

Canadian Railway and Marine World

GENERAL INDEX FOR 1920

ACTON BURROWS, PROPRIETOR
70 BOND STREET, TORONTO, CANADA

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Canadian Railway and Marine World

January, 1920

The 58th Broad Gauge Operating Company (Canadians), Organization and Work Overseas.

By Captain A. H. Kendall, M.C., Officer Commanding the Company.

In July, 1916, a request was received by the Dominion Government from the British Colonial Secretary to recruit for service in France, a detachment of skilled railway operating troops. On Oct. 20, 1916, the Minister of Militia recommended that a section of these troops, to be known as No. 1 Section Skilled Railway Employes, be organized, consisting of three officers, and 266 other ranks. The recommendation was approved by the Privy Council on Oct. 31, 1916. In December, 1916, the Canadian Pacific management was asked by the Militia Department to recommend a commanding officer, and on Dec. 28, 1916, A. H. Kendall, Master Mechanic, Ontario District, C.P.R., Toronto, was appointed with the rank of captain. On Jan. 3, 1917, recruiting offices were opened at various places between Winnipeg and Halifax. The unit was mobilized at Guy St. Barracks, Montreal, and was over strength early in February.

On Feb. 27, 1917, the order was received to prepare to leave for overseas, and the unit left Bonaventure station, Montreal, Mar. 1, 1917, but on account of the severe winter weather prevailing at the time, did not arrive at Halifax until Mar. 4. The unit embarked the same day on the s.s. Ausonia, and after one of the roughest trips on record, arrived at Liverpool on Mar. 15. After disembarking the unit entrained immediately for Bordon Camp in Hampshire, the principal British Railway Troops' depot, and arrived there about midnight. The following day, Mar. 16, the unit entrained for Aldershot, Hampshire, where it was attached to the Royal Engineers, and quartered in Talavera barracks. During its stay at Aldershot the unit received a short military training. Shortly after arrival, notice was received that the unit had been renamed, and would thenceforth be known as No. 12 Canadian Light Railway Operating Company, but when the authorities were further informed as to the class of men composing the unit it was again changed to the 58th Broad Gauge Operating Company (Canadians).

On Apr. 16, 1917, the company was reviewed by the G.O.C. Aldershot Command, and the Officer Commanding Royal Engineers. The next day the company entrained for Southampton, and embarked on the s.s. Archimedes which left at dusk for Le Havre, France. On account of loose mines in the channel, and enemy submarine activities, the Archimedes was ordered back, and dropped anchor opposite Netley Hospital until the following evening. The company arrived at Le Havre on the morning of April 19, where it remained at No. 5 Rest Camp until April 22, and then entrained for Audruicq, the base depot of the Railway Operating Division, R.E.

While at Audruicq some of the n.c.o.'s and men were employed in the shops on locomotive repairs. Others were sent to Le Havre to assemble, and bring up, lo-

comotives. The running men made trips over the line, and were instructed in the rules for operating over the Nord Ry. of France, and British military lines. About the end of May, 1917, a 12 in gun on railway mountings, weighing 185 tons, was derailed at Audruicq, and after it had been off the rails for 50 hours, causing much inconvenience and delay to traffic, the 58th B.G.O.C. was ordered to re-rail it which was accomplished successfully in 4½ hours. Headquarters then decided that the company would remain intact, and work as a unit. Early in June, 1917, the unit, with R.E. reinforcements, proceeded to Merris, a newly constructed British railway depot, about 300 yards west of Strazeele (Nord) station,



Captain A. H. Kendall, M.C.

with 15 locomotives, 3 Merryweather pumps, an emergency stores, a tool van, and a small supply of coal. As the preparations for the Messines offensive were under way at the time, the unit was well initiated into railway operation under active service conditions from the first day. In the Merris area the unit gradually assumed control of and operated the double track lines from Hazebrouck to Armentieres, and from Hazebrouck to Berguette and the single track lines from Berguette to Estaires, Laventie and Armentieres; Hazebrouck to Merville; Berguette to Aire; Aire to Estres, Blanche, Bailleul to Wulverghem, Messines and Ploegstraat Road; Clapham Junction to Brulooze (Kemmel); Steenwerck to Neuve Eglise, and Steenwerck

to Petit Pont and Romarin.

The main locomotive depot was established at Merris with subdepots at Bailleul, Steenwerck and Berguette. At Merris the number of locomotives in charge increased from 15 to 40 of various types and makes, ranging from the type 25 (0-6-0) Belgian, with no brakes on the locomotive, and hand brakes and wooden brake shoes on the tender, to the 2-8-0 Baldwins. Amongst them were locomotives from the different railways in Great Britain, a few Belgians, Baldwins and Canadians. On account of having so many different makes, it was found difficult at times to secure the required spare parts, which were ordered from the transportation stores depot.

When Merris depot was opened, there were, of course, no facilities whatever for maintaining locomotives. There were no cinder or washout pits and no shelter for locomotives, which had to be repaired in the open in all kinds of weather. Until proper water facilities could be provided, a supply was maintained by means of Merryweather pumps, and a length or two of suction hose to the nearest ditch. Coal was ordered from headquarters, and received in train load lots from Dunkirk and Dieppe. On account of the urgent demand for equipment, coal trains were unloaded as soon as possible after arrival, on to the ground. In coaling a locomotive the coal had to be handled on to a ramp, and again to the locomotive tender. Coal trains were unloaded mostly by Chinese coolies or German prisoners. Locomotives were also cleaned and coaled by this class of labor when available. Locomotives were washed out every 10 days, on account of the bad water. When not undergoing boiler repairs or being washed out, they were kept constantly under steam, and ready for use on short notice. When possible locomotives were double crewed, but when traffic was very heavy and men were scarce, it was necessary to pool them all.

