employes. The company's directors have authorized me to say that if this is the case, they will agree to pay into such a scheme, an equal amount to that paid in by the employes who wish to participate, and all expenses connected with the society.

"The scheme I have in mind covers a life insurance policy of \$1,000, payable at death from any cause, which could be converted at about the age of 65, into the same amount of cash, or continued as a paid-up insurance policy for a greater amount; a sick benefit amounting to \$10 weekly, for any 10 weeks in one year, after the first week's absence, from any illness, or from accident occurring while off duty; and the services of a doctor, free of charge, to members of the society. Accidents while on duty are not being considered, as they are taken care of by the Workmen's Compensation Act of Ontario.

"It would also be arranged that if a man left the service for any reason whatever before reaching the age of 65, he could continue his policy by assuming the full payment of the premium, or give up the policy and take its cash surrender value. This could be done at any time after three year's premiums had been paid, and after five years the cash surrender value should amount to greater than the premium paid by the holder of the policy. This clause practically means that the policy becomes a savings bank account, and in the event of the man leaving the service for any cause, after 5 years, would bring him back in cash more than he had paid in, as well as providing protection during his employment.

"In order to put the society on a permanent basis the life insurance would be underwritten by a responsible life insurance company, the payments of the premiums being guaranteed by the railway company.

"We have a number of employes who have passed the age that would be ac-

cepted by any insurance company, except by the payment of a premium that would be too heavy for the society to stand. The directors are willing that the railway company should take care of the interests of these employes separately, so that they would not become a burden on the society, but they would receive the same benefits as the younger employes. The scheme is entirely optional, and is open to the employes of all departments, including those occupying supervisory positions. The sick benefit will not be open to those who are employed on a monthly salary. It is expected that the monthly charge for each man will not exceed \$2, and will probably be considerably less. The exact amount cannot be ascertained until the applications have been received, and the ages of those applying are definitely known.

"The scheme will be guaranteed by this company and, as far as the life insurance is concerned, will be covered by a responsible insurance company. It will enable any employe to obtain the benefits referred to above at half or less than half of the amount they would cost in any other way.

"All those who wish to become members of this society are requested to give their names, ages, and dates of birth as soon as possible to the officials mentioned below: Conductors and motormen, Mr. Tobin; car shops and barn, Mr. Baldwin; line department, Mr. Ouelette; track department, Mr. Monette; power department, Mr. Bradley.

"An application will not obligate you to anything until the exact monthly rate to carry this scheme on can be obtained. This rate will depend on the average age of those who wish to join. If you wish to avail yourself of these benefits put your name in at once, and as soon as the rate is given it will be announced by bulletin, when any who wish to withdraw their names can do so."

Mainly About Electric Railway People.

Captain A. C. Eddy, Engineer of Maintenance of Way, British Columbia Electric Ry., Vancouver, is back in the company's service after being attached to the U.S. Engineers for nearly two years, and being engaged in construction service in France for the U.S. army.

Chas. Elliott, heretofore Claims Agent, Niagara, St. Catharines and Toronto Ry., St. Catharines, Ont., has been appointed Assistant Superintendent at Niagara Falls, Ont., with jurisdiction over the Niagara Falls, Wesley Park and Clifton Tramway Co.'s line and Niagara Falls terminal, D. Toomey, heretofore Inspector at Niagara Falls, having resigned.

George Kidd, General Manager, B.C. Electric Ry., returned to Vancouver recently after spending three months in England, conferring with directors there. He had no changes in policy or staff to announce, the trip being for routine purposes only. One of the directors is expected to visit British Columbia shortly.

Mrs. A. W. McLimont, who died at Ottawa at the end of July, was mother of A. W. McLimont, Vice President and General Manager, Winnipeg Electric Ry.

Mrs. G. A. Seixas, who died at West Field, N.J., was mother of E. F. Seixas, formerly Manager of the Niagara, St. Catharines and Toronto Ry., St. Catharines, Ont., and now General Manager and Official Representative, Monterey Ry., Light and Power Co., Monterey.

Electric Railway Notes.

The Winnipeg Electric Ry. has received 2 semi-steel cars from Ottawa Car Manufacturing Co.

The Three Rivers Traction Co. has received 2 one-man wooden cars from Ottawa Car Manufacturing Co.

Toronto and York Radial Ry. employes, about 200 in all, have decided to join the Toronto Railway Employes' Union, instead of forming a separate branch.

The British Columbia Electric Ry. was fined \$30 by the Victoria police magistrate, recently, for permitting one of its cars to proceed at a greater rate of speed than 10 miles an hour.

The British Columbia Electric Ry. entertained the members of the Engineering Institute of Canada's Vancouver branch, at its Lake Buntzen hydro electric power development plant recently.

The Regina Municipal Ry. employes' union voted recently to withdraw from membership in the Regina, Sask., Trades and Labor Council, owing to that body having endorsed the constitution of the one big union.

The Cape Breton Electric Co. began recently a safety first campaign through advertisements in the local papers. The first talk was introductory, and subsequent talks were addressed to passengers, parents, boy scouts, auto drivers, etc.

The Vancouver, B.C., City Council gave the first reading recently to a by-law repealing the bylaw authorizing the operation of a jitney service in the city, passed during the recent strike in which British Columbia Electric Ry. employes joined.

The Nova Scotia Tramways and Power Co. contemplates the purchase for its lines in Halifax, N.S., of 20 single truck Birney safety cars, as soon as the Nova Scotia Board of Commissioners of Public Utilities grants the necessary permission to do so.

The British Columbia Public Utilities Commissioner has under consideration an application of residents of South Vancouver for an increased service. The people ask for a 15 minute through service instead of the present shuttle car service on Main St. from 52nd St.

In Vancouver every Friday, one of the B.C. Electric Ry.'s observation cars is handed over to one of the military hospitals for the use of convalescent soldiers. Seventy tickets are given out each week to the blue band men and they enjoy the cars' regular trip through the city.

The Edmonton, Alta., City Commissioners propose to continue granting passes for disabled soldiers on the Edmonton Radial Ry., and to make an application to the military authorities at Ottawa for payment. The same decision was made with regard to 12 passes issued to the military police.

The Montreal Tramways Commission is said to have under consideration the operation of one man cars on certain city stub lines. It was reported Aug. 12 that arrangements would be made to hold a meeting at the end of August at which the question could be discussed by all parties interested.

The London and Port Stanley Ry. is quoting a round trip fare from London to Cleveland, Ohio, on Wednesdays and Saturdays, returning on the following

day. The trip from Port Stanley to Cleveland and return is made by the steamboat Theodore Roosevelt, which runs daily between those ports.

Saskatoon, Sask., ratepayers, by a vote of 174 to 123, taken recently, defeated the proposal favoring the operation of one-man cars on the Saskatoon Municipal Ry. They also defeated the proposal to provide the funds necessary for the alteration of the present cars to permit of their operation as one-man cars.

The Oshawa Ry. has ordered a 50 ton electric locomotive from Ottawa Car Manufacturing Co. It is to be all steel construction, 32 ft. long over bumpers, cab 16 ft. long by 10 ft. wide. top of rail to top of roof 12 ft. It will be equipped with four 100 h.p. Westinghouse motors with Westinghouse H.L. double end control, Westinghouse EL 14 air brake and locomotive brake.

The Grand River Ry. inaugurated a Sunday car service on its lines between Galt, Preston, Hespeler, and Kitchener, Ont., Aug. 3. The service is an hourly one, and the cars arrive at and leave Galt, in connection with the cars on the Lake Erie and Northern Ry., which is operated under the same management. It is now therefore possible to make a Sunday trip from Kitchener to Port Dover on Lake Erie, and return on the same day.

The Elgin, Ont., county judge has reserved judgment on the appeal of the London and Port Stanley Ry. against an assessment of \$61,000 on its property in Port Stanley, Ont., property. The company claims that the line, being municipally owned, is exempt from taxation even under the act passed at the Ontario Legislature's last session. This act, counsel for Port Stanley, contended, was passed for the purpose of making the property assessable.

A London, Ont., City Council's committee had before it recently a report on the service given by the London St. Ry., which claimed that the company was not maintaining the service called for in the bylaw, reference being specially made to the continued maintenance of a stub line on Rectory St., between Dundas St. and Hamilton Road. The report was adopted, but the matter was referred back to the committee in order that a further report might be received from the City Engineer.

The Winnipeg Electric Ry. announced recently that it was employing 517 returned soldiers. Of these 259 are previous employes, who went back to their positions enjoying their seniority and all benefits which accrued during their absence overseas. Following are other particulars: Employes in company's service having joined army, 607; returned soldiers previously employed re-entered service, 259; returned soldiers not previously employed now in service, 258; returned soldiers employed, but since resigned, 357.

The Regina, Sask., City Council on Aug. 9, approved of a report of the commissioners on the question of the feasibility of having the Regina Municipal Ry. cars meet all trains at the union station. The commissioners reported against the proposal. Superintendent Houston pointed out that the most feasible way of providing such a service would be to extend the College line round the South Railway

St. loop, and give a 10-minute service. In order to pay operating charges and overhead expenses it would be necessary to carry 1000 passengers a day from the station. Commissioner Thornton is reported to have said that there was absolutely no chance of getting sufficient patronage to justify the operation.

John Mackay & Co.'s appeal against the judgments of the Canadian court in his action against the City of Toronto for \$42,000 for services rendered in connection with the proposed purchase of the Toronto railway by the city some few years ago, came before the Imperial Privy Council recently, judgment being delivered Aug. 7, dismissing the appeal, with costs. When the case was before the Canadian courts judgments were rendered against appellant each time, one judgment stating that if he was entitled to recover the amount he should receive would be approximately \$7,000. The point on which the appeal failed was that there was no agreement between the parties and that the then mayor had no authority through the city council to commit the city to the matter.

Toronto Preparing to Take Over the Toronto Ry.—The mayor of Toronto made the following statement recently:

"The city council's traffic commission will meet weekly, as soon as the exhibition is over. During the past six months a sub-committee of R. C. Harris, E. L. Cousins and Mr. Bradshaw, have been working on the financial, legal and engineering features of the taking over of the Toronto Ry. and everything is being done that can be done. A report will be presented to the city council shortly dealing with the whole question. The commission will report the extension of civic car lines, the opening of a car factory to manufacture cars, and on the submission of a bylaw for \$5,000,000 for equipment, track allowances and other matters, as well as on many matters referred to it during the past six months by the city council. As soon as we take over the railway, a commission of three or more will be appointed, similar to the harbor board, to take complete control of the system, and operate it."

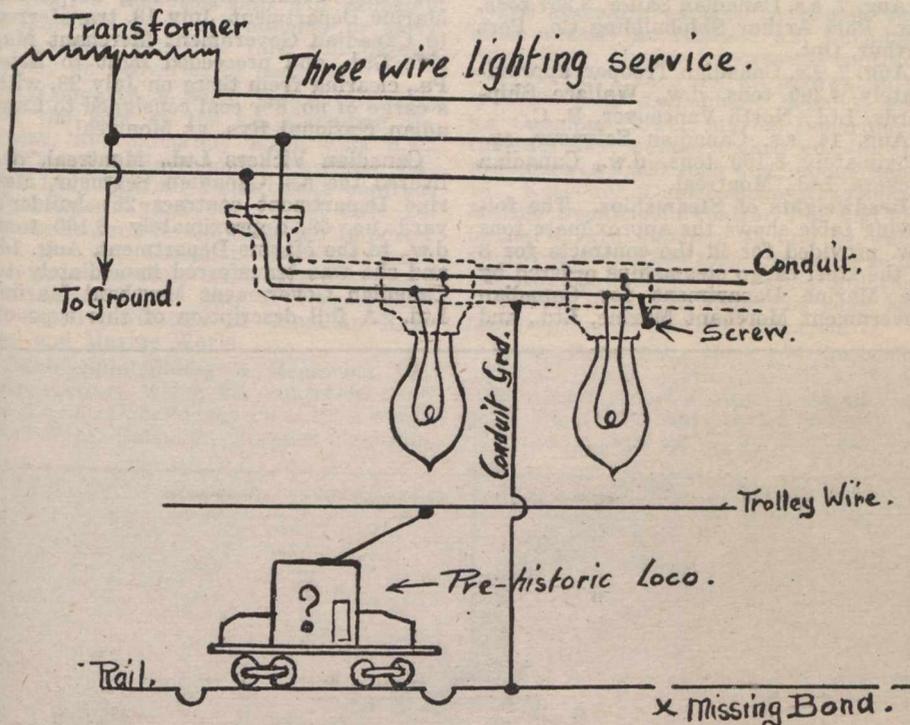
Fort William Municipal Ry. and Port Arthur Civic Ry.—A Port Arthur, Ont., press dispatch of Aug. 20 says that Sir Adam Beck, chairman, Hydro Electric Power Commission of Ontario, has offered to take over the municipally owned railways in Fort William and Port Arthur, to put them under one management, and to make them pay. These lines are operated by commissions representing the city councils of Port Arthur and Fort William, respectively and have been losing money for some years past. There are several lines in each city and an interurban line connecting the two cities.

Electrification of Belgian Railways—A Brussels cablegram states that the electrification of the principal railways in Belgium is to be proceeded with at once. The first line to be electrified will be that between Brussels and Antwerp, the estimated cost of the work being 15,000,000 francs. The electrification of the line from Brussels to Ghent, Louvain and Namar will be gone on with at a later date. The cablegram adds that contracts for the work had not been let up to Aug. 9.

A Peculiar Trouble at Vancouver.

The accompanying diagram illustrates a rather remarkable case of trouble which occurred some years ago in a machine shop on the south side of False Creek, Vancouver. Whenever a train passed the building all the lights on one side of the shop would flare up and burst. After some Sherlock Holmes-ing, the following clues were picked up:

The central or neutral wire of the



lighting service was permanently connected to ground at the transformer.

The conduit system in the building was connected to the B.C.E.R. track to "ground" it.

One of the light wires had become "grounded" on to the conduit, as a result of a screw, securing a light receptacle, having punctured the insulation.

Some enterprising individual, in a hurry to become wealthy, had removed some of the copper bonds from the track by means of a hammer and cold chisel.

The result was that when an electric locomotive passed over the place where the bonds should have been, the 500-volt direct current flowed from the trolley wire through the motors to the rail, along the rail to conduit ground wire, thence through lamps to a real ground at the transformer. The lamps, being designed for 110 volts, went on strike when forced to carry 550 volts. J. H. Northrop, Horne-Payne substation, in British Columbia. *Electric Railway Employes Magazine.*

The London and Lake Erie Ry. and Transportation Co. has, we are officially advised, sold the whole of the copper wire from its dismantled line from London to Port Stanley, Ont., to Frankel Bros., Toronto.

St. Thomas Municipal Ry. Operation—The City of St. Thomas, Ont., is considering making changes in regard to the operation of its electric railway, which for some time past has been losing about \$1,000 monthly. The substitution of one-man cars, for the two-man cars now operating, is one of the things suggested.

Answers to Questions on Electric Railway Topics.

Answers to questions were sent by Canadian electric railway officials recently to the American Electric Railway Association's question box:—

Zone Systems.—What would be the determining factors in establishing zone limits on a city property, when it is intended to have on central city zone and one outside suburban zone?

professional jealousy. That by means of lectures and classes to be given by advanced members of the association, a broader knowledge be imparted to the younger element of all branches. To act habitually through the associations of architects, engineers and draftsmen and their chapters; in other words, to act as a compact, professional body, and not as individuals. To convince the employers of the different branches that the maintenance of ethical standards is the only right road to business success. To make the employers believe in us because we believe in ourselves. To promote such interest and participation in public and quasi-public affairs that will show the draftsmen to be men of general ability and civic pride, and not merely self-interested individuals. To create a more equitable relation between employers and employes. That the employers who purchase the brains of the different services financially realize the value thereof. Last, and not least, that by inspiration and thoroughness in the training of the junior draftsmen the association aspires to do what the societies of architects and engineers have failed to do, viz: a more sound training in every branch of the arts and science and ensure better recognition of the draftsman as a co-ordinate to the architect or engineer.

Disaster at Port Colborne Elevator.

The Dominion Government terminal grain elevator at Port Colborne, Ont., was wrecked Aug. 9, by an explosion, which is thought to have been caused by the ignition of dust. There was about 400,000 bush. of wheat in the elevator at the time, and it is expected that a considerable portion of this will be salvaged. The building itself was practically wrecked and the top was blown some distance, and fell on the Montreal Transportation Company's steel barge Quebec, which was loading at a nearby slip. The upper works and deck of this vessel were battered in and the vessel was eventually beached to save her from sinking. The number of deaths in the elevator and on the barge Quebec was 10, and several were severely injured. The Dominion Government has appointed a board of engineers to determine the cause of the disaster, to make recommendations with a view to preventing any similar occurrence in future, and also to decide as to the repairs and reconstruction of the elevator buildings and the salvaging of the grain lift in the bins. The board consists of C. N. Monsarrat, Consulting Engineer, Dominion Government; A. St. Laurent, Assistant Deputy Minister, Public Works Department; D. W. McLachlan, Engineer in Charge, Port Nelson Terminals, Hudson Bay Ry.; and John Murphy, Electrical Engineer, Railways and Canals Department.