When Merris depot was finally developed, it consisted of a two track locomotive shed, about 150 x 50 ft. with repair pits the full length. The sand dryer was combined with the incinerator. A concrete washout pit was built, also a locomotive store and locomotive dispatching office. A corrugated iron machine shop about 100 x 50 ft was put up and we were able to get the following machinery,—a 50 h.p. steam engine and boiler, 20 k.w.t. electric generator, 3 engine lathes, planer, milling machine, 2 drilling machines, tool grinder, and a 500 cu. ft. capacity air compressor. We also accumulated a reserve coal dump of 3,000 tons.

Merris exchange yard consisted of 16 tracks about 1,400 ft. long. The main control (dispatching) office, connected by telephone with all stations, was also located here. As the traffic to the Merris area was for Second Army, and traf-

fic for the Berguette area was for the First Army, it was necessary to keep in close touch with the headquarters of both armies. As the railway lines in the lines of communication area were controlled by the Nord Ry. Co. of France, it was also necessary to keep in close touch with that company. As the various railways lines were ready for taking over by the unit from the Nord Ry., or the Army Railway Construction Engineer, the necessary station accommodation was provided as far as possible. The "station" was a 6 x 10 ft., corrugated iron or wooden hut, an old ruined building, or on forward lines a dugout. Telephones were installed, station and yard staffs placed, and the lines officially handed over at an agreed time.

When a train left the dispatching station (Boulogne for example), Merris exchange station was advised the number, and consist. Passing reports were also received from reporting stations on Nord lines. On arrival of train at Merris, the dispatching station locomotive was taken off, sent to the shop and made ready for the return trip; the crew was given rest, a hot meal and 24 hours rations. In the meantime the train was marshalled in the exchange yard, our own locomotive and crew put on and taken to destined railhead. To overcome the absence of air brakes, trains had to be made up with a brake van on each end, and sufficient cars with hand brakes properly placed to provide the necessary braking power. A small white light was placed on the front of the locomotive, and one red light on the rear of the train. The train crew consisted of a conductor and a brakeman. The conductor rode in the head end brake van, and the brakeman in the rear van. At times it was only possible to provide one man who acted as conductor, but rode in the rear van. The locomotive man, not the conductor, received all train orders from the station agent, and was primarily responsible for the train.

On Nord Ry. lines trains were handled on the automatic block system, and on Railway Operating Division lines on the station block system. The R.O.D. lines were divided into sections, and at each station hand, or at night, when possible, lamp signals were given to locomotive men in accordance with the prescribed rules, but no locomotive man was permitted to proceed into a section until he was furnished with a train order, printed in French and English, indicating either that the section was clear, or that the preceding train had left not less than 10 minutes previously. In the event of a section being occupied, it was necessary for the locomotive man to proceed at "caution," and also sign the train order, and give his copy up at the end of the section to which it referred. It was permissible to run all trains at "caution," with the exception of ambulance trains, which were handled on the absolute station block.

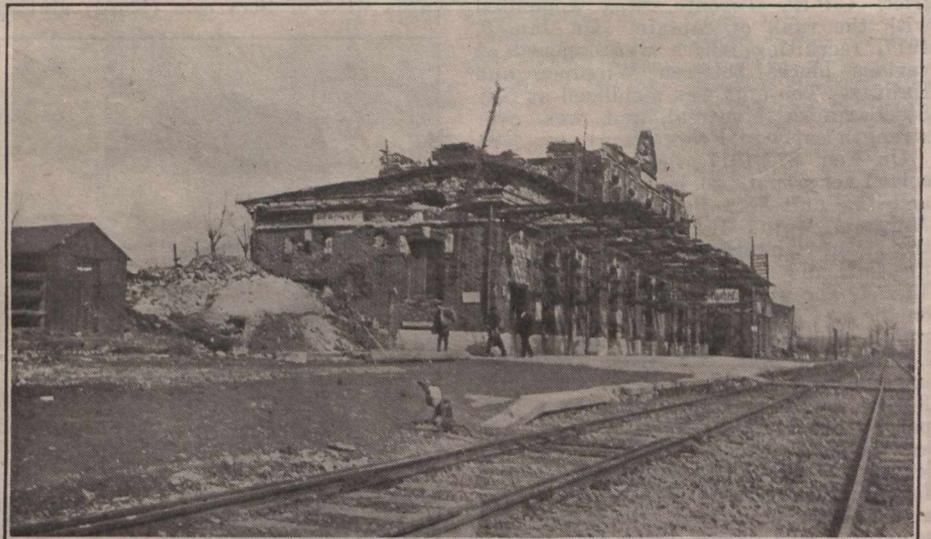
When railhead areas were being bombed or shelled by the enemy, especially at night, it was necessary for locomotive and train crews to be particularly on the alert, as the track and telephone lines were frequently blown up. Night operation was more difficult also on account of the almost total absence of lights in yards, etc. Locomotive men were often required to take a train over a new and unfamiliar line, without a pilot, at night, on which they would discover very heavy grades, and on descending

would whistle for brakes, and trust to luck to find their train still on the rails at the bottom. As it was not always possible to obtain pilots, men had often to learn the road themselves on their first trip.

The unit soon discovered that railway lines and yards were at least one of the main objects of attack by hostile aircraft and batteries. On one occasion bombs were dropped on some ammunition sidings near Bailleul, where two trains of 88 cars, including the ammunition contained therein, were completely destroyed.

In addition to operating and controlling the lines before mentioned the unit also operated supply and ambulance trains for the area to and from the base ports, Calais and Boulogne. Troop trains were also often handled to and from reinforcement camps to railheads, and vice versa. Other traffic was brought to Merris and Berguette exchange yards by R.O.D. locomotives of other detachments, or Nord Ry. locomotives, which would be turned back with loads or empties. Foreign locomotives or crews were only allowed forward of exchange stations in cases of absolute necessity. In addition to handling regular traffic the unit was

to be seriously interfered with. At about 7 a.m. the track was cut as far back as St. Venant, and telephone lines forward of that station were put out of commission. These lines were destroyed repeatedly, and repaired as often as possible. Communication was finally maintained by means of gasoline track motor cars. At noon the two locomotives supplied the 366th Battery at La Gorgue, hauled the guns to Lestrum, after five shell breaks had been repaired on the way and the guns went into action immediately. In the meantime numerous trains of material and French refugees were evacuated, and trains of troops, ammunition, and ordnance brought up. At 2 p.m. our patrols reported that the enemy had crossed the line at Laventie, and was advancing rapidly on La Gorgue. The continuous shell and machine gun fire soon rendered this section of the line of little use for traffic working. Rolling stock and personnel were ordered withdrawn to Lestrum. Shortly after this move the infantry took up positions on the line of the Lawe River at Lestrum station, and the rolling stock and personnel were further withdrawn to Merville. At this time the number of casualties along the line was



Peronne Station, in France, in which the 58th Broad Gauge Operating Co. (Canadians) Main Control Office was located, on Sept. 30, 1918, when 128 trains were handled in 24 hours.

required to supply locomotives for construction companies working in the area, also for gun movements. On the lines mentioned there were as many as 8 guns on railway mountings, ranging in calibre from 9.2 to 12 in. Ammunition was hauled up to them at night, and when they went into action a locomotive was required to stand by ready for use at a moment's notice. During the week ended April 4, 1918, the following loaded cars were handled by the unit. Troops and remounts, 2,318; supplies, ordnance, ammunition and general traffic, 5,072; construction material, 29; ambulance, 254; French and Belgian civil traffic, 613; a total of 8,286 loaded cars. About 50% of those returned to base were hauled back empty.

Commencing about April 9, 1918, about 4 a.m., the area in which the unit was operating was subjected to enemy shelling and bombing to an unusual degree. The railway and telephone lines were blown up continually, and some of the stations, as well as the control office at Merville, met a similar fate. The handling of traffic on the Berguette-Estaires-Armentieres line was the first

continually increasing, and as it was not advisable to run heavy ambulance trains past St. Venant, a train of flat cars was made up and sent forward as far as possible, and picked up wounded on the way back to Berguette depot, where a field dressing station was hurriedly established.

In the Bailluel area, Armentieres had by this time been captured by the enemy, and he was rapidly advancing towards Steenwerck, and pouring shells into that area. Trent ammunition depot was heavily shelled, and several hangars destroyed. While getting a train out of this dump, locomotive 721 was derailed three times, and had to pass over a damaged switch. The detachment living train at Bailleul was hit, resulting in several casualties. All rolling stock and guns were successfully evacuated from this area. The work of bringing up troops, supplies, ammunition, etc., and evacuating refugees, casualty clearing stations, R. E. parks, etc., continued with increasing vigor in the whole area until April 12, 1918, at noon, when 2nd Army Headquarters ordered the unit to evacuate at once all lines operated in that

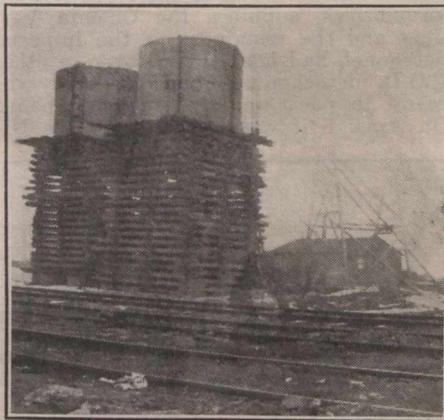
army area. At this time the Merris depot was being subjected to a bombardment of shrapnel, high explosive and gas shells, and the track had been destroyed up to that point. The last train to leave was loaded with personnel of the unit. It was followed up immediately by an R.E. demolition party which destroyed the track and bridges west to Carlyle Junction. In less than an hour after the unit left, the enemy had passed through Merris depot, but was driven back later and the east leg of the Y formed a section of the British front line for the next few weeks.

By this time the units' living quarters at Berguette had been turned over to the Army Medical Corps for use as a field dressing station, and the railway lines and bridges had been destroyed up as far as St. Venant. On April 13, 1918, 1st Army Headquarters ordered the Berguette detachment to evacuate, and it moved only a couple of miles away to Isbergues. From this point locomotives were supplied to three siege batteries, and the steel plant at Berguette, light railway depot at La Laque, inland water transport depot at Aire, and the ammunition dump at Robeque were evacuated. Robeque dump was only 1,093 yards from the front line, and the unit was asked by Army Headquarters if we could evacuate it. A reply was given immediately in the affirmative, but there was some hesitation on the part of the army in ordering the work to be done, as there was some doubt on their part as to the advisability of having a locomotive handling traffic so near the line. The order was given, however, and the work was successfully accomplished. Over 200 cars of ammunition were taken out at night.

Ammunition, troop, supply trains, etc., were being worked continuously from base ports to Berguette, and forwarded to Bethune, Lillers, and other points along the main line, which was now continuously under shell fire. The Berguette detachment remained in the vicinity of Isbergues until June 5 1918, when the work being done by them was turned over to the Ballastiere detachment. After the evacuation of Merris, the personnel from that area was employed at Audruicq. The running men were used

handling ballast trains construction troops, etc., and when the line was near completion a small number of leave, ambulance, ammunition trains etc., were handled. We also had fifteen 2-8-0 type Baldwin locomotives handling main traffic out of Abbeville.

On Aug. 8, 1918 His Majesty King George, desiring to see Canadian construction and operating troops at work, honored the line with a visit, and the unit made up and handled a special train for his accommodation from Conchil to Legiscourt. On Aug. 27 the unit turned over the operation of these lines to the 59th Broad Gauge Operating Company (Australians), and on the following day the unit proceeded to Chemin Vert British railway depot (Wiencourt Nord sta-



Two 20,000 gall. capacity water tanks at Omiecourt, used by 58th Broad Gauge Operating Co. (Canadians). The water was pumped from 5 artesian wells bored to a depth of about 850 ft.