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry., Vancouver, B.C.—The factors determining zone limits are the geographical and topographical layout of the system, density of traffic and length of average haul. For example, in our cast outlet from the business district is controlled in one direction by the bridges available, so that to reach a district less than two miles away requires the same mileage as another over three miles out.

Continuous Use of Power.—Is it good practice on roads of less than 75 miles, to allow cars on the line continually, the city lines included being less than 10 miles?

W. G. Murrin, Assistant General Manager, British Columbia Electric Ry.—It depends upon headway of traffic and consequent liability to delays and collisions. All work except emergency jobs would have to be done at nights, or when traffic is at a minimum, and proper flagging rules should be enforced.

Draftsmen's Association Formed in Toronto.

Following a series of meetings in Toronto by a number of draftsmen of all branches, the Draftsmen's Association has been formed with the following objects: To promote more professional etiquette of the various branches of arts and science similar to that of the physician, lawyer, etc. To ensure that all work be carried out by men of specific qualifications. That the branches of arts and science shall know each other closer in relation to their work, and eliminate

The Board of Conciliation appointed to deal with the wages question of the Toronto Ry. and Toronto Electric Light Co.'s employes, consists of Judge Gunn of Ottawa, Chairman; W. H. Moore, General Manager, Toronto and York Radial Ry., representing the companies, and F. Bancroft, Toronto, on behalf of the men. It has since been announced that Judge Gunn has declined the appointment.

Railway Lands Patented—Letters patent were issued during July for Dominion railway lands in Western Canada to the Canadian Northern Ry. covering 9,493.70 acres.

Marine Department

Canadian Government Merchant Marine, Ltd., Shipbuilding, Operation, Etc.

Orders for Steamships—Since Canadian Railway and Marine World for August was published, the Marine Department has been negotiating with the Dominion Shipbuilding Co., Toronto and the Midland Shipbuilding Co., Midland, Ont., for additional steel cargo steamships for Canadian Government Merchant Marine Ltd. It is said that the Dominion Shipbuilding Co. has been assured of an order for 2 ships, approximately 3,550 tons d.w. each, single deck type, improved Cunard to Lloyd's classification, speed 11 knots, approximate delivery dates May and June, 1920.

Names of Steamships. It was stated in Canadian Railway and Marine World for August that some of the names chosen for vessels of the Canadian Government Merchant Marine Ltd., fleet might be changed, and that names ending in "er" might be substituted for them. We have since been advised of the following changes:

Canadian Cadet, approximately 3,400 tons d. w., being built by Port Arthur Shipbuilding Co., Port Arthur, Ont., changed to Canadian Sower.

Canadian Scout, approximately 5,100 tons d. w., being built by Wallace Shipyards Ltd., North Vancouver, B.C., changed to Canadian Raider.

Keels Laid—Since Canadian Railway and Marine World for August was published, we have been advised of the laying of the following keel:

S.S. Canadian Inventor, Marine Department contract 36; builder's yard no. 13, approximately 8,100 tons. d.w., J. Coughlan & Sons, Vancouver, B.C., July 24.

At the dates of our last advices keels were expected to be laid as follows, but up to Aug. 26 we had no information that they had been.

Marine Department Contract 30; builder's yard no. 2; approximately 8,100 tons d.w., Harbour Marine Co., Victoria, B.C., expected to be laid about Aug. 21.

Marine Department contract 32; builder's yard no. 43; approximately 4,300 tons d.w., Port Arthur Shipbuilding Co., Port Arthur, Ont., expected to be laid Aug. 21.

Marine Department contract 33; builder's yard no. 44; approximately 4,300 tons, Port Arthur Shipbuilding Co., Port Arthur, Ont., expected to be laid Aug. 22.

Delivery of Steamships—The steel cargo steamships which are being built for the Marine Department, and which have been completed so far, were delivered to Canadian Government Merchant Marine Ltd., for operation, as follows:

Feb. 22, s.s. Canadian Voyager, 4,575 tons, d.w.; Canadian Vickers, Ltd., Montreal.

April 26, s.s. Canadian Warrior, 3,995 tons, d.w.; Collingwood Shipbuilding Co., Collingwood, Ont.

May 9, s.s. Canadian Pioneer, 8,408 tons, d.w.; Canadian Vickers Ltd., Montreal.

May 23, s.s. Canadian Ranger, 8,382 tons, d.w.; Canadian Vickers Ltd., Montreal.

June 7, s.s. Canadian Recruit, 3,964 tons d.w.; Collingwood Shipbuilding Co., Collingwood, Ont.

June 19, s.s. Canadian Volunteer, 4,530

tons, d.w.; Wallace Shipyards Ltd., North Vancouver, B. C.

July 18, s.s. Canadian Trader, 3,341 tons, d.w.; Port Arthur Shipbuilding Co., Port Arthur, Ont.

Aug. 7, s.s. Canadian Sailor, 3,357 tons, d.w., Port Arthur Shipbuilding Co., Port Arthur, Ont.

Aug. 7, s.s. Canadian Trooper, approximately 4,300 tons, d.w., Wallace Shipyards, Ltd., North Vancouver, B. C.

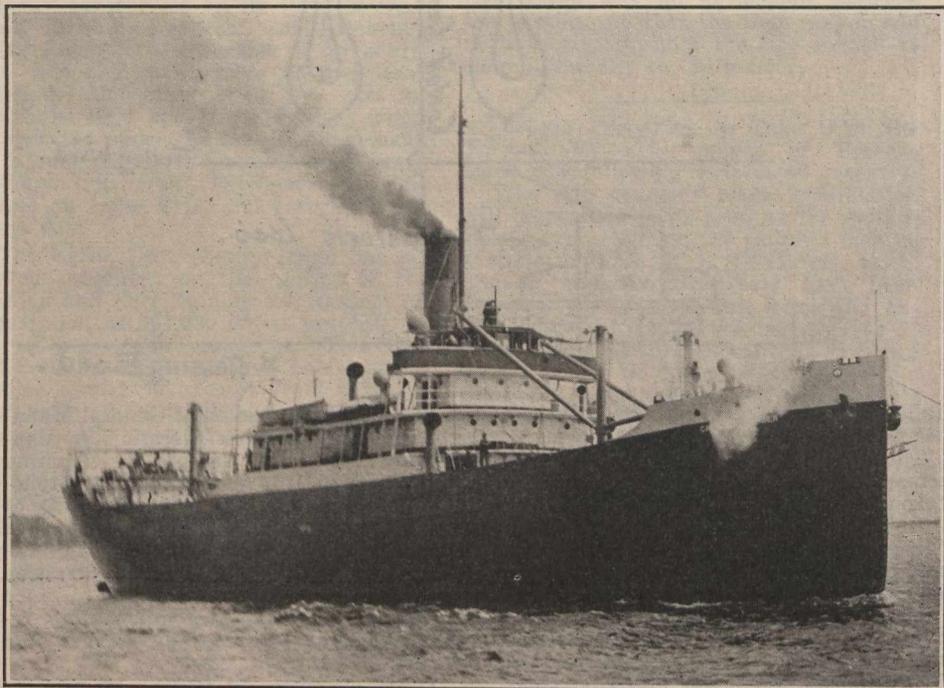
Aug. 14, s.s. Canadian Seigneur, approximately 8,100 tons, d.w., Canadian Vickers, Ltd., Montreal.

Deadweights of Steamships. The following table shows the approximate tons d.w. provided for in the contracts for 8 of the steel cargo steamships ordered by the Marine Department for Canadian Government Merchant Marine, Ltd., and

Canadian Volunteer A. O. Cooper John Young
Canadian Voyager A. L. Starrett J. T. Meredith
Canadian Warrior E. C. Sears L. Marshall

The s.s. Canadian Trader, approximately 3,400 tons d.w., was delivered by the Port Arthur Shipbuilding Co. to the Marine Department, July 18, transferred to Canadian Government Merchant Marine Ltd., and proceeded light to Erie, Pa., clearing from there on July 23, with a cargo of no. 8 $\frac{3}{4}$ coal consigned to Canadian National Rys. at Montreal.

Canadian Vickers Ltd., Montreal, delivered the s.s. Canadian Seigneur, Marine Department contract 25; builder's yard no. 69, approximately 8,100 tons d.w., to the Marine Department, Aug. 14, and she was transferred immediately to Canadian Government Merchant Marine Ltd. A full description of this type of



Steel cargo steamship Canadian Trader, 3,341 tons d.w., built for Canadian Government Merchant Marine Ltd., by Port Arthur Shipbuilding Co., Port Arthur, Ont.

the finally determined weights at which the builders are paid at the price per long ton stated in the contract.

	Approximate	Determined
Canadian Pioneer	8,100	8,408
Canadian Ranger	8,100	8,382
Canadian Recruit	3,750	3,964
Canadian Sailor	3,400	3,357
Canadian Volunteer	4,300	4,530
Canadian Trader	3,400	3,341
Canadian Voyager	4,300	4,575
Canadian Warrior	3,750	3,995

Officers of Steamships—Following is a list of captains and chief engineers of steamships so far appointed by Canadian Government Merchant Marine Ltd., the first column containing the name of the vessel, the second that of the captain and the third that of the chief engineer:

Canadian Miller	Lt. Commander	
Canadian Pioneer	J. G. Randall	J. M. Roche
Canadian Ranger	T. R. Coffin	P. C. Bennett
Canadian Recruit	A. S. M. Nicholls	R. J. Webster
Canadian Signaller	J. D. MacKenzie	R. N. Simpson
Canadian Sailor	J. E. Faulkner	Robt. Blair
Canadian Voyager	W. E. Baker	J. W. Abolit
Canadian Seigneur	F. Ferguson	J. Gladstone
Canadian Trader	D. Campbell	Chas. Thompson

ship was published in Canadian Railway and Marine World for April.

The company launched the s.s. Canadian Miller, Marine Department contract 26; builder's yard no. 70, approximately 8,100 tons d.w., on Aug. 16, when she was christened by Mrs. J. W. Norcross, wife of the President, Canada Steamship Lines. The vessel has the following dimensions, length overall, 413 ft. 1 in.; length, b.p., 400 ft.; breadth moulded, 52 ft.; depth moulded, 31 ft.; draft loaded 25 ft. 1 in. She is of the two deck, poop, bridge and forecastle type, and equipped with triple expansion engines with cylinders, 27.44 and 73 in. diar. by 48 in. stroke, 3,000 i.h.p., for a speed of 11 knots an hour, and supplied with steam by 3 single ended boilers at 180 lb. working pressure. Immediately after launching, she was towed to the fitting out wall, and it is expected she will be ready for service early in September. The Canadian Miller is the fifth ship built by this company for the Canadian Government Merchant Marine, making an approxi-

mate total of 40,000 tons, and 3 more ships are under construction.

We are advised that the company expects to launch the s.s. Canadian Navigator, Marine Department contract 23; builder's yard no. 73, approximately 4,300 tons d.w. about Sept. 13.

Collingwood Shipbuilding Co., Kingston, Ont., which has a contract for one steel cargo steamship, Canadian Beaver, approximately 3,750 tons d.w., from the Marine Department, for Canadian Government Merchant Marine Ltd., advised us Aug. 5 that the ship will probably be launched late in September or early in October, but that this will depend largely on deliveries of material.

J. Coughlan & Sons, Vancouver, B.C., laid the keel of the s.s. Canadian Inventor, approximately 8,100 tons d.w., for Canadian Government Merchant Marine Ltd., Marine Department contract 36; builder's yard no. 13, on July 24. The keels for the s.s. Canadian Importer and the s.s. Canadian Exporter, each also approximately 8,100 tons d.w., were laid Apr. 26 and May 3, respectively, as stated previously in Canadian Railway and Marine World.

Davie Shipbuilding & Repairing Co., Lauzon, Que., which has contracts from the Marine Department for 2 steel cargo steamships, Canadian Trapper and Can-

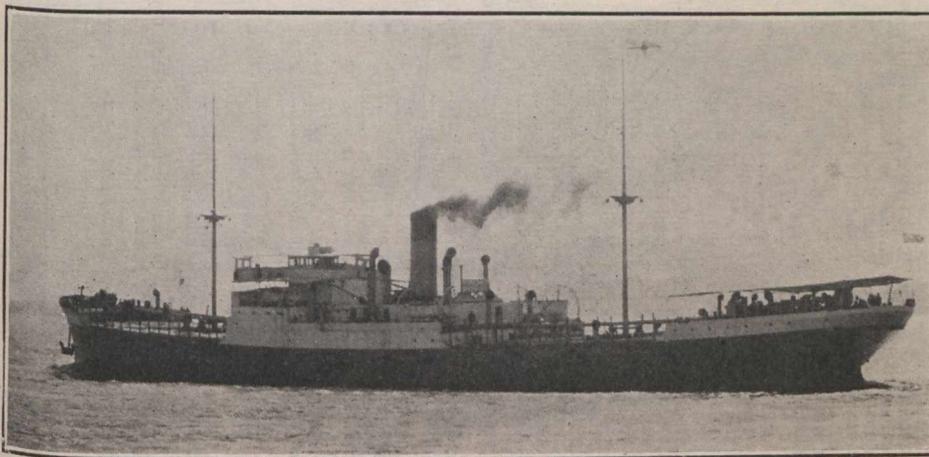
no. 1, was laid July 14, and we have since been advised that the keel for Marine Department contract 30; builder's yard no. 2, was laid Aug.

Port Arthur Shipbuilding Co., Port Arthur, Ont., delivered the steel cargo steamship Canadian Sailor, Marine Department contract 20; builder's yard no. 40; 3,357 tons d.w., to the Marine Department, Aug. 6. She was transferred immediately to Canadian Government Merchant Marine, Ltd., and left Aug. 7, at noon, for Montreal, with grain.

The company expects to launch two other vessels as follows: s.s. Canadian Adventurer, Marine Department contract 19a; builder's yard no. 41, approximately 3,400 tons d.w., about Sept. 1, and s.s. Canadian Sower, Marine Department contract 20a; builder's yard no. 42, approximately 3,400 tons d.w., about Sept. 15. Keels for 2 steel cargo steamships, Marine Department contracts 32 and 33; builder's yard numbers 43 and 44, each approximately 4,300 tons d.w., were to be laid Aug. 21 and 22. It was the intention to deliver these two ships this year, but the programme has been changed.

Prince Rupert Dry Dock and Engineering Co., Prince Rupert, B.C.—A Vancouver press report of Aug. 7, stated that keels for the 2 steel cargo steamships of approximately 8,100 tons d.w. each for

150 gross; 97 net; 188 tons d.w. capacity on 7 ft. draft. She is rigged for sailing as a fore and aft schooner, and the auxiliary equipment includes a 4 h.p. motor, driving screw.



Steel Cargo Steamship, Canadian Ranger, 8,382 tons d.w., built for Canadian Government Merchant Marine Ltd., by Canadian Vickers Ltd., Montreal, on her maiden trip down the St. Lawrence, en route to Liverpool, Eng.

adian Hunter, each approximately 5,100 tons d.w., advised us Aug. 5 that it expected to launch them by the latter end of September.

Dominion Shipbuilding Co., Toronto, is reported to have been assured by the Marine Department of an order for 2 steel cargo steamships for Canadian Government Merchant Marine Ltd., of approximately 3,550 tons d.w., each, single deck type, improved Cunard to Lloyd's classification, speed, 11 knots, approximate delivery dates May and June, 1920.

Harbour Marine Co. Ltd., Victoria, B.C.—The Marine Department's contracts 29 and 30, for 2 steel cargo steamships of approximately 8,100 tons d.w. each, were let to Victoria Machinery Depot Co., Victoria, B.C., which name has appeared in our full page table. "Orders for steel cargo steamships for Canadian Government Merchant Marine Ltd." for several months past. As a subsidiary company, Harbour Marine Co. Ltd., has been formed to build the ships, its name has been substituted in our table for Victoria Machinery Depot Co. As stated in our last issue, the keel for Marine Department's contract 29, builder's yard

Canadian Government Merchant Marine Ltd., would be laid about the end of August, and that it was expected that both vessels would be completed and ready to hand over to the government by Feb. 1, 1920, construction on both vessels proceeding simultaneously. The report also stated that the price to be paid to the company, is the same as to other western concerns, viz.—\$188 a ton. Reference to the detailed table of government shipbuilding on another page of this issue, will show that the price paid for this type of vessel, to this and other Pacific coast firms, is \$198 a ton d.w.

C.P.R. Scholarships at McGill University—Only one candidate qualified at the recent McGill matriculation examinations for the five scholarships in the applied science faculty offered by the C.P.R., viz: Jacob Bloomfield, Montreal.