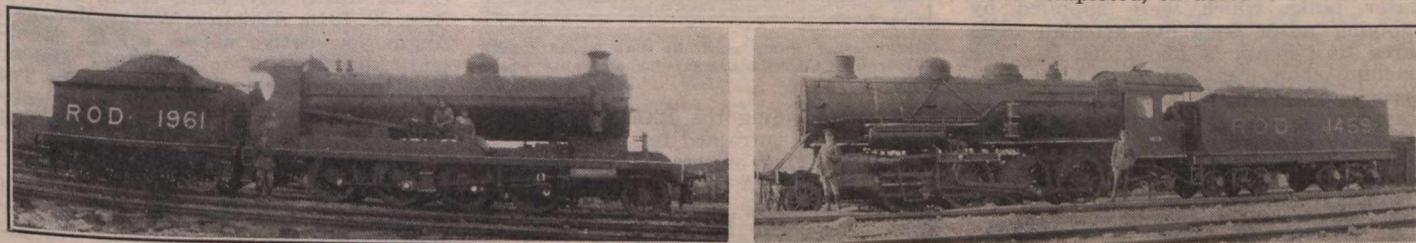
tion) on the Amiens-St. Quentin main line, and was there attached to the Fourth Army.

The lines taken over in this area, as fast as they were built, extended to Bray-Wormwood Scrubs - Peronne; Plateau-Trones Wood-Epehy; Peronne-Quinconce-Etricourt. These lines were single track, and notwithstanding the fact that they were constructed rapidly with the quickest available material, they were required to stand up under a tremendous volume of traffic. Numerous derailments

the usual gun movements, and locomotives supplied construction companies, the unit handled the following loaded cars.—Troops and remounts, 1,127; supplies, tanks ordnance, and general traffic, 3,894; construction material, 56; ambulance, 613; a total of 5,690 loaded cars.

As the armies advanced, and new lines were rapidly taken over, it was necessary to anticipate requirements in the way of additional personnel, locomotives, locomotive supplies, coal, etc. Arrangements were made in conjunction with the R.C.E., and the R.T.C. for water supplies, yard facilities and telephone lines. The traffic department at G.H.Q. was wired the furthest points to which traffic was worked daily, and the routing of traffic for the armies was arranged accordingly.

Early in September, 1918, a detachment was sent to Chaulnes, to commence operating the double track line to Peronne. On Sept. 18, a control office was established at Peronne. Trains were run up this line to Marchepot, Sept. 3; Peronne, Sept. 12; Tincourt, Sept. 14, and Roisel, Sept. 16. On the night of Sept. 20, a heavy tank movement of 36 trains for Tincourt commenced. Although the enemy shelled the track, and broke the main line at Tincourt, the movement was completed successfully. On Sept. 21 a locomotive depot was established at Peronne. On Sept. 24, Peronne yard was in working order, but there was no switching lead. At that time 60 trains were being handled daily on that line, and traffic was steadily increasing. On Sept 26, one 14 in. and one 12 in. gun, on railway mountings, were handled to Roisel, where they went into action immediately. Two locomotives stood by to make the necessary moves. On this date men were placed on the Etricourt lines to handle traffic from the Bapaume-Achiet le Grand direction. On Sept. 28, the double track was complete, and in operation as far as Roisel, and ambulance trains commenced to load at Tincourt. On Sept. 30, Peronne locomotive depot and yard were in full working order. On that date 128 trains were handled in both directions, which was the high water mark reached by the unit in handling traffic. Although Peronne had been completed, on account of the inade-



Locomotives used by 58th Broad Gauge Operating Co. (Canadians).

R.O.D. 1961 is a 2-8-0 type Great Central Ry. locomotive, used in handling ambulance trains and through traffic. R.O.D. 1459 is a 2-8-0 type Baldwin locomotive, used in through traffic.

in train and locomotive service out of that depot to forward areas, and various other places, such as Dunkirk, Rouen and Boulogne.

At this time although the majority of all the comparatively old established lines controlled by the British army had been captured by the enemy, new lines were constructed rapidly, and on June 5, 1918, the whole unit was ordered to proceed to Conchil-le-Temple, to operate for Canadian and R.E. construction companies, building the new double track line from Etaples to Conchil, and the new single track line from Conchil to Candas. This work consisted mostly of

were unavoidable, but the prompt and effective measures taken by the various construction units to repair the breaks assisted materially in reducing delays to a minimum. As no water was obtainable at Chemin Vert when that depot was taken over, two water tank trains, made up of 21 water tank cars each, were supplied. As one of these trains was made empty it was taken to Longeau, near Amiens, and refilled. A supply was later pumped from the Somme River, five miles away. Water was secured on the line by means of Merryweather pumps at various places. During the week ended Sept. 19, 1918, in addition to

quate facilities, arrangements were made for the construction of an up to date exchange yard, and locomotive depot at Omiecourt, near Chaulnes.

From Roisel, the line through Templeaux to Bellicourt, and the line through Vermand to St. Quentin were taken over, also the line through Epehy, Gouzeaucourt and Marcoing to Cambrai. A locomotive depot, and sub-control were established at Marcoing, which was also an important junction with the line from Bapaume. When the line to Cambrai was workable, the control was moved from Marcoing, and established in the Gare du Nord at Cambrai. The loco-

motive depot was also transferred to Cambrai at a later date. From Cambrai the following lines were taken over and operated, — Cambrai - Caudry - Busigny; Wassigny - Le Cateau - Maubeuge; Aulnoye - Les Quesnoy - Valenciennes; Cambrai-Somain-Valenciennes; Denain-Anzin; Cambrai-Solesmes-Le Quesnoy. The line from Cambrai to Douai was also assigned to the unit, but it was not found necessary to use it. On the lines from Chaules, through Cambrai, to Bouchain, and the line from Cambrai to Caudry, much inconvenience and delay to traffic was caused by the explosion of delay action mines. Taking into account, however, the large number of mines placed, the unit was fortunate in only having had three locomotives damaged through delay action mine explosions. During the week ended Oct. 3, 1918, the unit handled the following loaded cars: Troops and remounts, 2,490; supplies, ordnance, ammunition and general traffic, 9,921; construction material, 884; ambulance, 1,605; a total of 14,900 loaded cars.

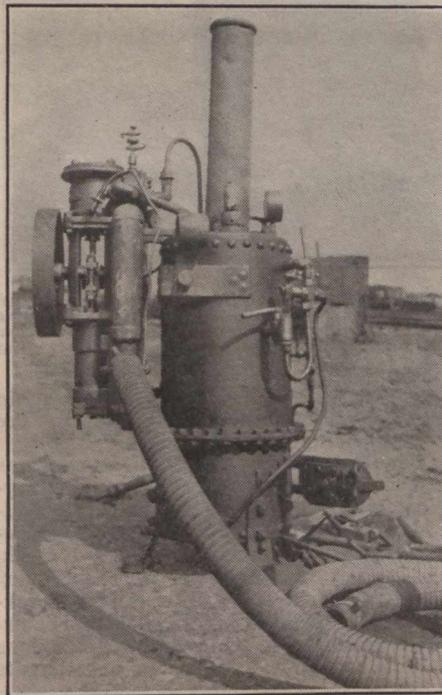
On Nov. 11, 1918, several ammunition trains were ordered back to the base, and no more came up. After the last big evacuation of casualty clearing stations, ambulance trains were used for French civilian prisoners of war, many of whom returned in a very weakened condition. These trains were also used as soon as possible to transport French and British prisoners of war who were not able to travel on troop trains. As soon as the French and Belgian lines were connected the unit had fifteen 2-8-0 Baldwin locomotives double crewed working in traffic service between Cambrai and Germany. The unit operated the first troop train into Duren, Germany, over the Valenciennes-Mons-Liege line.

On Nov. 28, 1918, the new exchange yard and locomotive depot at Omiecourt were completed. On the following day the Peronne detachment, and most of the shop staff from Chemin Vert, were transferred to Omiecourt. The facilities at Omiecourt consisted of an incoming and an outgoing yard, with 12 tracks about 1,800 ft. long in each, also a locomotive depot, 500 ton capacity coal ramp, locomotive stores, a 250,000 gall. capacity concrete reserve water reservoir, and two 20,000 gall. capacity water tanks which were supplied by pumping water from five artesian wells bored to a depth of about 850 ft. The machine shop was fitted up in large French steel brake vans, which were transferred easily from one depot to another when required. The power for running the machines was supplied by a gasoline engine and a 20 kw. electric generator.

As the mileage operated increased, the organization of the unit was enlarged to meet the changing conditions. The unit's headquarters was made mobile, and accommodated in a train of German box cars, and British brake vans. The lines were divided into three sections, with headquarters at Chemin Vert, Omiecourt and Cambrai. The officer in charge at Chemin Vert operated and controlled the lines out of that point, to Marcoing, Epehy and Peronne, all exclusive. The Omiecourt detachment controlled the lines from Chaules to St. Quentin and Marcoing, exclusive. Cambrai controlled lines from Marcoing to Valenciennes, and easterly. At the time of the armistice, the unit operated and controlled all forward broad gauge lines for the Third and Fourth British Armies, and one line for the First Army. The unit's strength was 16 officers, and 1,567 other ranks.

The unit had on charge 101 locomotives, and the motor transport consisted of 12 vehicles. In addition to handling, as before mentioned, a special train for the King, special trains were also handled for the accommodation of Marshal Foch, Field Marshal Sir Douglas Haig and General Pershing, as well as for General Sir Herbert Plumer, Commander of the 2nd Army, General Sir H. S. Rawlinson, Commander of the Fourth Army, and General Sir Julian Byng, Commander of the Third Army.

By Jan. 1, 1919, a start had been made to demobilize the Imperial troops attached to the unit, and to turn over lines to the Nord Ry. By April 1, the unit had turned over the operation of all lines, except the British military lines out of Chemin Vert, to the Nord Ry. All locomotives, supplies, the Chemin Vert lines and the remainder of the Imperial personnel, had been turned over to other R.O.D. detachments, and the unit was ready to pack up and start for home. On April 5 it was reviewed by the Of-



Merryweather Pump used, by 58th Broad Gauge Operating Co. (Canadians) for obtaining water supply.

ficer Commanding the R.O.D., R.E., and on April 8 it entrained for the base.

The following officers served with the unit,—Captain A. H. Kendall, Master Mechanic, C.P.R., Toronto; Lieut. S. H. Ryan, Assistant Superintendent, T. & N.O.R., North Bay, Ont., and Lieut. A. S. Parkes, Locomotive Department, Angus shops, C.P.R., Montreal. The following officers of the Imperial forces were attached for duty,—Capt. L. L. French, South African Rys., Pretoria; Capt. J. R. Anker, London & South Western Ry. of England; Capt. R. Hapson, Indian State Rys.; Lieut. R. L. Wheeler, station agent, C.P.R.; Lieut. E. D. Gerard, Mechanical Engineer, Angus shops, C.P.R., Montreal; Lieut. E. M. Jackson, Mechanical Engineer, Midland Ry., England; Lieut. T. F. Jackson, Traffic Controller, Midland Railway, England; Lieut. H. A. S. Espley, London & N.W.R., England; Lieut. P. J. Stebbings, South Eastern & Chatham Ry., England; Lieut. J. E. Potter, Midland Ry., England; Lieut. H. Duff, Caledonian Ry., Glasgow, Scotland; Lieut. J. A. Stanley,

Yardmaster, C.P.R., Montreal; Lieut. L. Dade, Great Central Ry., England.

The honors conferred on members of the unit were, M.C., 2; D.C.M., 2; M.M., 7; M.S.M., 4; mention in dispatches, 2. In addition to the above, 15 n.c.o.'s and men received D.G.T. certificates in recognition of acts of gallantry.