The Railways of Canals Department received tenders during August for the purchase of the motor schooner, Neophyte, as she lies at Port Nelson, Hudson Bay. She was built at Amsterdam, Holland, in 1903, and is of steel with the following dimensions, length 107 ft.; breadth, 10.7 ft.; depth, 6.2 ft.; tonnage,

Details of the Different Types of Steamships for Canadian Government Merchant Marine Ltd.

The following are comparative details of the six different types of steamship being built for Canadian Government Merchant Marine Ltd.:

	2,800 ton.	3,400 ton.	3,750 ton.	4,300 ton.	5,100 ton.	8,100 ton.	10,500 ton.
Length, overall.....	280 ft.	260 ft.	260½ ft.	333 ft.	344 ft.	413 ft.	445 ft.
Length, bet. perpendiculars.....	270 ft.	251 ft.	251 ft.	320 ft.	331 ft.	400 ft.	430 ft.
Breadth, moulded.....	38 ft.	43½ ft.	43½ ft.	44 ft.	46½ ft.	52 ft.	56 ft.
Depth, moulded.....	20½ ft.	23 ft.	26 ft.	25 ft.	25½ ft.	31 ft.	38 ft.
Draft, loaded.....	17½ ft.	20 ft.	22 ft.	21 ft.	21 ft.	25 ft.	29 ft.
Type.....	S.d., p.b. & f.c's'le	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	3d., p. & f.c's'le
Engines—Type.....	Tri-compound	Triple expansion	Triple expansion	Triple expansion	Triple expansion	Triple expansion	Triple expansion
Cylinders, diam.....	17½ x 28¾ x 47 ins.	20½ x 34 x 56 ins.	18 x 30 x 50 ins.	25 x 41 x 67 ins.	25 x 41 x 68 ins.	27 x 44 x 78 ins.	29½ x 50 x 80 ins.
Stroke.....	83 ins.	40 ins.	36 ins.	45 ins.	45 ins.	48 ins.	54 ins.
Ind. h.p.....	875	1,300	1,200	1,800	2,500	3,000	4,000
Boilers—Type.....	Single ended	Single ended	Single ended	Single ended	Single ended	Single ended	Single ended
No.....	2	2	2	2	3	3	4
Diam. and length.....	12¼ x 10¼ ft.	15 x 11 ft.	14 x 10¾ ft.	15½ x 11½ ft.	14 x 11½ ft.	15½ x 11½ ft.	15½ x 11¼ ft.
Working pressure.....	185 lbs.	190 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.
Furnaces—No.....	2	6	6	6	9	9	9
Grate surface.....	80 sq. ft.	135 sq. ft.	100 sq. ft.	132 sq. ft.	156 sq. ft.	198 sq. ft.	198 sq. ft.
Heating surface.....	8,000 sq. ft.	4,670 sq. ft.	3,900 sq. ft.	5,162 sq. ft.	7,275 sq. ft.	7,743 sq. ft.	7,743 sq. ft.
Speed.....	8¼ knots	9 knots	9 knots	11 knots	11 knots	11 knots	12 knots
Classification.....	Lloyd's	Lloyd's	Brit. Corp.	Lloyd's	Lloyd's	Lloyd's	Lloyd's

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. The figures given in the column headed "Long tons d.w." and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

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, fore-castle.

Contract	Contract date	Builder	Yard no.	Long 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	*4,575	\$207.	\$ 947,025	S.d., p., b. and f'c's'le.....	Lloyd's	11	Dec. 31, 1918	June 11, 1918	Nov. 23, 1918	Canadian Voyageur
2	May 22, 1918	"	67	*8,408	180.	1,513,440	2.d., p., b. and f'c's'le.....	"	11	Jan. 31, 1919	July 17, 1918	Dec. 3, 1918	Canadian Pioneer
3	May 18, 1918	Collingwood Shipbuilding Co., Collingwood, Ont.	61	*3,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	May 1, 1919	Not stated	Dec. 21, 1918	Canadian Warrior
4	Mar. 15, 1918	Wallace Shipyards Ltd., North Vancouver, B.C.	100	*4,530	207.	937,710	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	May 31, 1919	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	Apr. 5, 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	May 31, 1919		Canadian Raider
10	July 5, 1918	Collingwood Shipbuilding Co., Collingwood, Ont.	62	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	May 15, 1919	June 3, 1918	May 3, 1919	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	Jan. 16, 1919	June 28, 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	Feb. 10, 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		Canadian Settler
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		Canadian Trooper
15	Jan. 24, 1919	"	7	5,100	200.	1,020,000	S.d., p., b. and f'c's'le.....	"	11	Nov. 15, 1919			Canadian Fisher
16	Jan. 24, 1919	"	8	5,100	200.	1,020,000	S.d., p., b. and f'c's'le.....	"	11	May 15, 1920			Canadian Forester
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		Canadian Trapper
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		Canadian Hunter
19	Sept. 4, 1918	Port Arthur Shipbuilding Co., Port Arthur, Ont.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	9	June 1, 1919	Dec. 9, 1918	May 5, 1919	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		Canadian Adventurer
20	Sept. 4, 1918	"	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	9	July 1, 1919	Dec. 10, 1918	May 31, 1919	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	Mar. 31, 1919		Canadian Sower
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		Canadian Mariner
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		Canadian Explorer
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	Jan. 22, 1919		Canadian Navigator
24	Oct. 11, 1918	"	68	*3,382	188.	1,575,816	2.d., p., b. and f'c's'le.....	"	11	May 1, 1919	Aug. 26, 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	Nov. 30, 1918	May 7, 1919	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	Dec. 2, 1918	Aug. 16, 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	Apr. 23, 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	May 10, 1919		Canadian Planter
29	Jan. 24, 1918	Harbour Marine Co., Victoria, B.C.	1	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Jan. 31, 1920	July 14, 1919		
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	Apr. 7, 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	Apr. 26, 1919		Canadian Importer
35	Nov. 22, 1918	"	12	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Aug. 31, 1919	May 3, 1919		Canadian Exporter
36	Nov. 22, 1918	"	13	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Sept. 30, 1919	July 24, 1919		Canadian Inventor
37	Nov. 22, 1918	"	14	8,100	198.	1,603,800	2.d., p., b. and f'c's'le.....	"	11	Oct. 31, 1919			Canadian Prospector
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. 27, 1919		Canadian Sealer
41	Mar. 31, 1919	"	6	2,800	210.	588,000	S.d., p., b. and f'c's'le.....	"	8½	Nov. 1919	Mar. 31, 1919		Canadian Miner
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		Canadian Otter
45	Jan. 23, 1919	"	5	4,350	215.	935,250	S.d., p., b. and f'c's'le.....	"	10	June 1920	July 14, 1919		Canadian Squatter
46		Collingwood Shipbuilding Co., Collingwood, Ont.		3,750	180.	675,000	Lake, s.d., p. b., and f'c's'le	"	9	Apr. 1920			
47		"		3,750	180.	675,000	Lake, s.d., p. b., and f'c's'le	"	9	Apr. 1920			
				272,802		\$54,327,626							

The Passage of Large Vessels Through the Welland Canal.

For many years past it has been the practice, in the case of large vessels, which it is desired to take from the Great Lakes to the ocean, or vice versa, to cut them in two, to enable them to pass through the Welland Canal locks. Owing to the demands of the war, and the shortage of vessels, due to submarine warfare, a large number of vessels have been taken from the Great Lakes and placed in coasting and ocean service.



Steamship Paipoonge and Barge Thunder Bay, in Collingwood Shipbuilding Co.'s Drydock No. 2, preparatory to being cut in two to pass through the Welland and St. Lawrence Canals to the Ocean.

Many of these were small enough to pass the locks without cutting in two, but a considerable number had to be divided. On account of the large number of such vessels, which the U.S. sent to the coast, it was decided to send a complete staff with outfit, to the St. Lawrence, so that the work of repairing them might proceed without interrupting the very urgent work then being carried on at Canadian shipyards there.

When the Welland Ship Canal is completed, work of this nature will be obviated, as the locks to be built will be of sufficient depth, width and height, to take the largest vessels likely to be operated on the lakes for some time.

The illustrations given on this page and the next, show the s.s. Paipoonge, owned formerly by the Canadian North West Steamship Co., Port Arthur, Ont., and the U.S. barge Thunder Bay, after being divided. These vessels were sold during 1918, for operation between South American ports, and the work of cutting them in two was completed, but the purchaser defaulted in payment, and the vessels were re-sold, the purchaser in each case being H. B. Smith, President, Collingwood Shipbuilding Co., Collingwood, Ont., for the company.

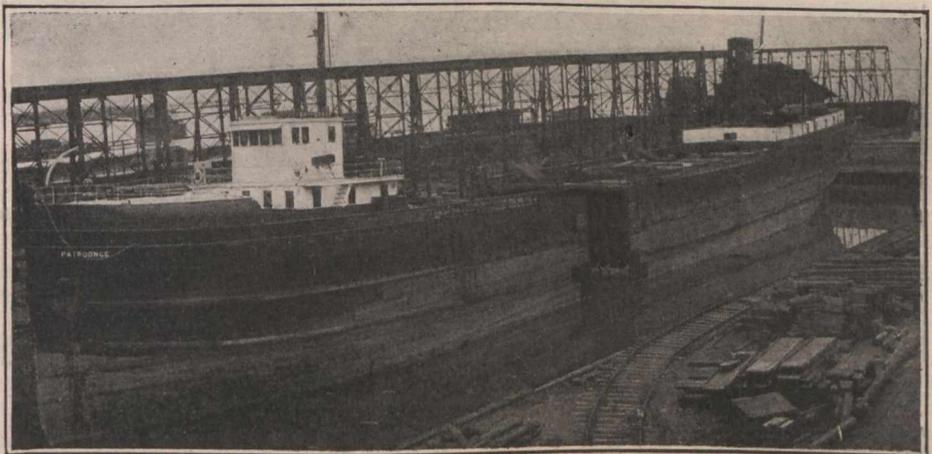
The vessels are being re-joined by the Collingwood Shipbuilding Co., and will be refitted and made suitable for lake service.

Inventions of Devices for Securing Greater Safety at Sea.

The war was carried on at such enormous cost to the world that it is some mitigation to learn that many of the instruments developed in warfare will be of great advantage to trade and navigation in times of peace. Interesting examples of this counterpoise were given by Dr. J. C. McLennan, Professor of Physics, University of Toronto, in an address to the Northeast Coast Institution of Engineers and Shipbuilders re-

pletely overcome, and as far as it was then developed and used by the enemy it was helpless in face of the devices used against it. Among these was the hydrophone for sound ranging, and Prof. McLennan states that within operable ranges a ship can be given its position by sound ranging more accurately than by directional wireless or by any other known method. Explosions of mines or torpedoes at any point in the North Sea can easily be located by stations situated in Great Britain. In the war during the bombardment of the Belgian coast, it was a common thing for a monitor to proceed in a fog to a position some miles from the coast and by dropping depth charges have its position accurately determined from stations on the English coast. So accurately was this done that it was found, when the monitor's guns were trained in selected directions, objectives several miles inland could be hit with regularity, and with a minimum expenditure of ammunition. By means of sound ranging it is possible to fix the position of light vessels, buoys which indicate channels, and obstructions such as sunken vessels. Ships approaching in fog the shores of Nova Scotia, Newfoundland, or Labrador can be given their positions with accuracy for ranges up to 500 miles.

One of the simplest and most feasible methods of improving navigation appears to be by the use of the Leader gear, which consists of a cable laid on the bottom of the sea, along the course of a narrow, tortuous channel leading into a harbor or through a mine field. If an alternating electric current is passed through such a cable it is possible, by means of delicate devices installed on a ship, to obtain either aural or visual indications of the presence of such a cable, and by these indications a ship can be guided in safety in fog or darkness at speeds as high as 20 knots an hour, almost with as much precision as a tramcar by a trolley wire over a railway. Experiment has shown that it is a simple matter to apply this method in water of suitable depth for distances as great as



Steamship Paipoonge, after being cut in two by Collingwood Shipbuilding Co., showing fore and aft sections afloat.

cently. As Scientific Adviser of the British Admiralty during the war he had a large share in the invention and development of these devices, and though naturally he could not enter into great detail regarding some of them, still he indicated sufficient to show how useful they may become to the merchant marine.

When the armistice was announced, the menace of the submarine had been com-

50 miles or longer. By a Leader gear laid in such areas as the River St. Lawrence or the entrance to Halifax harbor, Prof. McLennan says that in and out lanes of traffic can be organized which can be maintained with ease in fogs.

In case sound ranging might prove ineffective by the hydrophone, another system, the echo method, was invented. It was found that by means of beam sound waves, analogous to the working of a

searchlight, it was possible to sweep the seas, and when an object such as a submarine came within the beam the sound waves were reflected and echo effects were produced. Prof. McLennan says that the echo method can be used for ordinary sounding as well as for locating icebergs, surface vessels, and rockbound coasts in a fog. The directional wireless can also be used to give the position of ships in the North Atlantic, when they are prevented from getting it by fogs or bad weather. The Admiralty, in consequence of these developments and of what they promise, proposes to establish a research and experiment department to increase the efficiency of the navy, and also to provide aids to navigation for the mercantile marine. The expense will be heavy, but Prof. McLennan says that if it prevents two or three wrecks per year, or lowers the time of the voyage between Great Britain and Canada on the average by one day per voyage per ship through the fog-covered areas in the neighborhood of Newfoundland sufficient will be saved in a year or two to cover the whole cost.—Toronto Globe.

Trent Valley Canal Construction.

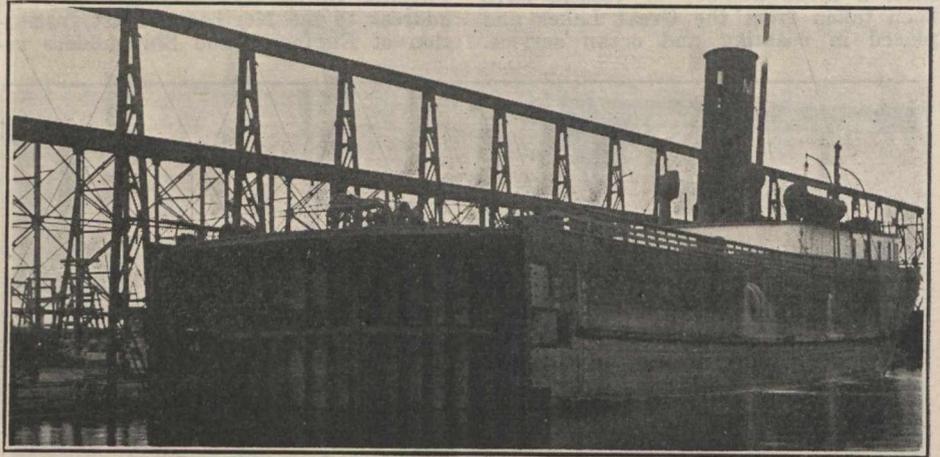
The route of the Trent Valley Canal as now in operation and under construction lies between Trenton, on the Bay of Quinte, where direct connection is made with Lake Ontario, and Honey Harbor, on Georgian Bay, from which port the waters of the upper great lakes are at once accessible. The portion of the canal now under construction lies between Lake Couchiching and Georgian Bay.

The Railways and Canals Department report for the year ended Mar. 31, 1918, contains the following in regard to the

will have cost slightly over \$5,000,000.

The Severn Division includes the portion between Lake Couchiching and Port Severn, on Georgian Bay, a total distance of 43 miles. In this distance there will be included 4 miles of canal, $5\frac{1}{4}$ miles of subaqueous channel, and $33\frac{3}{4}$ miles of deep river and lake navigation. The rise of about 139 ft. between the level of Lake Huron and that of Lake Couchiching will be overcome by

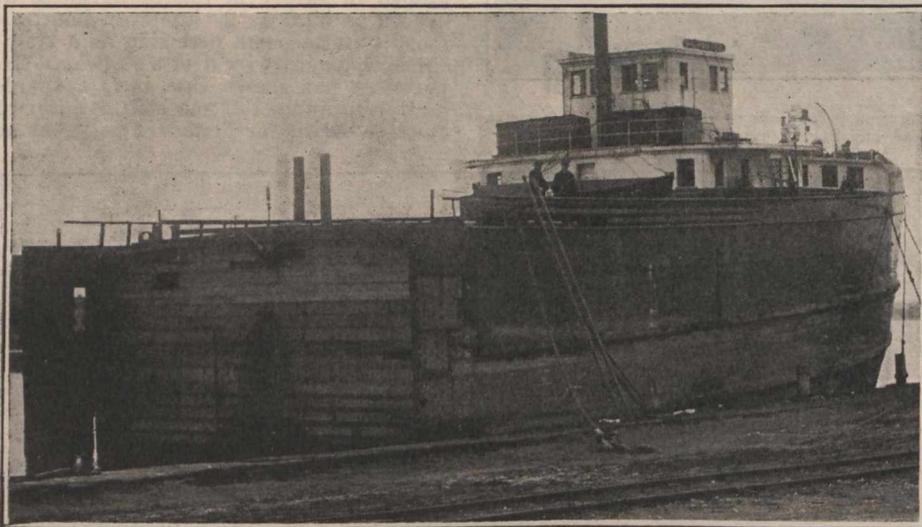
construction of the Canadian Northern Ry. bridge at Ragged Rapids. The dam at Pretty Channel was completed towards the close of 1915. The dam at Swift Rapids was completed near the close of navigation in 1917. Since the completion of this dam, the elevation of the water in the river between Swift Rapids and Ragged Rapids has been raised $47\frac{1}{2}$ ft. The power house at this point has been completed and all machin-



Aft section of steamship Paipoonge afloat.