On April 2, 1919, the Director General Transportation sent the following letter: "Captain Kendall, officers, n.c.o.'s and men of the 58th Broad Gauge Operating Co. (Canadians).

"In bidding you farewell on the occasion of your return to Canada, it is with a feeling of pride and gratitude that I recall the services that your company have rendered me in assuring the rail transportation for the allied armies in the field. The important preparations for the Messines offensive in 1917 were largely carried out by you, and were attended with every success. Also, what was perhaps more difficult and yet more praiseworthy, the evacuation of the area round Bailleul and Armentieres, retaken by the Germans during the spring of 1918, was satisfactorily effected by you under strenuous and trying conditions. To me these were periods of the most vital importance, and my reliance on you was admirably justified by your fine performances. I take this opportunity of thanking you for your continuous good work since your arrival in this country in April, 1917, until now, to wish you success and a happy return to your peace vocations at home. You take back with you a record of which you have every reason to be proud.

"S. D. L. Crookshank, Major General, Director General Transportation."

Editor's Note—Capt. Albert H. Kendall, M.C., was born at Aspatria, Cumberland, Eng., April 4, 1878, and entered railway service in June, 1901, since when he has been, to Jan., 1904, locomotive foreman, C.P.R., Nakusp and Revelstoke, B.C.; Jan. to Nov., 1904, locomotive foreman, G.T.R., London, Ont.; Nov., 1906 to July, 1913, gang foreman, erecting shop foreman, and general foreman, successively, Angus shops, C.P.R., Montreal; July to Dec., 1913, locomotive inspector, C.P.R., Kingston, Ont.; Dec., 1913 to April, 1915, general foreman, C.P.R., North Bay, Ont.; April, 1915, to Aug. 28, 1916, Assistant Works Manager, Angus locomotive shops, C.P.R., Montreal; Aug. 28, 1916 to Jan., 1917, Master Mechanic, Ontario District, C.P.R., Toronto. In Jan., 1917, he entered military service as Captain, no. 1 section, Skilled Railway Employee, and was later transferred to the 58th Broad Gauge Operating Co., B.E.F., in France. He was awarded the Military Cross, in the latter part of 1918, for superintending evacuation under heavy fire, and keeping lines running until the last moment. On his return to Canada and demobilization in Sept., 1919, he was appointed Master Mechanic, Quebec District, C.P.R., Montreal.

British Locomotive Building—Armstrong Whitworth & Co.'s Scotswood Works, Newcastle on Tyne, England, which up to the close of the war were manufacturing shells, cartridge cases, fuses, etc., have been converted into locomotive works, with a capacity of between 300 and 400 locomotives a year, the erecting shop being capable of accommodating 50 locomotives, without tenders, at one time. The first locomotive was finished Nov. 13, being on an order of 50 from the North Eastern Ry.

Free and Reduced Railway Passenger Transportation.

The Canadian Railway War Board made the following application to the Board of Railway Commissioners on Oct. 16, 1919:—"Section 345 of the Railway Act, 1919, after enumerating certain classes of persons to whom railway companies may issue free transportation or transportation at reduced rates, provides that such transportation may in addition be given to such other persons as the board may approve or permit." After very careful consideration of the subject, it appears to the Canadian Railway War Board that it is necessary and proper that in addition to the classes of persons specifically enumerated in the Railway Act, the companies should be permitted to issue free transportation to the following classes:

"(a) Immigration Department of Dominion of Canada: For such representatives of the department as may be required by the Minister or Deputy Minister.

"(b) Immigration and Customs Departments of the United States: For such representatives of the departments as may be required by the Commissioner or Deputy Commissioner of Immigration or Collector or Deputy Collector of Customs in charge of the district.

"(c) Fire rangers within their respective districts, employed or authorized by provincial governments.

"(d) Families of former and deceased employes of railways.

"(e) Former employes of transportation companies and their families.

"(f) Deputy ministers of the Federal Government departments.

"The Canadian Railway War Board, therefore, on behalf of the railways under the board's jurisdiction, respectfully requests that the Board of Railway Commissioners should, under its powers, permit the railway companies to issue free transportation to the classes of persons above named."

Chief Commissioner's Judgment—Chief Commissioner Carvell gave the following judgment, Nov. 12:—"After having considered sec. 345 of the Railway Act, 1919, very carefully, I have come to the conclusion that the whole purport of the section was to give to the railway companies, within certain limits, the right to carry traffic at free or reduced rates; and to such classes of persons and, in some cases, individuals, as the companies may decide upon, subject in certain cases to the approval and permission of this board. The whole section is preceded by the following words: "Nothing in this act shall be construed to prevent." It then refers to five specific classes of persons, and a careful examination shows that there is no great change between the present act and its predecessor, excepting that in subclauses (a) and (c) a limitation is placed upon the power of the railway companies, and in subclauses (d) and (e) an extension is provided for.

Under clause (a) the most which the railway companies can do towards reduced fares for ministers of religion, etc., is to carry them at one-half the regular fare, and under clause (c) the most they can do for members of the provincial legislatures is to carry them free within points in the province to which they belong. It is not clear whether members of the press can be carried free beyond the province in which they reside, but, as there is no comma after the word "legislatures," and nothing to designate

a difference in the two classes, I am rather inclined to the opinion that the limiting words "between points within the province" apply to the latter as well as to the former. Clause (c) also extends the privilege to dependent members of the families of any persons who are entitled to free transportation under sec. 346 of this act, and clauses (d) and (e) also extend the right to employes of the Railways and Canals Department and to the Governor General and staff, etc.

This narrows the question down to the interpretation of the last line of clause (c), viz.: "or to such other persons as the board may approve or permit," and to the proviso immediately following subsection ((e), both of which are to be found in the previous act. These words evidently mean something, and it is my opinion that a railway company may decide to grant the privilege of free or reduced transportation to any person, or class of persons, subject always to the approval or permission of the board, and also subject to the proviso herein referred to, which, in my opinion, is a regulating power rather than an enacting one.