5 locks. For the regulation of the river levels, 15 dams will be required. The route of the canal will be crossed by 8 steel bridges, 5 for highway and 3 for railway traffic. Five of these bridges will be fixed spans, and the remainder swing spans. For construction purposes this division has been subdivided into 4 sections or contracts known as sections 1, 2, and 3, and the Port Severn section.

ery installed, and it is expected that the plant will be in operation within a few days. Work on the lock has been proceeding satisfactorily. The excavation for the lock pits is about completed. The concrete work of the lock and the entrance piers is now about two-thirds completed. The upper entrance piers, breast wall and gate recess walls have been finished, and work on the side walls is well advanced. The swing span of the bridge at Washago for the crossing of the Canadian Northern Ry., was completed during the year. The girder approach at the west end has not yet been erected, and the completion of the railway diversion on either side of the bridge has been delayed for want of rails. No further work was done on the substructure of the Ragged Rapids bridge. Section 3, about $15\frac{1}{4}$ miles in length, extends from the easterly end of section 2 to deep water in Lake Couchiching. The contract for the work to be undertaken includes the construction of a lock just north of Lake Couchiching, 2 highway swing bridges, 1 railway swing bridge, and several small dams near Washago, as well as a large amount of rock and earth excavation. Owing to the conditions resulting from the war, a surrender of the contract was effected. Of the total amount of work to be performed under the contract, a little more than half has been completed. Of the work thus far carried out, the following items are among the more important: The excavation for the Couchiching lock is practically completed, and the concrete work on the upper entrance piers, breast, and recess gate walls is well advanced. The dredging of the channel in Lake Couchiching is nearly completed. The canal cut across country, from the Muskoka Road bridge to the river, is well advanced. The highway bridge at Muskoka Road is completed and now in use. The construction of the pivot pier only at the Hamlet Highway crossing of the canal has thus far been carried out. The swing bridge for the crossing of the Canadian Northern Ry. is complete, except for the fixed spans at the west.



Fore section of steamship Paipoonge afloat.

work: The portion of the canal which lies between Trenton and Rice Lake is practically completed; the extent of the canal in operation or ready for operation may therefore be stated as about 200 miles, or between Trenton and Washago. In addition to this, other channels maintained would approximate 90 miles.

The Ontario-Rice Lake Division includes the canal which lies between Trenton and the easterly end of Rice Lake, a total distance of $56\frac{1}{2}$ miles. This section is now practically completed, and will be opened for traffic early next season. (Note. This has been done.) The entire work when fully completed

Section 1 is not yet under contract, and it is not likely that tenders on it will be called for until after the close of the war. The work to be undertaken will include the reconstruction of 3 locks and 2 regulating dams, and will extend from deep water in Georgian Bay, near Island No. 181, 17 miles easterly, to a little above the Big Chute near the mouth of the Severn River. Section 2, now under contract, extends from the Big Chute to above McDonald's Rapids, $11\frac{1}{2}$ miles. The work included in the contract comprises principally the construction of a dam at Pretty Channel, a dam, lock, and power-house at Swift Rapids, and the re-

Dominion Canal Statistics for the 1918 Navigation Season.

Following are extracts from the report issued by the Railways and Canals Department.

The total traffic through the canals during the 1918 navigation season was 18,883,619 tons, a decrease of 3,371,285 from 1917. The volume of traffic through the various canals was as follows:

	Tons	Increase	Decrease
Sault Ste. Marie.....	12,913,711	.....	2,533,381
Welland	2,174,298	.....	316,244
St. Lawrence	3,030,134	.....	360,010
Chambly	369,186	.....	65,632
St. Peter's	59,716	.....	2,538
Murray	44,735	.....	12,868
Ottawa	167,170	.....	47,665
Rideau	54,136	.....	30,413
Trent	64,893	15,969	.....
St. Andrews	4,640	.....	2,534
Total	18,883,619	15,969	3,371,285

Gross Traffic Since 1905.

Year	Tons	1912	Tons
1905	9,371,744	.....	47,587,245
1906	10,523,485	.....	52,053,913
1907	20,543,639	.....	37,023,237
1908	17,502,820	.....	15,198,803
1909	33,720,748	.....	23,583,491
1910	42,990,608	.....	22,238,935
1911	38,030,353	.....	18,883,619

Following is an analysis of the various commodities passing through the canals:

Canals. 1918.	Products of farm. Tons.	Manu- facturers. Tons.	Products of forest. Tons.	Products of mines. Tons.	Total. Tons.
Sault Ste. Marie	1,513,446	259,983	41,808	11,098,474	12,913,711
Welland	287,986	229,829	123,979	1,532,504	2,174,298
St. Lawrence	337,862	235,014	397,678	2,060,580	3,031,134
Chambly	21,124	30,271	219,387	98,404	369,186
St. Peter's	9,790	6,793	1,940	41,193	59,716
Murray .....	.....	7,796	.....	36,939	44,735
Ottawa	6,450	19,048	84,540	57,132	167,170
Rideau	3,811	9,408	7,378	34,039	54,136
Trent	2,155	2,274	59,367	1,097	64,893
St. Andrews	7	54	4,579	.....	4,640
Total	2,182,131	800,470	940,656	14,960,362	18,883,619

The percentages of the different commodities for 1917 and 1918 were as follows:

	1918 Per cent.	1917 Per cent.
Products of farm	11.56	17.27
Manufactures	4.25	3.65
Products of forest	4.94	5.26
Products of mine	79.25	73.82

The number of vessel passages and tons of freight in Canadian and U.S. vessels, and the total of Canadian and U.S. freight for 1917 and 1918, were as follows:

Year	Canadian Vessels.		U.S. Vessels.	
	No.	Tonnage.	No.	Tonnage.
1917	21,588	9,831,694	6,594	10,259,772
1918	18,909	7,800,972	6,791	9,616,200

Freight Tonnage.

Year	Canada		United States		Total
	Tons	Tons	Tons	Tons	
1917	5,964,369	16,274,566	22,238,935		
1918	3,869,477	15,514,142	18,883,619		

During the past 10 years the wheat carried through the Sault Ste. Marie Canadian Canal each year was, as follows, in bushels:

1909.....	48,047,83	1914.....	77,467,833
1910.....	51,774,83	1915.....	48,727,911
1911.....	63,641,00	1916.....	82,807,342
1912.....	83,743,03	1917.....	60,551,243
1913.....	101,066,133	1918.....	19,987,255

In 1918 a large volume of Canadian wheat passed through the Sault Ste. Marie U.S. canal, which is also true, in a lesser degree, of previous years, the following table showing the bushels for the past 4 years:

	1915. Bushels.	1916. Bushels.	1917. Bushels.	1918. Bushels.
Through Canadian Canal	48,272,911	82,807,342	60,551,243	19,987,255
Through U.S. Canal	121,389,950	102,196,325	98,023,019	42,312,016
Total	170,117,861	185,003,667	158,574,262	62,299,271

Canadian wheat in the form of flour, had a total of 7,061,913 bush. There were 1,569,314 barrels of flour, which were calculated into wheat on the basis of 4½ bush. to the barrel. The total

bushels of waterborne wheat in 1917 and 1918 would thus be:

	1917	1918
Through Canadian canal.....	60,551,243	19,987,255
Through U.S. canal	98,023,019	42,312,016
In the form of flour.....	13,230,850	7,061,913
Total	171,805,112	69,361,184

The distribution of Canadian wheat, moved through the Canadian and U.S. canals at Sault Ste. Marie from Port Arthur and Fort William, was as follows:

	1915. Bushels.	1916. Bushels.	1917. Bushels.	1918. Bushels.
To Montreal	3,512,410	1,233,982	1,280,170	728,500
To Georgian Bay ports	25,065,000	46,406,749	52,453,042	38,774,391
To other Canadian ports	33,067,613	28,029,847	31,369,487	20,638,204
To Buffalo, N.Y.	106,784,542	106,349,943	72,872,692	2,158,176
Total	167,430,564	182,020,521	157,975,391	62,299,271

There was also a large volume of wheat moved during 1918 from Port Colborne to Montreal, which might be added to the foregoing total for Fort William and Port Arthur to Montreal, Port Colborne being used as a port of transfer. It might be assumed that nearly all the wheat shown in the foregoing table as being moved from the

through the Sault Ste. Marie canals, other grains were moved in 1917 and 1918 as follows:

	Bushels 1917	Bushels 1918
Oats	37,014,644	10,120,625
Barley	5,149,725	3,470,358
Flax seed	5,073,760	1,588,052
Total	47,238,129	15,179,035

Details of all traffic passing through the Sault Ste. Marie canals are published monthly in Canadian Railway and

	1915. Bushels.	1916. Bushels.	1917. Bushels.	1918. Bushels.
To Montreal	3,512,410	1,233,982	1,280,170	728,500
To Georgian Bay ports	25,065,000	46,406,749	52,453,042	38,774,391
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Total	167,430,564	182,020,521	157,975,391	62,299,271

Marine World, the complete summary for the 1918 season being given in our Jan., 1919 issue.

Collection of Water Transportation Statistics.

The Dominion Statistician at Ottawa is making an enquiry, through the Dominion Bureau of Statistics, into water transportation matters, to secure the following information:—

A return for every vessel registered by the Dominion Government, showing construction, size, value, rig, route, freight and passengers carried, etc.

A return of the business operations of every Canadian ship company or owner, covering vessels operated, assets and liabilities, revenues, operating costs, profit and loss accounts, accidents, etc. This enquiry to be supplementary or complementary to the preceding and to be compiled in close co-ordination.

A report from each port, listing by name each craft entering, or clearing, and showing rig, country of registry and tonnage. These returns to be checked

head of the lakes to other Canadian ports, means to Port Colborne for transfer to Montreal.

Water carriers obtained exceptionally high rates on wheat during 1918, the rates for the different routes for the past 4 years being as follows:

	1915.	1916.	1917.	1918.
Port Arthur—Fort William to Montreal—				
Per ton, per mile.....	0.132c	0.205c	0.265c	0.309c
Per bushel	4.99c	7.55c	9.78c	11.39c
Per ton	\$1.66	\$2.52	\$3.26	\$3.80
Port Arthur—Fort William to Georgian Bay—				
Per ton per mile	0.282c	0.264c	0.270c	0.277c
Per bushel	3.54c	4.10c	4.25c	4.32c
Per ton	\$1.18	\$1.37	\$1.42	\$1.44
Port Arthur—Fort William to other Canadian ports—				
Per ton per mile	0.124c	0.169c	0.185c	0.205c
Per bushel	2.84c	3.68c	4.18c	4.48c
Per ton	\$4.80	\$1.22	\$1.39	\$1.49
Port Arthur—Fort William to Buffalo—				
Per ton per mile.....	0.159c	0.159c	0.196c	0.158c
Per bushel	3.97c	4.27c	5.00c	4.11c
Per ton	\$1.32	\$1.42	\$1.67	\$1.37

The rates from Duluth, Minn., were substantially the same as from Fort William and Port Arthur. In order that the bearing of these rates may be properly understood in their relations to gross earnings, allowance should be made for the following charges paid by vessel owners on all cargoes of wheat moved between Fort William and Montreal:

Clearing house at Fort William.....	.01 to .03 a bush.
Trimmers at Fort William.....	.06 " "
Elevation at Montreal.....	.30 " "
Shovelling at Montreal.....	.20 " "
Total .....	.59 a bush.

	1915. Bushels.	1916. Bushels.	1917. Bushels.	1918. Bushels.
Through Canadian Canal	48,272,911	82,807,342	60,551,243	19,987,255
Through U.S. Canal	121,389,950	102,196,325	98,023,019	42,312,016
Total	170,117,861	185,003,667	158,574,262	62,299,271

To Port Colborne the average deductions would amount to 0.44c and to Buffalo 0.41c, and to Georgian Bay ports 0.38c.

In addition to the wheat passing

against the preceding, and to show definitely the vessels, not only of Canadian, but also of foreign registry, engaged in Canadian traffic. At times of urgency to be collected monthly. A card catalogue to enable instant information to be given as to vessels engaged in Canadian traffic and the class of service in which each is engaged.

The total vessels, tonnages, etc., touching at Canadian ports to be reported to the bureau annually by the Customs Department under the Statistics Act, sec. 22. These statistics, published heretofore as part of the Customs Department's trade statistics, to be merged in the general report on water carriers and navigation.

Canal statistics to be enlarged, placed on the same basis as other sections, and worked into the general treatment.

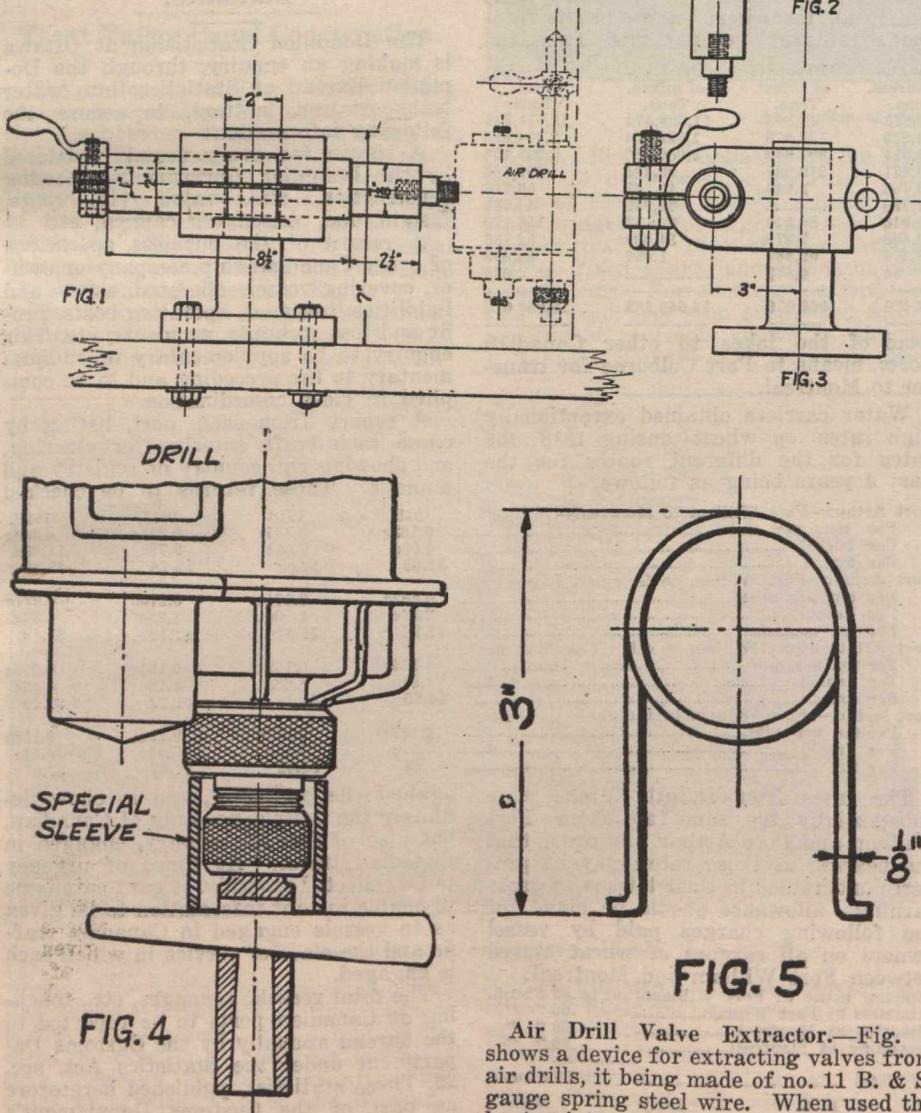
Monthly traffic returns from leading water carriers to be collected as part of the scheme of railway statistics.

Air Tool Devices for Shipbuilding.

The three convenient air tool devices illustrated herewith were developed by W. A. Mason, foreman air tool repair shop, Wyandotte plant, American Shipbuilding Co., Detroit, Mich.