To apply this opinion specifically to the request made by the Canadian Railway War Board on Oct. 16, 1919, it would seem to me that the railways would have a right, subject to our approval or permission, to grant free or reduced transportation to those parties mentioned in clauses (b), (d), and (e) as well as to all others. Thus, if the railway companies decide to grant free transportation to United States immigration and customs officials, to the families of former and deceased employes of the railways, and the families of former employes of transportation companies, then, if this board approves or permits, they will be within the law in granting such transportation.

I am not so clear as to the real intention of parliament with reference to the proviso hereinbefore referred to, because, taken in its general sense, we are given the right to extend, restrict, limit, or qualify the carriage of traffic by the companies as provided under this section, but I have come to the conclusion that this is only meant as a regulating clause, and our powers are restricted to extending, restricting, limiting, or qualifying what the companies may propose to do, and, therefore gives us no originating jurisdiction; but when the railway companies come to us, asking that certain persons or classes of persons be given the privilege of free transportation, we would have the right to extend, restrict, limit, or qualify the same. If I am right in my general interpretation of the clause, then I think we have the power either to approve or disapprove of all the requests made by the Canadian Railway War Board in its letter of Oct 16, and, as they seem to me to be proper requests, I am in favor of approving the same and permitting the issuing of transportation as requested.

The Board's Order—The board passed general order 274, Nov. 20, 1919, as follows:—"Re application of the Canadian Railway War Board, on behalf of railway companies subject to the board's jurisdiction for free transportation under sec. 345 of the Railway Act, 1919. Upon reading the application dated Oct. 16, 1919, and considering what has been urged in support thereof, it is ordered

that railway companies of Canada subject to the board's jurisdiction, be permitted, until further order, to carry free of charge the following persons, viz.: (a) Department of Immigration of Dominion of Canada: For such representatives of the department as may be required by the Minister or Deputy Minister.

(b) Departments of Immigration and Customs of the United States: For such representatives of the departments as may be required by the Commissioner or Deputy Commissioner of Immigration or Collector or Deputy Collector of Customs in charge of the district.

(c) Fire rangers within their respective districts, employed or authorized by provincial governments.

(d) Families of former and deceased employes of railways.

(e) Former employes of transportation companies and their families.

(f) Deputy ministers of departments of the Federal Government, and those having the rank of deputy ministers.

The Railway Act's Provisions—The Railway Act, 1919, provides in secs. 345, 346 and 347 as follows:

345. (1) Nothing in this act shall be construed to prevent: (a) the carriage, storage or handling of traffic, free or at reduced rates, for the Dominion, or for any provincial or municipal government, or for charitable purposes, or to or from fairs and expositions for exhibition thereat, or the carriage, free or at reduced rates, of destitute or homeless persons, transported by charitable societies, and the necessary agencies employed in such transportation, or the carriage at one-half the regular single fare of ministers of religion or persons exclusively engaged in charitable, religious, or eleemosynary work;

(b) The issuing of mileage, excursion or commutation passenger tickets, or the carriage at reduced rates, of immigrants or settlers and their goods or effects, or any member of any organized association of commercial travellers with his baggage;

(c) Railways from giving free carriage or reduced rates to their own directors, officers, agents and employes, or their families, or to former employes of any railway, or for their goods and effects, or between points within the province to members of the provincial legislatures or to members of the press, or to members of the Interstate Commerce Commission of the United States and the officers and staff of such commission, and for their baggage and equipment, or to dependent members of the families of any persons who are entitled to free transportation under section 346 of this act, and for their baggage, or to such other persons as the board may approve or permit; or,

(d) Railways or transportation companies from exchanging passes or free tickets with other railways or transportation companies for their officers, agents and employes and their families, goods and effects, or from issuing passes or free tickets to officers and employes of the Department of Railways and Canals, or their families, and their goods and effects, or a similar interchange of passes, or franks with or by telegraph, telephone and cable companies;

(e) Railways from giving free car-

riage to the Governor General, and staff, and families, and baggage and equipment,

Provided that the carriage of traffic by the company under this section may, in any particular case, or by general regulation, be extended, restricted, limited or qualified by the board, and the board, in or by any order or by general regulation, may prescribe the forms to be issued or used by the company for the carriage of traffic at free or reduced rates under this act, and the terms and conditions applicable thereto, and the records to be kept by the company of all such traffic carried and of all passes, free and reduced rate transportation issued or given by the company, and shall require the making of periodical returns duly verified by affidavit to the board in respect thereof; and it shall be the duty of the board to examine such return with a view to seeing that the law has been observed.

(2) Whenever the board sees fit it may require the company to grant and issue commutation tickets at such rates and on such terms as the board may order.

346. Members of the Senate and House of Commons of Canada, with their bag-

gage and members of the board and such officers and staff of the board as the board may determine, with their baggage and equipment, shall, on production of cards, certifying their membership or right, which shall be furnished them by the Clerk of the Senate or the Clerk of the House of Commons or the Secretary of the board, as the case may be, be entitled to free transportation on any of the trains of the company; and the company shall also, when required, haul free of charge any car provided for the use of the board.

347. Subject to the provisions of sections 345 and 346 of this act, no company shall hereafter, directly or indirectly, issue or give any free ticket or free pass, whether for a specific journey or periodical or annual pass, and no company shall otherwise arrange for or permit the transportation of passengers except on payment of the fares properly chargeable for such transportation under the tariffs filed under the provisions of this act, and at the time in effect; provided that nothing in this act shall effect the furnishing of free transportation where such is specifically required by any other public general act of the Parliament of Canada.

Birthdays of Transportation Men in January.

Many happy returns of the day to:—

J. Abrams, Wharf Freight Agent, C.P.R., Vancouver, B.C., born at Manchester, Eng., Jan. 24, 1870.

W. U. Appleton, Mechanical Superintendent, Eastern Lines, Canadian National Rys., Moncton, N.B., born there, Jan. 29, 1878.