Repairing Vise for Air Drills.—Figs. 1, 2 and 3 show a special vise or holder for air drills while repairs are being made. It consists mainly of a round vertical standard or shaft, with attached base plate for bolting to the work bench, and a double clamping block or head mounted on the standard and carrying a horizontal bearing sleeve. A shouldered mandrel is held in the sleeve and provided with a threaded split collar on the end opposite the shoulder, to prevent end play and to give any desired rotary tension. The opposite end of the mandrel is fitted with a threaded stud which is to be screwed into the dead handle side of the air drill. The universal features of the vise, with clamping arrangements for all adjustments, makes it easy to hold the air drill in any

sleeve constitutes the special device used for this purpose, and is made large enough to slip loosely over the protection nut of the drill spindle so that it can rest on shoulder against the face of the packing nut. The length of the sleeve is such as to partially overlap the drift key slot in the drill socket. A key driven into the slot and bearing against the sleeve will force the socket out of the drill spindle.



position desired and to make changes from one position to another with the least possible loss of time.

Air Drill Socket Extractor.—Fig. 4 illustrates a very simple method of removing a taper shank drill socket from certain classes of air drills which are not provided with a more convenient extracting arrangement. A hardened tool steel

Air Drill Valve Extractor.—Fig. 5 shows a device for extracting valves from air drills, it being made of no. 11 B. & S. gauge spring steel wire. When used the bent points or hooks are inserted into the main parts of the valve and a piston or drift plug is inserted from the opposite end until it rests against the heels of the hooks, which act as driving lugs for the removal of the piston by tapping lightly on the plug. This obviates damage to valve and block resulting from the usual practice of using cold chisel against the valve for its removal.

The First Steamboat on the Red River of the North.

The Red River of the North was first opened to navigation in 1858. The discovery of gold in British Columbia in that year made the people of St. Paul, Minn., then only a village of a few thousand, wild with excitement. Suffering as they were from the financial depression of 1857 they strained every nerve to find some way across the great plains to the gold-laden waters of the Fraser River in B.C.

Many routes were discussed at meetings called by the St. Paul Chamber of Commerce, but a way down the Red River to Fort Garry and thence, westward by the Assiniboine seemed the most promising. Even this route offered almost insurmountable difficulties. Fort Abercrombie and Pembina were the only two settlements of note on the Red River south of Fort Garry, the Hudson's Bay Co.'s post on the Assiniboine River. A stage line was in operation as far as St. Cloud, but a road would have to be constructed from there to some point on the Red River from which a steamboat could be operated to Fort Garry.

As no one knew whether the Red River was navigable, Alex. Ramsey and John Irvine were sent to make an investigation. Making their way up the Minnesota River and over the Kittson trail they arrived at Fort Abercrombie, a structure of "log cabins on the bottomland of the river." From there they travelled on horseback down the east side of the river to a claim which Mr. Irvine had staked out opposite the mouth of the Sheyenne. As far up as that point, they decided, the river ought to be navigable for three or four months of the year.

As a result of Mr. Ramsey's report, the St. Paul Chamber of Commerce made a contract with Anson Northrup to build the first steamboat on the Red River for \$2,000. The timbers for his craft were hewn at Crow Wing on the Mississippi. The second hand machinery which had been brought from Maine several years before, with the timbers, lumber, cabins and furniture, was loaded upon 34 wagons at Crow Wing. In the bitter winter of 1858 a party of 60 resolute men and 34 teams trudged 150 miles through the snows of an unknown country, unusually hilly and heavily timbered and without the semblance of a road, to Irvine's claim on the Red River.

There the Anson Northrup was built. The impression that it was not exactly a boating palace may be gained from a description given by Mr. Ramsey concerning the appearance of the boat the next year: "The hull was new, but it was made of pine; the machinery was eight years old; the furniture was very limited; the boiler was of the locomotive kind, and the head was cracked clear across and leaked so badly that it was not possible to get up a sufficient head of steam to be called seaworthy or bear inspection."

The Anson Northrup made its maiden trip in the summer of 1859. Many passengers were taken from Fort Abercrombie to Fort Garry, where they were received with great enthusiasm. It was afterward sold to Norman Kittson, and, in his hands, saw many years of service on the Red River..

The foregoing particulars, gathered from the Minnesota Historical Society's records, by W. W. Wemet, were published recently in the Courier-News,

Fargo, N.D. A somewhat different account appeared in Harper's Magazine for Aug., 1860, in an article "To Red River and Beyond," as follows:—

"Late in the winter of 1858-59, Anson Northup, having run his boat up the Crow Wing River, a tributary of the Mississippi, the previous autumn, took it to pieces, packed the cabin, machinery, and timber for building the hull, on sleighs, which, with great difficulty, were drawn by horses and oxen across to Otter Tail Lake, and thence westward to the mouth of the Cheyenne, on the Red River. Assisted by the St. Paul Chamber of Commerce, but mainly depending on his own private resources, and by hard work and perseverance, the boat was rebuilt on the banks of the Red River, and launched successfully on May 19, and, as the breaking bottle drenched the planks, was christened the Anson Northup. In the high water of early spring she made her trial-trip down to Fort Garry and back. She had to lie by every night, of course, and must have been greatly delayed by the necessity of stopping to cut timber for firing. In spite of these delays, she made the return trip in eight

outfit and returns will pass through the United States, instead of by the difficult and circuitous passage of Hudson Bay to York and Moose Factories."

It will be noticed that in the article reproduced from the Fargo-Courier-News, the name of the builder of the first Red River steamboat is given as Anson Northup, while the Harper's Magazine article has it as Anson Northup.

The accompanying illustration of the steamboat Anson Northup is reproduced from Harper's Magazine for Aug., 1860, which is in Canadian Railway and Marine World editor's private library.

Welland Ship Canal Construction.

The Railways and Canals Department report for the year ended March 31, 1918, issued recently, contains the following: This important work has for its object greater and better accommodation for a larger class of vessels than those that can be used on the present Welland Canal.

The present canal lies between Port

The width of the canal at the bottom will be 200 ft. and, for the present, the canal reaches will be excavated to a depth of 25 ft. only, but all structures will be sunk to the 30-ft. depth, so that the canal can be deepened at any future date by dredging out the reaches.

A new western breakwater will be built at Port Colborne to ensure quiet water in the harbor during storms.

The outer entrance piers in Lake Ontario will be placed about 1½ miles from shore, where the depth of water is 30 ft.; a wide channel will be dredged out from these piers and an embankment formed on either side of it about 500 ft. wide. The lock walls will be 82 ft. high above the top of the gate sills.

The work is divided into 9 sections, of which section 1, approximately 3 miles, at the Lake Ontario end of the canal, was placed under contract on Aug. 1, 1913; section 2, approximately 4 1-3 miles, was placed under contract Dec. 31, 1913; section 3, approximately 2 miles, was placed under contract on Oct. 4, 1913; section 5 was placed under contract on Dec. 22, 1913.

During the fiscal year 1917-18, \$1,235,046.59 was expended, making the total expenditure to March 31, 1918, \$14,928,969.58.

[Editor's Note—Owing to the war, work on the various contracts was suspended in Jan., 1917, and was resumed early this year by the same contractors working on a cost plus percentage basis.]

Accidents in the St. Lawrence River and Gulf.

A Quebec press dispatch reports the following accidents:

The steam barge Captain Dan, E. Gamache, master, struck a wharf while entering Quebec harbor, Aug. 22, and sank before she could be beached. The cook was drowned, but the rest of the crew were rescued from a capsized boat.

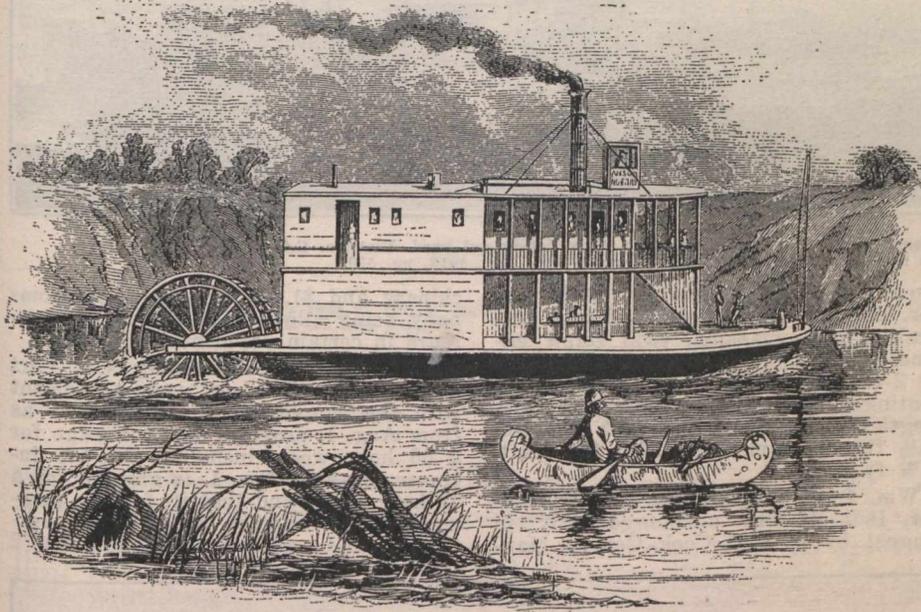
The steamship Admiral Hastings, which left Montreal Aug. 16 for England with cargo, went aground on Bagot Bluff, south point on Anticosti Island, early on Aug. 23. The salvage tug Lord Strathcona left Quebec the same day with a schooner to raise the vessel. The latter reports she is hard aground and cannot get out by her own power.

The steamship Verdulia, which left Quebec Aug. 20 for England with cargo, struck an iceberg off Belle Isle on Aug. 23. She immediately sounded her S.O.S., but later reported she was apparently slightly damaged and could proceed on her eastward voyage. She passed Belle Isle's wireless station at 2 p.m., Aug. 23.

The steamship Glen Allen of the Kirkwood Line of Montreal, scraped her bottom on the rocks outside the channel, a few miles west of the Quebec bridge, on Aug. 22 and was being examined at Quebec to decide whether she need go into dry dock.

Dominion Government Highway Board

—In connection with the projected highway improvement scheme, which is being undertaken by the Railways and Canals Department and for which parliament has voted \$20,000,000, it is announced that an honorary advisory board is to be appointed, those suggested being: C. A. Magrath, Chairman, Canadian Section, International Joint Waterways Commission; R. Home Smith, President, Algoma Central and Hudson Bay Ry., and J. P. Mullarkey, railway contractor, Montreal.



The s.s. Anson Northup in the Red River.

days, and what must the quiet Selkirkers have thought of the American steamboat? The Albany burgomasters were not more amazed by the sound of the Chancellor Livingston's paddles.

"And now about the navigation of Red River. Such navigation is undoubtedly feasible. The boat's two trips to Fort Garry have demonstrated it. In the latter part of the autumn, and in the winter, of course, it is impracticable. After the ice breaks up, which usually happens about May 1, the water is very high, and the river is navigable to as large steamboats as can make all the turns in the winding river, from Fort Abercrombie to the mouth at Lake Winnipeg, nearly 500 miles. After Aug. 1, the water has fallen sufficiently to reveal serious obstructions in the channel from Fort Abercrombie to the mouth of the Cheyenne River, its largest tributary but one, entering Red River 50 or 60 miles below the fort. But from this point to its mouth, it is easily navigable in the lowest stages of water, until the ice forms in early November. The success of the boat works a revolution in the Hudson's Bay Co.'s business. Hereafter the annual

Colborne, Lake Erie, and Port Dalhousie, Lake Ontario. Its length is 26¾ miles and it has 25 lift locks, the dimensions of which are 270 x 45 ft., with a depth of 14 ft. of water on the sills.

The proposed Welland Ship Canal as finally located follows the course of the present canal from Port Colborne, on Lake Erie, to Alanburg, half-way across the peninsula. From this point an entirely new cutting is to be made, crossing the present canal just below lock 25, the water level of the two canals at this point being the same, viz., 568 ft. above sea level. The new canal again crosses the present one below lock 11, the water of both canals at this point being at an elevation of 382 ft. above sea level.

The proposed canal enters Lake Ontario at the mouth of the Ten Mile Creek about three miles east of Port Dalhousie. The total length of canal from lake to lake is 25 miles; and the difference in level between the two lakes, 325½ ft., is to be overcome by 7 lift locks, each having a lift of 46½ ft. The locks are to be 800 ft. long by 80 ft. wide in the clear and with 30 ft. of water over the miter sills at extreme low stages in the lakes.

General Shipbuilding Matters Throughout Canada.

B.C. Marine Railway Co., Victoria, B.C., is building a wooden steamship hull for the Union Steamship Co. of British Columbia. The dimensions are, length, 145 ft.; beam, 27 ft.; draft, 7½ ft. The machinery from the s.s. Washington, which was purchased recently is to be installed in the new hull, which, when completed next spring, is intended for excursion service on the Selma Park and Buccaneer Bay run.

Canadian Vickers Ltd., Montreal, advised us recently that it expected to launch a steamship of approximately 8,300 tons d.w., its builder's yard no. 76, for French interests, about Aug. 25.

Cholberg Ship Co., Victoria, B.C.—The auxiliary powered schooner Washington,

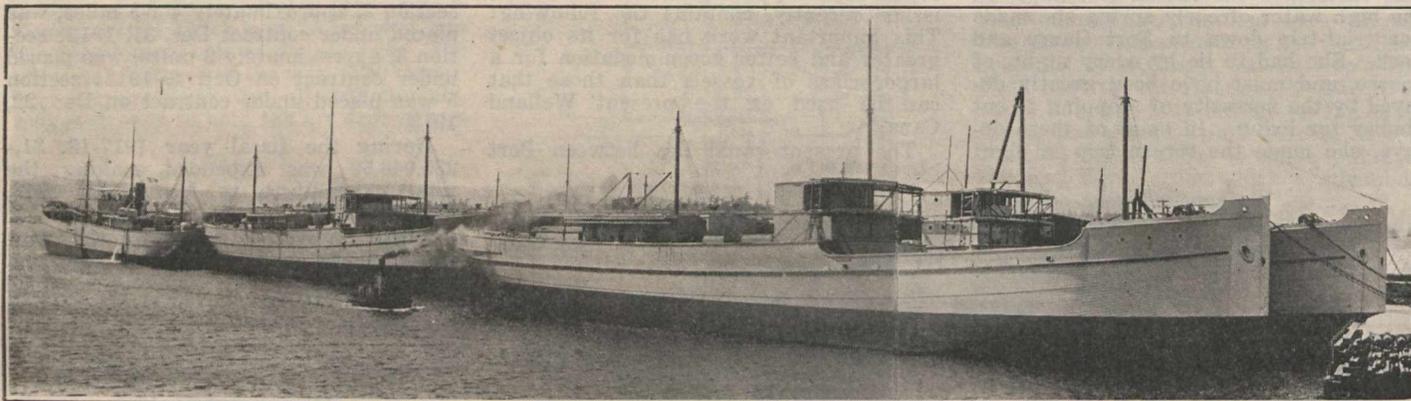
moulded, 24 ft 2½ in., approximate tonnage, 2,300 gross, 1,400 net.

J. Duffy & Co., Southville, N.S.—The first vessel to be built by this company was launched at the end of July, and named J. Duffy. She is a schooner, built of native lumber, and with accommodation for a crew of 24. Her dimensions are, length overall, 150 ft., beam, 27¾ ft.; depth, 11¼ ft.; 115 tons register.

Foundation Co., Victoria, B.C.—Trial trips took place during July of 5 of the wooden steamships built by this company for the French Government. These were the Metz, Strasbourg, Trois Rivieres, Frontenac and Victoria. Up to the end of July, 11 of these ships had been launched out of an order for 20.

of the British Government. The company is just about completing the construction of 8 wooden steamships of 1,500 tons d.w. capacity each, for the French Government.

New Westminster Construction & Engineering Co., New Westminster, B.C.—The award in the arbitration between this company and the Imperial Munitions Board regarding the use, by the board, of the company's yard at Poplar Island, was announced Aug. 3. The judgment found that the board was indebted to the company to the extent of about \$1,400, and that the company did not agree to buy the shipbuilding plant for \$97,000. It was also found that the board was entitled to \$20,000 for the use of ma-



Wooden Steamships for French Government, at Foundation Co.'s fitting out yard, Victoria, B.C. For full description see Canadian Railway and Marine World, Dec., 1918, pg. 570.

the second of this type to be built for the Porsgrund Damp and Seil Co., Porsgrund, Norway, which, was expected to be launched at the end of July, was not launched until Aug. 7. The company is reported to have received an order from the Universal Shipping and Trading Co., Seattle, Wash., for the conversion of 3 wooden steamship hulls, purchased from the U.S. Shipping Board, into barquentines.

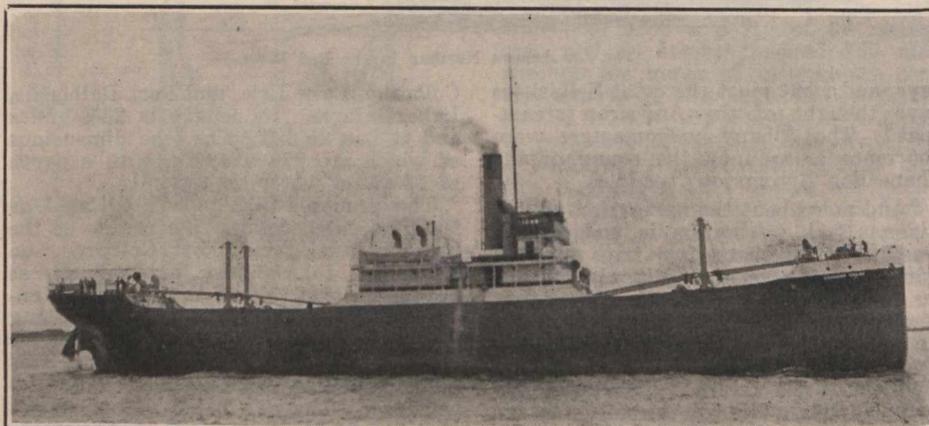
The Dominion Shipbuilding Co., Toronto, launched the steel cargo steamship Skolma, Aug. 7. This ship is similar in all particulars to the s.s. Hessa, the launching of which was announced in our last issue. She is of the single deck type, with poop, bridge and forecastle, steel texas on bridge, with wing deck house, chart room and pilot house, and is built on the transverse system with hull divided into compartments by 4 watertight bulkheads and 1 screen bulkhead. She has cargo capacity for 151,466 cu. ft. of grain, with carrying capacity of approximately 3,550 tons. She has a double bottom, fore and aft, for 779 tons of water ballast, and the water tank capacity is 5,053 imp. gals. There are 4 hatches each 22 x 18 ft. and she is classed 100 A1 at Lloyd's for ocean service. The propelling machinery consists of inverted triple expansion engines, with cylinders 20, 33 and 54 in. diam. by 40 in. stroke, 165 n.h.p., 1,200 i.h.p., at 87.5 r.p.m., and supplied with steam by 2 Scotch marine boilers, each 11 x 14½ ft. with 2,730 sq. ft. heating surface to each boiler, and working pressure of 180 lb. a sq. in. The average speed will be 10.2 knots on a fuel consumption of 201 tons in 24 hours. Her dimensions are, length overall, 261 ft.; length, b.p., 251 ft.; breadth moulded, 43½ ft.; depth

They are of approximately 3,000 tons d.w. capacity and are equipped with vertical, triple expansion, twin screw engines of 550 h.p., and supplied with steam by 2 Scotch boilers, having 3,500 sq. ft. heating surface. Their dimensions are, length over all, 293 ft.; breadth moulded, 46½ ft.; depth moulded, 23½ ft.; draft, 21¾ ft.

Wm. Lyall Shipbuilding Co., Vancouver, B.C.—It was announced early in August, by W. S. D. Cook, General Man-

chinery and \$1,700 insurance, the company being allowed \$23,000 due for arrears in certain payments and taxes.

Port Arthur Shipbuilding Co., Port Arthur, Ont.—The new wage agreement with the employes, which effective as from Aug. 1, provides that the wage for a 50 hour week, including the 5% increase, granted Apr. 1, is granted for a 48 hour week, and that if, for the present, the 50 hour week be continued, overtime is to be paid for the additional 2



Steel cargo steamship Canadian Sailor, 3,357 tons d.w., built for Canadian Government Merchant Marine Ltd., by Port Arthur Shipbuilding Co., Port Arthur, Ont.

ager, that the yards would have to be closed down about the end of September, unless more contracts were secured, and at that time, he stated, there were no more contracts in sight. This company is one of several, which were formed during the war, to build wooden vessels, to meet an emergency, and which built 6 standard wooden steamship hulls for the Imperial Munitions Board, on behalf

hours.

G. Wagstaff, Port Greville, N.S., launched the tern schooner Jennie V. Merriam, 454 tons register, July 29. She is classed in Bureau Veritas for 13 years, and is equipped with electric light and stockless anchors. She is owned by Capt. C. S. Merriam, and loaded a cargo of lumber for England at Parrsboro, N.S. A duplicate of this ship is on the stocks

and is expected to be launched shortly.

Yarrows Ltd., Victoria, B.C., is reported to have been requested to tender for the construction of steel freight steamships suitable for the fruit trade between the West Indies and New York, for the Di Giorgio Co. of New York, which purchased the C. P. R. s.s. Princess May recently for such purpose. The company has also received a contract for the alterations to the s.s. Princess May, which it is reported will cost approximately \$75,000. She will be entirely refitted and remodelled to make her suitable for the fruit trade. The existing oil burning equipment will be removed and a more up to date one installed.

The World's Shipping Statistics.

The first uncensored Lloyd's return of the world's shipping since they were suspended by the war gives the following comparisons, according to countries, for the years 1914 and 1919:

	1914	1919
United Kingdom	18,892,000	16,345,000
British Dominions	1,632,000	1,863,000
	20,524,000	18,208,000
United States (seagoing).....	2,027,000	9,773,000
United States (lakes).....	2,260,000	2,160,000
	4,287,000	11,933,000
France	1,922,000	1,962,000
Holland	1,472,000	1,574,000
Italy	1,430,000	1,258,000
Grand total	29,635,000	34,935,000

The above figures are incomplete, as

they do not take into account the distribution among the allied countries of 1,768 German steamships not otherwise dealt with at the signing of the armistice.

Mail Subsidies and Steamship Subventions for 1918-1919 and 1919-1920.

In addition to the estimates of which particulars were given in Canadian Railway and Marine World for May, pg. 279, the supplementary estimates for the year ended Mar. 31, 1919, submitted to the House of Commons during the recent session, included the following items:—

Ocean and mail service between Canada and Great Britain, further amount required	\$100,000.00
Steam service between St. Catherines Bay and Tadoussac	886.67

The supplementary estimates for the year ended Mar. 31, 1920, contained the following items:—

Between Baddeck and Iona, further amount required	\$ 1,000
Between Froude's Point and Lockeport, N.S., further amount required	400
Between Grand Manan and the mainland, further amount required.....	2,500
Between Mulgrave and Canso, further amount required	3,000
Between Mulgrave and Guysborough, calling at intermediate ports, further amount required	2,000
Between Pictou and Montague, calling at Murray Harbour and Georgetown, further amount required	1,000
During the season 1919, between Sydney and Whycomagh, further amount required	1,000

Between Montreal, Quebec, Prince Edward Island and Newfoundland	17,500
Between Halifax, La Have and La Have River ports, in lieu of vote 158 in main estimates, for steam service between Halifax, Mahone, Tancock Island and La Have River ports.....	4,000
Between Pictou, New Glasgow, Antigonish County ports, and Mulgrave, further amount required	500
Between Newcastle, Neguac, and Escuminac, calling at all intermediate points on Miramichi River and Miramichi Bay, further amount required	500
Ferry service between Campment d'Ours Island and the mainland on Georgian Bay	2,000
	\$ 35,400

Buoy and Lighthouse Steamship—The estimates for the year ending Mar. 31, 1920, passed by the House of Commons recently, contained an item of \$150,000, for a steamship for buoy and lighthouse service in the maritime provinces. We are advised that it is not intended to use this appropriation.

The Great Lakes Dredging Co. Ltd. and the Thunder Bay Contracting Co. Ltd., have been amalgamated under the Ontario Companies Act, as The Great Lakes Dredging and Contracting Co. Ltd., with \$2,000,000 authorized capital, and office at Ottawa, to carry on the business of a drydock, dredging, towing, freighting, wrecking and salvaging company, and to own and operate the necessary plant, steam and other vessels for such purposes. The provisional directors are: Senator M. J. O'Brien, L. J. Martin, J. J. Murray, Renfrew; J. A. O'Brien and W. O. Matthews, Ottawa.

Vessels Registered in Canada During June, 1919.

In compiling the following lists of vessels registered, steamboats and motor boats, operated by engines of less than 10 n.h.p., are eliminated, as also are sailing vessels of less than 100 tons register.

STEAM.

No.	Name	Port of Registry	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc. N.h.p.	Owners or managing owners
112121	Amphitrite.....	Lunenburg, N.S.	Mahone Bay, N.S..... 1903	110.0	26.6	11.8	252	114	24	Sc. Larder Brothers Wrecking Co., Ltd., Halifax, N.S.
141366	Canadian Recruit.....	Montreal	Collingwood, Ont..... 1919	251.0	43.6	23.6	2,409	1,451	124	Sc. Minister of Marine and Fisheries, Ottawa.
141424	Canadian Volunteer.....	Vancouver, B.C.	North Vancouver, B.C. 1919	320.0	44.2	22.9	3,188	1,910	226	Sc. " "
141373	Captain Dan (a).....	Montreal	Buffalo, N.Y. 1882	230.6	35.3	17.3	1,167	711	83	Sc. A. Hutchinson, Montreal.
141374	Fred Mercur.....	Montreal	Buffalo, N.Y. 1882	237.4	35.6	17.4	1,293	781	99	Sc. " "
140995	General Morrison.....	Toronto	Toronto 1919	251.0	43.6	21.2	2,490	1,519	146	Sc. Dominion Shipbuilding Co. Ltd., Toronto.
141252	Glenholme.....	Yarmouth, N.S.	Yarmouth, N.S. 1919	102.5	30.5	9.7	233	126	24	Sc. St. John Steamship Co., Ltd., St. John, N.B.
188767	H. A. Walker.....	Halifax, N.S.	Lauzon, Que. 1917	81.0	19.5	10.5	105	62	24	Sc. J. B. Patten, Grand Bank, Nfld.
141285	Jutland.....	La Have, N.S.	West La Have, N.S.... 1918	134.7	25.8	12.6	334	136	13	Sc. Jutland Ltd., Riverport, N.S.
140994	Mary H. Boyce.....	Toronto	Saginaw, Mich. 1888	181.0	34.0	13.7	864	478	64	Sc. Ontario Transportation & Pulp Co., Ltd., Thorold, Ont.
(a)	Formerly Heckla.									

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner.
141268	Acadian Queen.....	Parrsboro, N.S.	Schr.	Economy, N.S. ....1919	150.0	35.5	12.8	479	440	H. D. McLean and H. C. Mackay, Economy, N.S.
141371	Alexander MacLaurin.....	Montreal	Barge	Sorel, Que. ....1919	130.9	27.1	9.4	302	279	St. Maurice Paper Co. Ltd., Montreal
133969	Alma R.....	Digby, N.S.	Schr.	Meteghan River, N.S.....1918	142.0	34.4	12.9	482	429	Alma R. Co., St. John, N.B.
141267	Cape Blomidon.....	Parrsboro, N.S.	"	Canning, N.S. ....1919	144.9	34.1	13.0	453	408	H. MacAloney, Parrsboro, N.S.
141402	Catherine M. Moulton.....	Lunenburg, N.S.	"	Conquerall Ban, N.S. ....1919	119.2	26.0	11.4	194	155	J. T. Moulton, Burgeo, Nfld.
141288	Charles and Vernon.....	La Have, N.S.	"	Bridgewater, N.S. ....1919	136.2	32.0	11.8	347	296	D. Getson, M.O., La Have, N.S.
141348	Coal Barge No. 3.....	Ottawa	Barge	Sorel, Que. ....1903	92.7	29.1	10.8	228	207	Minister of Marine and Fisheries, Ottawa.
141349	Coal Barge No. 5.....	"	"	" "1909	125.2	30.0	10.7	375	338	" " " "
141287	Con Rein.....	La Have, N.S.	Schr.	East La Have, N.S.....1919	120.5	20.6	11.6	337	299	Con Rein Ltd., East La Have, N.S.
141372	Edwin S. Coleman.....	Montreal	Lighter	Sorel, Que. ....1919	130.0	27.1	9.5	300	278	St. Maurice Paper Co. Ltd., Montreal
141074	Frances Parsons.....	Windsor, N.S.	Schr.	Cheverie, N.S. ....1919	112.8	31.0	11.1	270	237	G. M. Parsons, Cheverie, N.S.
141084	General Smuts.....	Shelburne, N.S.	"	Shelburne, N.S. ....1918	107.1	30.2	10.2	193	159	G. C. Harris, Grand Bank, Nfld.
141088	Hawker.....	"	"	" "1919	103.1	25.4	10.7	129	129	McKay Shipbuilding Co., Shelburne, N.S.
141087	Helen Mather.....	"	"	" "1919	140.8	32.9	13.4	421	363	The Schooner "Helen Mather," Ltd., Halifax, N.S.
138768	Marine.....	Halifax, N.S.	"	Weymouth, N.S. ....1919	147.0	34.8	14.0	511	453	T. H. Beabley, Halifax, N.S.
140876	Myrtle Piercy.....	Liverpool, N.S.	"	Liverpool, N.S. ....1919	104.7	26.7	10.2	178	149	S. Piercy, Grand Bank, Nfld.
141286	Ruby L. Pentz.....	Halifax, N.S.	"	Shelburne, U.S. ....1919	123.5	26.4	11.0	169	133	J. E. Conrad, M.O., La Have, N.S.
141350	Stone Lifter No. 4.....	Ottawa	Scow	Sorel, Que. ....1910	100.0	32.0	10.2	264	185	Minister of Marine and Fisheries, Ottawa.
141351	Stone Lifter No. 5.....	"	"	" "1912	100.0	36.0	9.3	278	227	" " " "

Cargo Steamship Building in Canada for British Government.

Steamships Launched and Under Construction—Since the information given in our last issue respecting launchings of steamships under construction in Canada for the British Government, was published, the s.s. War Halton has been launched by Polson Iron Works, Ltd., Toronto. There now remain 2 steel steamships to be launched to complete the orders for 43 steel vessels placed by the Imperial Munitions Board, at an approximate cost of \$40,000,000. There were also 46 wooden steamships ordered at an approximate cost of \$24,500,000, all of which have been delivered. The approximate d.w. tons of the steel steamships is 211,300 and of the wooden steamships 128,000, total approximate d.w. tonnage 339,300. Of the 2 steel steamships remaining to be launched, the War Chariot, approximately 8,800 tons d.w., is being built by J. Coughlan & Sons, Vancouver, B.C., and the War Fury, approximately 3,400 tons d.w., by the Midland Shipbuilding Co., Midland, Ont.

Sale of Surplus Supplies, Etc.—The Imperial Munitions Board offered for sale by tender recently a quantity of surplus shipbuilding supplies and equipment lying at Quebec and Montreal.

Vessel Register Transfers from Canada to Great Britain—A number of the steamships built in Canada for the British Government, and registered at different ports in the Dominion, have been transferred to the British register. These are War Atlin, 2,338 tons; War Casco, 2,319 tons; War Charger, 5,703 tons; War Tanoo, 2,326 tons, registered at Vancouver, B.C.; War Camchin, 2,339 tons; War Masset, 2,340 tons; War Nanoose, 2,285 tons; War Skeena, 2,342 tons; War Stikine, 2,335 tons, registered at Victoria, B.C.; War Ewen, 2,344 tons; War Kitimat, 2,336 tons; War Sumas, 2,305 tons; War Tyee, 2,302 tons, registered at New Westminster, B.C.; all gross tons, a total of 15 vessels and tonnage of 38,279 tons.

Vessel Sales—Since the conclusion of the war, several of the steamships built in Canada under orders from the Imperial Munitions Board for the British Government, have been sold to allied governments. The s.s. War Camp, built by J. Coughlan & Son, Vancouver, B.C., is reported to have been sold to South American interests and is stated to be now running out of Buenos Aires under the name of Sierra Quemaada. The s.s. War Skeena, built by Cameron-Genoa Shipbuilders, Victoria, B.C., is reported to have been taken over by the French Government under the name of Roumanier.

Canadian Allis-Chalmers, Ltd., Bridgeburg, Ont.—The s.s. War Vixen, the launching of which was announced in our last issue, was the second of the two vessels being built by this company for the British Government under order of the Imperial Munitions Board. The christening was performed by Mrs. Walter Nicholls, daughter in law of the company's President, Senator Nicholls. The first ship, the s.s. War Magic, is being held at the yard until the completion of the War Vixen so that the two may proceed to sea together. These vessels have an approximate d.w. tonnage of 3,500 and are classified 100 A1 at Lloyd's. They have the following dimensions, length overall 261 ft.; breadth moulded 43½ ft.; depth moulded 23 ft. They are equipped with triple expansion engines

of 1,400 h.p., are supplied with steam by 2 Scotch boilers, 12 x 14 ft., at 180 lb.

Polson Iron Works, Ltd., Toronto—The last of the steel cargo steamships to be built by this company for the British Government under orders of the Imperial Munitions Board, was launched Aug. 16 and named War Halton. She has the following dimensions, length overall, 261 ft.; length, b.p., 251 ft.; beam, 43½ ft.; depth moulded, 22½ ft. She is equipped with triple expansion, surface condensing engine of approximately 1,256 h.p. The other five vessels were launched as follows: War Taurus, Sept. 19, 1918; War Hydra, Oct. 15, 1918; War Hamilton, Dec. 22, 1918; War Timiskaming, Feb. 8, 1919, and War Algoma, July 23, 1919.

Atlantic and Pacific Ocean.

The Dominion Government has presented pieces of silver plate to several officers and men of the s.s. Lord Erne, of Belfast, Ireland in acknowledgement of the rescue of the shipwrecked crew of the s.s. Percesien, of Quebec, which was lost in the Atlantic Ocean, Feb. 9, 1918, during extremely rough weather.

Canadian Pacific Ocean Services Ltd., has commenced a direct steamship service between Canada and Singapore and the Federated Malay States, calling at intermediate ports in Japan, China and the Phillipine Islands. The s.s. Methven, a recently built steamship of about 10,000 tons carrying capacity, is being used on the route.

The Nippon Yusen Kaishi, is, it is announced, placing orders for additional passenger steamships of 25,000 tons each for service between China, Japan and North America. The first of these vessels is said to be under construction in Great Britain, costing about \$400 a ton, and she is expected to be ready for service within a year. They will have a speed of approximately 20 knots an hour, and it is expected will make the run between Yokohama and Victoria in 9 days.

Furness Withy & Co. are reported to have acquired the shipping interests of Wm. Thomson and Co., St. John, N.B., formerly owners of the Battle Line. Wm. Thomson & Co. have conducted a large brokerage business in Canada for many years, and at one time were said to have under charter half the vessel tonnage loading at St. John. The business was established at St. John in 1841, and the company owned a number of sailing vessels and steamships, the latter being named after battles of ancient Greece. The sailing vessels were disposed of several years ago, and the company's interest in the Battle Line was sold during the war.

The Canadian Pacific Ocean Services' s.s. Empress of France, formerly s.s. Alsatian, is scheduled to sail from Liverpool, Eng., Sept. 26, for Quebec. She was released recently from Admiralty requisition and has been refitted and overhauled ready for her Atlantic service. She was built at Glasgow, Scotland, in 1913 for the Allan Line Steamship Co. and is a sister ship of the s.s. Calgarian, which was torpedoed and lost during the war. Her dimensions are, length, 571.4 dt.; breadth, 72.4 ft.; depth 26 ft.; tonnage, 18,481 gross, 10,747 net. She is screw driven by engines of 20,000 h.p. She has accommodation for 200 first class, 500 second class and 1,000 third class passengers.

Maritime Provinces and Newfoundland.

The schooner Josephine Swanton, which was wrecked on Tryon shoal, in Northumberland Strait, P.E.I., recently, has drifted off into deep water and now lies in 7 fathoms with a least depth of 27 ft. over the wreck.

The Sydney Foundry and Machine Co. has applied to the Dominion Government for the grant of a water lot at Anderson's Point, Sydney, N.S., for the construction of a dry dock, for which, it is stated, the Dominion Government has granted a subsidy.

The St. John Steamship Co. has placed the s.s. Glenholme in service on the St. John River. She was built at Yarmouth, N.S., early this year. Her dimensions are, length, 102.5 ft.; breadth, 30.5 ft.; depth, 9.7 ft.; tonnage, 233 gross; 126 net. She is screw driven by engine of 24 n.h.p. Capt. Moore is master, with J. S. McCulloch as chief engineer.

In connection with the harbor improvement work at Courtenay Bay, St. John, N.B., what is said to be the largest cofferdam in Canada was commenced Aug. 7, by the Bedford Construction Co., for the removal of 150,000 yds. of rock at the entrance to the drydock. It is reported that it will be 1,500 ft. long, and will contain about 400,000 ft. b.m. of lumber.

The s.s. Rosalind which arrived at St. John's, Nfld., July 24, to take up her service for the Red Cross Line, was formerly known as Lady Gwendolen, and was built at Glasgow, Scotland, in 1911, for the British and Irish Steam Packet Co. Ltd., Dublin, Ireland. In the early stages of the war she was used for carrying food supplies to Russia and when the revolution broke out she was at Archangel, where she was badly damaged. When the British took position of that port the ship was handed over to the

Vessels Added to and Deducted From the Canadian Register During June, 1919.

	Steam.		Sailing.	
	No.	Tonnage—Gross. Registered.	No.	Tonnage—Gross. Registered.
Added.				
Built in Canada.....	29	9,201 5,498	20	5,945 5,198
Purchased from foreigners.....	4	3,375 2,003	.....	.....
Transferred from British possessions.....	.....	.....	.....	.....
New registers	5	329 185	.....	.....
Totals	38	12,905 7,686	20	5,945 5,198
Deducted.				
Wrecked or otherwise lost.....	5	1,712 1,091	6	1,348 1,169
Broken up or unfit for use.....	17	3,269 2,014	17	1,147 1,116
Sold to foreigners	2	1,042 652	3	1,044 981
Transferred to United Kingdom.....	15	38,279 24,070	.....	.....
Transferred to British possessions.....	.....	.....	3	943 856
New registers	2	2,111 1,360	5	181 173
Tonnage alterations, without re-registry.....	.....	41 46	.....	.....
Totals	41	46,454 29,233	34	4,663 4,295

Dundee and Perth Shipping Co. and was engaged as a cargo vessel and operated between Dundee and London. She has accommodation for 350 passengers, and is fitted with all modern equipment. Her dimensions are, length, 300.2 ft.; breadth, 39.7 ft.; depth, 17.5 ft.; tonnage, 2,163 gross; 1,336 net. She is screw driven by engine of 362 h.p.

Province of Quebec Marine.

The Princess May Steamship Co. Ltd., has been incorporated under the Dominion Joint Stock Companies Act, as a private company, with office at Quebec, and its business to be carried on with \$125,000 capital.

A green spar buoy has been established to mark the wreck of the schooner Enterprise, which sank May 14, about 2 miles south of Entry Island, off Magdalen Islands, in the Gulf of St. Lawrence. As soon as the masts of the wreck have been removed the buoy will be discontinued.

La Cie. Generale du Port de Chicoutimi has deposited plans with the Minister of Public Works, for a wharf to be built at the Baie du Ha Ha, Saguenay River. The site is numbered 97M, 98R, and 98S on the official cadastre of St. Alexis de la Grande-Baie, and measures 830 ft. wide, 1,400 ft. long on the north side and 1,950 ft. on the south side.

Ontario and the Great Lakes.

The Toronto Ferry Co. is contemplating building a ferry steamboat, which it expects to have ready for service early in 1920.

The wreck of the steam tug Jim and Tom, which was sunk on the western side of the east pier at Port Dover, Nov. 28, 1918, has been removed.

The dredging operations on the north side of St. Thomas channel in the River St. Lawrence were completed Aug. 7, and the plant and machinery moved to the south half of the channel.

The Marine Department has arranged to overhaul the Colchester lighthouse, Lake Erie, and in addition, will build several cribs there. The work will, it is said, cost about \$20,000.

The Minister of Public Works is reported to have announced Aug. 3, that \$50,000 will be included in the supplementary estimates for improvements in Port Dover harbor.

Canada Steamship Lines' s.s. T. P. Phelan, ran aground on Fraser Shoal, east of Cardinal, in the St. Lawrence River, at the end of July, while east-bound with 70,000 bush. of wheat for the British Government.

It is suggested that the question of granting a franchise for a ferry service across the Detroit River, from Windsor, to the Detroit and Windsor Ferry Co., be submitted to a vote of the ratepayers at an early date.

The U.S. s.s. Aztec, of Buffalo, when being locked through lock 17 of the Cornwall canal, Aug. 15, backed into the gates of the rear lock, partially opening it, and causing a rush of water from the upper lever to carry out both sets of gates. A boy of 7 years, who was playing on the bank was washed away and drowned.

The harbor headline on the north and south sides of the McKellar River at Fort William, beyond which no wharves or other structures shall be built, has

been amended, after careful checking of the measurements during last winter.

The U.S. Lake Survey reports the levels of the Great Lakes in feet above mean sea level for July as follows:—Superior, 602.58; Michigan and Huron, 581.34; St. Clair, 576.24; Erie, 573.45; Ontario, 247.75. Compared with the average July levels for the past 10 years, Superior was 0.18 ft. above; Michigan and Huron 0.45 ft. above; Erie 0.67 ft. above, and Ontario 0.96 ft. above.

The steam tug D. S. Pratt, owned by Canadian Dredging Co., Midland, Ont., the steam tug Lasalle, and the scow D79, owned by the Great Lakes Transportation Co., Midland, Ont., have had their names changed to Strathmore, Strathbell and Strathbuoy, respectively. They are being operated by the Dominion Towing and Wrecking Co., Fort William, Ont., which is owned by the same interests as the other companies mentioned.

The attempts to raise the s.s. Keystone, formerly owned by the Keystone Transportation Co., Montreal, and which sank in the St. Lawrence River, below Alexandria Bay, several years ago, were continued during the summer, but were abandoned early in August, for the year, owing to the failure of the wooden pontoons used on the work. It is stated that special steel pontoons are to be built, and that the work will not be resumed until these are ready.

The Northern Navigation Co.'s s.s. Huronic, grounded on Angus Island, about 40 miles from Port Arthur, Aug. 15, whilst en route from Port Arthur to Duluth. She was not considered in any danger, but all passengers were transferred to the company's s.s. Hamonic and returned to Port Arthur. The Huronic was released the same day with the aid of the tugs Bowman and Sarnia, and was accompanied to the Port Arthur Shipbuilding Co.'s plant, where she was drydocked for examination and repairs. An outside examination showed that several plates in the bow were buckled, and that the bottom was ripped to no. 2 hatch.

Vessel masters are requested to check the speed of their vessels in passing through the St. Clair Flats Canal, Lake St. Clair, reducing to about 8 miles an hour when weather is suitable for such speed. It is not suggested that vessels

should be checked in storm, or when conditions to any extent render control uncertain, but only when through the variety of conditions encountered, speed be reduced in reasonable accord therewith, and solely for the purpose of preventing as far as possible further deterioration of the revetment, and of the channel side of the east dike of the canal. This revetment has deteriorated markedly in the last two years and several sections have collapsed, the timber work swinging into the channel. This condition exposes anchorages adjacent to the collapsed portions to undue strain and the backfilling to the effects of the wash created by passing vessels at high speed.

The Webster Steamship Co.'s s.s. Muriel W., struck one of the sunken cribs off Putnam's pier at Port Weller, at the entrance to the new Welland Ship Canal, Aug. 4, during a heavy fog, and sank in 30 ft. of water. She is believed to be a total loss. She was built at Milwaukee, Wis., in 1886 and practically rebuilt in 1912, her original name being Veronica, and her owners the Standard Navigation Co., Buffalo, N.Y. The hull was of oak and she was built with diagonal strapping on the frames, steel arches, bow sheathed for ice, steel boiler house. Her dimensions were, length b.p., 202 ft.; breadth moulded, 34½ ft.; depth moulded, 19 ft.; tonnage, 1,093 gross; 880 net. She was equipped with fore and aft compound engine, with cylinders 22 and 40 in. diam. by 40 in. stroke, 625 i.h.p. at 75 r.p.m., and supplied with steam by a single firebox boiler, 9 ft. 2 in. by 16 ft. at 100 lbs. working pressure.

British Columbia and Pacific Coast.

The Pacific Salvage Co., which bought the Dominion Government's sloop Algerine recently, is having it remodelled and refitted as a salvage vessel by Yarrows, Ltd., Victoria, B.C.

The U.S. s.s. Admiral Knight of Seattle, Wash., a wooden steamship of 600 tons, was destroyed by fire on the B.C. coast, July 27, while bound for Alaska. All the crew were saved.

The C.P.R. s.s. Princess Ena, while northbound through the Seymour Narrows, Aug. 6, struck Ripple Rock, a submerged reef in the center of the narrows. She proceeded to Plumpers Bay, where

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during June, 1919:

ARTICLES.	Eastbound.		
	Can. Canal.	U.S. Canal.	Total.
Lumber.....m. ft. b. m.	39,731	1,243	40,974
Flour.....Barrels	611,020	420,510	1,031,530
Wheat.....Bushels	3,138,698	3,263,353	6,402,051
Grain, other than wheat.....Bushels	3,606,387	3,088,514	6,694,901
Copper.....Short tons	7,114	910	8,024
Iron Ore.....Short tons	7,788,279	216,618	8,004,897
Pig Iron.....Short tons	.....	75	75
Stone.....Short tons	340	4,830	5,170
General Merchandise.....Short tons	4,476	3,276	7,752
Passengers.....Number	496	3,338	3,834
	Westbound.		
Coal, soft.....Short tons	2,211,284	55,700	2,266,984
Coal, hard.....Short tons	227,200	.....	227,200
Iron Ore.....Short tons	20,732	.....	20,732
Mfd. Iron and Steel.....Short tons	9,404	2,348	11,752
Salt.....Short tons	8,825	1,155	9,980
Oil.....Short tons	56,840	.....	56,840
Stone.....Short tons	13,429	.....	13,429
General Merchandise.....Short tons	32,033	25,487	57,520
Passengers.....Number	1,029	3,303	4,332
	Summary.		
Vessel passages.....Number	2,154	656	2,810
Registered tonnage.....Net	7,040,813	943,932	7,984,745
Freight—			
Eastbound.....Short tons	8,117,450	437,529	8,554,979
Westbound.....Short tons	2,579,747	84,690	2,664,437
Total Freight.....Short tons	10,697,197	522,219	11,219,416

she anchored to await assistance and was later taken to Victoria for examination and repairs.

The Canadian Robert Dollar Co. is reported to have purchased the s.s. War Melody, 1,800 tons d.w., which was built by Harland & Wolff, Ltd., Belfast, Ireland, for the British Government. The vessel is intended for the Pacific service out of Vancouver.

The lighthouse maintained on the outer edge of the sandheads, at the entrance to the Fraser River in the Strait of Georgia, will be removed from its station about Sept. 15 for repairs. During its absence the station will be marked by a gas and whistling buoy painted red and showing an occulting red light.

J. W. Troup, Manager, British Columbia Coast Service, C.P.R., is reported to have stated that the company is considering the building of additional car barges, and steamships for the passenger trade, as, owing to the loss of the s.s. Princess Sophia, and the sale of the s.s. Princess May, there is an insufficiency of ships for the business offering.

The Grand Trunk Pacific Coast Steamship Co., placed its autumn and winter schedule in effect Aug. 27, the s.s. Prince Albert being placed on the Prince Rupert—Masset Inlet route and the s.s. Prince John on the Stewart—Masset and South Queen Charlotte Islands route, the former on a fortnightly schedule, and the latter making trips to Stewart and fortnightly for the ports mentioned.

The Union Steamship Co. of British Columbia, is having a steamship built by B.C. Marine Railway Co., to the following dimensions, length, 145 ft.; beam, 27 ft.; draft, 7½ ft. The engines of the s.s. Washington, purchased recently by the Union Steamship Co. will be installed in the new hull, and it is expected that she will be complete and ready for operation about April, 1920, when she will be placed on the run to Buccaneer Bay.

The C.P.R. s.s. Princess Margaret had considerable experience during the war. It was stated in the British House of Commons, Aug. 15, that she was chartered in the early days of the war, and was refitted for mine laying work. She was purchased subsequently by the British Government for £495,500. She was utilized chiefly in the neighborhood of the Baltic Sea, and latterly was used for transporting Russian counter-revolutionary troops.

The C.P.R. s.s. Princess May, is reported to have been sold to the Di Giorgio Co., for the fruit trade between New York and Havana. A contract is stated to have been awarded to Yarrows Ltd., Victoria, B.C., for general overhauling and remodelling, before she leaves for the Atlantic early in September. She was built at Newcastle-upon-Tyne, Eng., in 1888, for the Chinese service, and was then named Hating, and was acquired subsequently by the C.P.R. for its British Columbia coast service. Her dimensions are, length, 249 ft.; breadth, 33.2 ft.; depth, 17.7 ft.; tonnage, 1,717 gross, 892 net. She is screw driven by engine of 450 h.p. Capt. F. C. Stratford is reported to have been appointed to command her.

The litigation between Grant Smith & Co. and Macdonnell, contractors, Victoria, B.C., and the Seattle Construction and Drydock Co., in connection with the sinking of a floating drydock, leased from the latter company by the contractors for work on the government piers at Ogden Point, was concluded recently by

the dismissal of the appeal and cross appeal against the judgment of the British Columbia courts, by the Imperial Privy Council. The contractors leased the drydock from the company for the building of reinforced concrete caissons, and the dock collapsed and sank under the weight of two of these caissons. The owners sued the contractors for damages in 1915, and there was a counterclaim on the ground that the dock was defective. Judgment was given in favor of the owners for \$80,000, and on an appeal this amount was reduced to \$35,000.

Mainly About Marine People.

Capt. C. W. Baird, Windsor, N.S., has been appointed harbor master there.

Hon. C. C. Ballantyne, Minister of Marine, who, after recovering from an operation at the Royal Victoria Hospital, Montreal, returned to Ottawa, at the beginning of July, for a few days, and left there July 12, for St. Andrews, N.B., to thoroughly recuperate, left St. Andrews Aug. 5, and had to re-enter the hospital in Montreal, Aug. 7, having torn some muscles in his back. It was his intention to visit the Pacific coast, on official business, early in September, but his trip has had to be postponed for some weeks.

J. P. Carey, formerly chief clerk, Furness Withy and Co., Halifax, N.S., has been appointed local manager for that company at St. John's, Nfld. On leaving Halifax he was presented with a travelling bag by the local outside staff, and with a silver tea service and silver cigarette case by the local office staff.

Thomas Hoar, harbor master, Bowmanville, Ont., was struck by lightning and killed Aug. 17, while lighting the lamps at the lighthouse.

Capt. R. McDonald, harbor master, North Sydney, N.S., died suddenly there, Aug. 8, aged 74. He entered marine service in early boyhood, and was a sailing master from 1877. He retired from active sea life about 10 years ago.

T. R. Percy, who has been appointed General Agent, Passenger Department, Canadian Pacific Ocean Services Ltd., Yokohama, Japan, was presented with a travelling bag and suit case, Aug. 1, by his associates in the C.P.R. Passenger Department, Montreal, on his leaving to take up his new duties.

Chas. E. Stephens, of C. Stephens Co. Ltd., wholesale grocers, Collingwood, Ont., who died there Aug. 18, aged 73, was one of the incorporators of the North Shore Navigation Co., which operated steamships on the Upper Lakes until its absorption by the Northern Navigation Co., of which he was a director, and also Secretary, for several years.

Contracts Let for Marine Public Works.

The Dominion Public Works Department has let the following contracts recently:

Kincardine, Ont.—Dredging: Contractors: C. S. Boone Dredging and Construction Co., Toronto. Approximate amount, \$9,576.

St. Michel de Bellechasse, Que.—Wharf repairs. Contractors: J. B. Gallibois, St. Pierre, Montmany County, Que., at \$32,422.56 (unit prices).

Port Hope, Ont.—Repairs to pier.

Contractor: R. Brewer, Cobourg, Ont., at \$11,565.46 (unit prices).

Midland, Ont.—Renewals to Government wharves 1 and 2. Contractor: W. H. McArdle, of Midland, at \$3,291.30 (unit prices).

Quebec, Que., King's wharf—Repairs to Marine storage building. Contractor, L. H. Peters, Ltd., Quebec, at \$9,060.

Thessalon, Ont.—Reconstruction of wharf. Contractor, A. G. Tweedie, Sault Ste. Marie, Ont., at \$9,428.75.

Comox, B. C.—Repairs to wharf. Contractors, Fraser River Pile Driving Co., New Westminster, B. C., at \$17,358.04.

Souris, P. E. I.—Delivery and placing of stone on portions of seaward side of breakwater. Contractors, Phillips & Mutch, Charlottetown, P. E. I., at \$53,750.

Half-Moon Bay, Comox-Atlin, B.C.—Construction of wharf. Contractor: Fraser River Pile Driving Co., New Westminster, B.C., at \$5,775.

Ste. Anne de Beaupre, Que.—Wharf repairs and reconstruction. Contractor: Onesime Poliquin, Portneuf, Que., at \$26,201.50 (unit prices).

Toronto Harbor, Ont.—Eastern entrance—Reconstruction of portion of east pier superstructure. Contractors: C. S. Boone Dredging and Construction Co., Toronto, at \$31,095.70 (unit prices).

Berthier en Bas, Que.—Repairs to wharf. Contractor: Nazaire Letourneau, Montmagny, Que., at \$17,556.80 (unit prices).

Three Rivers, Que.—Dredging in St. Maurice River. Contractors: Simpson Bros. Co., Montreal, approximate amount, \$30,480.

Sidney, Roberts Bay and Saanichton, B.C.—Repairs to wharves. Contractors: McDonald, Watson & Wither, Victoria, B.C., at \$10,948.82 (Sidney \$6,393.50, Roberts Bay \$3,377.24 and Saanichton \$1,178.08).

North Arm of Fraser River, B.C.—Dredging. Contractors: Pacific Construction Co., Vancouver, approximate amount \$152,000.

Canadian Cargo Space Requisitioned, London, Eng., cablegram, Aug. 20 to Montreal Gazette:—The amount of Canadian cargo space at present controlled by the Ministry of Shipping, 70%, will be reduced to 60% in September. This will be a disappointment to the Canadian shipper, who had been hoping for a reduction to 50%. Heavy buying by the British Food Control in Canada is the chief reason for the commandeering of so much space. The Food Control sent a large purchasing staff to Canada some weeks ago, and they are already at work buying supplies in the Dominion.

The Anderson Co. of Canada has sold drifters 45 and 47, owner formerly by the British Government to George Latil, Percheries Modernes, of Cette, France. These vessels were sold at New York and were two of a number which were returning to Halifax, N.S., from Bermuda. They cleared from New York for France, July 31, and arrived safely at their destination.

Morison, Pollexfen and Blair of Canada, Ltd. has been incorporated, with \$50,000 authorized capital, and office at Montreal, to carry on a general brokerage business, and to own and operate steam and other vessels and manage regular steamship services. Morison Pollexfen and Blair have been established in this line of business in Liverpool, Eng., for a great many years.

Demountable Wooden Ships to Be Built in British Columbia

Some particulars of this project were given in Canadian Railway and Marine World for July and August. The following is reproduced from the Victoria B. C. Times: In many respects the demountable ship, designed by John Arbuthnot of Victoria, to deliver lumber to off-shore markets at the minimum cost, resembles the galleon of the fifteenth century. A model of this unique design of lumber carrier has been built here by the promoters and is attracting a great deal of interest. The promoters are going ahead with the construction of several demountable ships and before very long the first craft of this type will be clearing the shores of British Columbia with, or composed of, 5,000,000 ft. of lumber for the United Kingdom. According to the plans of the syndicate each ship will contain anywhere up to 5,000,000 ft. of lumber. The great raft will probably draw about 18 ft. of water, which will give it a freeboard of about 8 ft. on deck. The lumber will be bolted together with iron bolts, hollow space will be left aft for fuel and supplies and for the placing of the crew's quarters.

The engine to supply the power to propel the craft will be bolted down to the deck instead of being in an engine room. Instead of being a direct drive, as in ordinary marine reciprocating engines, the engine will be an indirect drive, the power being transmitted to the propeller by means of geared shafts. A rudder will be mounted, and it is estimated by naval experts that ample power and steerage way is provided for. Lloyd's Registry has given the new craft a rating and a very favorable one. The Lloyd's rate is said to be 15 per cent., which is only slightly greater than the rate charged by Lloyd's for the inload on steamships and A1 sailing craft.

On arrival in the United Kingdom the demountable ship will have its engine removed and shipped back to British Columbia as freight. Everything else on board, including the sails, masts and rigging, and also the collection of iron rods which held the craft together, will find a market at the point of destination or will be sent back for the fitting of other ships.

The demountable ship can be built quickly and dismantled even more quickly. This unique vessel, by reducing transportation costs and automatically solving the tonnage problem, is expected to revolutionize the overseas lumber trade.

Wreck Commissioner's Enquiries and Judgments.

S.S. Chebucto's Damages to Pier.

Held at Halifax, N.S., July 30, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. N. Hall and Jos. Blois as nautical assessors into the causes which led to the Dartmouth Ferry Commission's s.s. Chebucto damaging a pier at Halifax, N.S., June 8, to avoid a collision with a motor boat. The court found that the damage caused to the pier could not have been avoided under the circumstances, being caused directly through the presence of the motor boat in close proximity to the Chebucto, and the entrance to her landing place, and it therefore exonerated the master, Capt. M. Murphy of the Chebucto from all blame. The master

of the motor boat, J. A. Crouse, through his lack of watchfulness, caused the s.s. Chebucto to deviate from her course to avoid a collision, and he was severely reprimanded and cautioned to be more careful in future, and to avoid being a menace to navigation through indifferent lookout.

Grounding of the s.s. Lake Frolona.

Held at Quebec Aug. 19, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapiere and Commander C. J. Stuart, R.N.R., as nautical assessors, into the causes of the grounding of the s.s. Lake Frolona, Aug. 5, near buoy 71Q in the River St. Lawrence, where she suffered serious damage. The court found that the pilot of the s.s. Frolona, N. Arcand, in a momentary delusion as to buoy 71Q, being out of position, was responsible for the casualty, and consequently for the extensive damages done to the vessel. Owing to his long and successful career as a pilot, 39 years, and this being his first accident, and to 26 years of steady service with the Dominion Coal Co. without any untoward incident, and also owing to his straightforward evidence, the court exercised leniency and suspended his license for one month only, from Aug. 19 to Sept. 18, inclusive. The court exonerated the master and officer of the Lake Frolona from all blame for the casualty, both being at their posts at the time.

The United States Shipping Board is reported to have sold 100 steamships built on the Great Lakes during the war, to the Anderson Overseas Corporation, New York, for approximately \$80,000,000. It is stated that the vessels are intended for French and Italian ownership. It was reported recently that authority has been given for the sale, in London, Eng., of 20 wooden steamships at \$300,000 each to a British buyer, who, it is said, has obtained an option for an additional 100 steamships of the same type.

British Government Shipbuilding Orders Cancelled—According to a statement made in the British House of Commons recently, orders have been cancelled for 326 vessels, resulting in a net saving of £42,000,000. When the armistice was signed, 302 warships and 806 auxiliary vessels were on order, and at present 84 warships and 110 auxiliary vessels are being completed, mainly to replace others.

The U.S. Shipping Board, up to Aug. 14, has sold 185 of its steamships, 712,727 d.w. tons, built during the war, for \$127,187,740. The number of steel vessels sold was 122, which realized \$99,645,060, and 63 wooden vessels which brought \$27,546,680.

Commercial Wireless Service Between Canada and Bermuda.

The Naval Service Department established on Aug. 10, a commercial wireless service between the Canadian medium power radiotelegraph station at Barrington Passage, N.S., and the British Government station at Bermuda. These stations were erected during the war for naval purposes, but with the cessation of hostilities are now available for commercial work. The establishment of this service is particularly welcomed by commercial interests as the Halifax-Bermuda cable has been interrupted since June 21.

The total rates charged via the radio-

circuit are the same as those charged by the cable company, viz: from Nova Scotia, New Brunswick, Quebec and Ontario, 36c a word; from Manitoba, Saskatchewan, Alberta and British Columbia, 42c a word.

Communication between the Barrington Passage radiotelegraph station and Halifax is maintained by a private line. Messages for transmission via the radio circuit should be routed via Halifax.

Barrington and Bermuda are only two of a number of radio stations which were built throughout the empire during the war for naval purposes, and which might, with the cessation of hostilities, become available for commercial purposes, and it may be that the inauguration of this service with Bermuda is the forerunner of the establishment of a number of similar services throughout the empire.

Telegraph, Telephone and Cable Matters.

The Commercial Cable Co.'s Manila-Shanghai cable has been repaired, and communication with China and Siberia by that route has been re-established.

W. Clark, cashier, Great North Western Telegraph Co., Calgary, Alta., was arrested there, Aug. 11, on a charge of theft, a shortage of about \$3,000 being alleged.

Wireless telegraph operators engaged on the Great Lakes are reported to have asked for the appointment of a conciliation board to deal with alleged grievances as to discrimination against employes in the matter of seniority.

The Marconi Wireless Telegraph Co. of Canada, Ltd. is applying to the Dominion Parliament for authority to reduce its capital stock from \$5,000,000 to \$3,750,000, by reducing the par value of the outstanding shares from \$5 to \$2.50 each, and by issuing an additional 500,000 shares at \$2.50 each.

W. M. Archibald, who died at Nanaimo, B.C., at the end of July, aged 81, was until about six years ago, agent, C.P.R. Telegraphs there. He is said to have handled the first cable message sent across the Atlantic, which was from Queen Victoria to the then President of the United States.

The Naval Service Department is reported to have a number of vacancies for trained civilian wireless operators. They are wanted mostly for service on the Pacific coast, but there are also vacancies in the wireless stations and direction-finding stations on Nova Scotia coast. A number of returned soldiers who have served in the wireless sections of the army during the war have been accepted for these positions.

The telegraph companies operating in Canada are applying to the Board of Railway Commissioners for authority to increase their tolls. The application points out that the tolls now in force were established Mar. 30, 1916, under general order 163, and suggests that an increase of 25% be granted. It is claimed that the revenue is, at present, totally inadequate to maintain an efficient service, in view of the abnormal increases in the cost of labor and materials, which have increased by about 60% and 85% respectively, in addition to heavy increases in taxes and rentals. Telegraph employes had an application before the Canadian Railway War Board's Board of Adjustment No. 1, for an increase of wages recently, which was partially granted.

For Sale and Classified Advertising

Under this heading Canadian Railway and Marine World will place advertisements for Positions Wanted, positions Vacant, Equipment for Sale, Tenders Wanted, Dividend, Annual Meeting, Legal Notices, etc.

ADVERTISING RATES.

Rates for advertisements set in uniform style in six point under
 Positions Wanted and Positions Vacant, 3c per word.
 Equipment for Sale advertisements, 4c per word.
 Allow five words where replies are to be sent to a box number. Minimum order—\$1.
 Rates under other headings and for display advertisements on application.

CANADIAN PACIFIC RAILWAY COMPANY.

Dividend Notice.

At a meeting of the Board of Directors held today, the following dividends were declared:
 On the Preference Stock, two per cent. for the half-year ended 30th June last;
 On the Common Stock, two and one-half per cent. for the quarter ended 30th June last, being at the rate of seven per cent. per annum from revenue and three per cent. per annum from Special Income Account.
 Both dividends are payable 1st October next, to Shareholders of record at 3 p.m. on 2nd September next.

By order of the Board,
 ERNEST ALEXANDER,
 Secretary.

Montreal, 11th August, 1919.

A Port Arthur, Ont., press dispatch says that the Great Lakes Wireless Association, has been formed among the operators on land and ship stations operated by the Marconi Wireless Telegraph Co. of Canada, under the Naval Service Department. The operators, the majority of whom are being paid \$45 and \$50 a month on ships, and the same with a living allowance of \$25 on land stations, have forwarded a request to the company for \$75 a month, with a \$10 increase yearly, \$30 a month living allowance and \$15 a month living allowance for officers in charge of land stations. Station officers usually obtain house, fuel and light.

In dealing with the City of Montreal's application for an order directing the C.P.R. Telegraphs, and the Great North Western Telegraph Co. to place their wires underground along certain streets, the Chief Railway Commissioner, Board of Railway Commissioners, said on Aug. 13: "I am of the opinion that in all cases where city development has reached such a stage as the streets in question, to render it reasonable and advisable that the improvement should be made and all city wires placed underground, the board should make an order requiring the underground construction to be made and that the cost of this underground construction should be placed upon the company, in cases where it does the necessary work, or, in cases when it is done by the municipality and ducts rented from the municipality, on such terms or rental as may be agreed upon between the parties."

Among the Express Companies.

The Canadian Northern Express Co. has opened an office at Prairie River, Sask.

Mrs. Richard Helme, wife of the Superintendent, Western Division, Dominion Ex. Co., Vancouver, B.C., died there Aug. 13.

The Board of Railway Commissioners passed order 28,627, Aug. 11, approving express classification for Canada No. 4,

Try Us with Your Next Order for Railway and Marine STEEL CASTINGS

Joliette Steel Co., Ltd.
 JOLIETTE,
 MONTREAL, TORONTO

C.R.C., no. E.T. 14, applicable to all express companies subject to the board's jurisdiction.

The Board of Railway Commissioners issued order 28,619, July 31, approving supplement 13, as finally revised and submitted by the Express Association of Canada, for express companies operating in Canada.

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.

Davis-Bournonville Co., Jersey City, N.J., has issued a bulletin describing the Pyrograph, a boiler shop cutting machine, for trimming and beveling boiler sheets to the correct flange height and calking angle in one operation, with the oxy-acetylene torch.

Independent Pneumatic Tool Co., 60 West Jackson Blvd., Chicago, and 334 St. James St., Montreal, has issued bulletin 99, describing and illustrating hose couplings.

Transportation Conventions in 1919

September.—Master Car and Locomotive Painters' Association of the United States and Canada, Chicago, Ill.
 Sept. 16-19.—Traveling Engineers' Association, Chicago, Ill.
 Sept. 16-18.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.
 Oct. 6-10.—American Electric Railway Association, Atlantic City, N.J.

Rails, Cars, Locomotives and Contractors' Equipment

IMMEDIATE
SHIPMENT

John J. Gartshore
 58 Front Street West
 TORONTO

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.