R. Armstrong, Superintendent, Brandon Division, Manitoba District, C.P.R., Brandon, born at Kingston, Ont., Jan. 27, 1865.

J. A. Audrain, Trainmaster, Saskatoon Division, Saskatchewan District, C.P.R., Saskatoon, Sask., born at St. John's, Jersey, Channel Islands, Jan. 23, 1883.

L. E. Ayer, General Agent, Canadian National Rys., St. Louis, Mo., born at Henderson, Ia., Jan. 11, 1877.

F. X. Belanger, ex-General Freight and Passenger Agent, Temiscouata Ry., Riviere du Loup, Que., now Traffic Manager, Fraser Companies, Ltd., Edmundston, N.B., born at Chlorydormes, Que., Jan. 20, 1876.

Sir George McLaren Brown, European General Manager, C.P.R., London, Eng., born at Hamilton, Ont., Jan. 20, 1866.

J. E. Dalrymple, Vice President, G.T.R., G.T.P.R., and Central Vermont Ry., Montreal, born there Jan. 1, 1869.

A. Davidson, Commercial Agent, Grand Trunk Pacific Ry., and G.T.P. Coast Steamship Co., Vancouver, B.C., born at St. Henri, Montreal, Jan. 29, 1885.

G. J. Desbarats, C.M.G., Deputy Minister of Naval Service, Ottawa, Ont., born at Quebec, Que., Jan. 27, 1861.

J. E. Everell, Superintendent, Montmorency Division, Quebec Ry., Light and Power Co., Quebec, Que., born at Cap Rouge, Que., Jan. 1, 1863.

Gordon Grant, Chief Engineer, Quebec and Saguenay Ry., and Consulting Engineer, Railways and Canals Department, Ottawa, born at Dufftown, Scotland, Jan. 2, 1861.

G. F. Hichborn, formerly Agent, Great Eastern Fast Freight Line, New York, born at Boston, Mass., Jan. 13, 1875.

C. Hood, ex-Local Freight Agent, C.P.R., Saskatoon, Sask., now of Winnipeg,

born at Edinburgh, Scotland, Jan. 20, 1864.

D. W. Houston, Superintendent, Regina Municipal Ry., Regina, Sask., born at Bathurst, N.B., Jan. 3, 1879.

H. J. Humphrey, Superintendent, Trenton Division, Ontario District, C.P.R., Toronto, born at Berrys Mills, N.B., Jan. 26, 1879.

W. C. Hunter, ex-Manager New Brunswick Coal and Ry. Co., now of Montreal, born at St. John, N.B., Jan. 4, 1865.

P. A. Keeler, Treasurer, Dominion Express Co., Toronto, born near Prescott, Ont., Jan. 18, 1867.

H. G. Kelley, President, G.T.R. and G.T.P.R., Montreal, born at Philadelphia, Pa., Jan. 12, 1858.

W. J. Lynch, General Manager, Quebec Ry., Light, Heat and Power Co., Quebec, Que., born there, Jan. 17, 1882.

G. E. McCoy, Master Car Builder, Eastern Lines, Canadian National Rys., Moncton, N.B., born there, Jan. 8, 1886.

C. R. Mackenzie, Assistant to General Manager, Canadian National Rys., Montreal, born at Toronto, Jan. 10, 1883.

John Macrae, Locomotive Foreman, C.P.R., Swift Current, Sask., born at Springburn, Glasgow, Scotland, Jan. 30, 1879.

P. A. Macdonald, Manitoba Public Utilities Commissioner, Winnipeg, born at Gananoque, Ont., Jan. 6, 1857.

G. C. Martin, General Traffic Manager, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., born at Creemore, Ont., Jan. 2, 1866.

H. Mitchinson, Safety Engineer, Western Lines, Canadian National Rys., Winnipeg, born at Gateshead on Tyne, Eng., Jan. 18, 1882.

William Phillips, Canadian Representative, Cunard Steamship Co., Montreal, born at Toronto, Jan. 31, 1870.

W. Pratt, Manager, Dining and Parlor Cars, Hotels and News Department, Canadian National Rys., Toronto, born at Sibbertoft, Northamptonshire, Eng., Jan. 18, 1870.

John Pullen, President, Canadian Express Co., Montreal, born at Shepton Mal-

let, Eng., Jan. 23, 1863.

Ralph M. Reade, Superintendent, City Division and Quebec County Railways, Quebec Railway, Light & Power Co., Quebec, born at Llanelly, Wales, Jan. 1, 1868.

L. J. Rouleau, Commercial Agent, G.T.R., Quebec, Que., born at Montreal, Jan. 6, 1879.

A. F. Stewart, Chief Engineer, Eastern Lines, Canadian Northern Ry., Toronto, born at West Bay, N.S., Jan., 1864.

J. G. Sullivan, ex-Chief Engineer, Western Lines, now Consulting Engineer, C.P.R., Winnipeg, born at Bushnells Basin, N.Y., Jan. 11, 1863.

Ross Thompson, ex-Chief Engineer, and Managing Director, St. John and Quebec Ry., Fredericton, N.B., now of Montreal, born at Newry, Ireland, Jan. 1, 1865.

W. J. Uren, Superintendent, Farnham Division, Quebec District, C.P.R., Farnham, Que., born at St. Marys, Ont., Jan. 23, 1872.

T. H. White, Chief Engineer, Canadian Northern Pacific Ry., Vancouver, B.C., born at St. Thomas, Ont., Jan. 27, 1848.

A. Wilcox, General Superintendent, Central District, Canadian National Rys., Winnipeg, born at Kincardine, Ont., Jan. 2, 1865.

Impounding of Livestock—The Railway Association of Canada has issued the following circular to member railways: Impounding of livestock found running at large, on or in the immediate proximity of railway right of way, is suggested as a means of reducing loss to both livestock owners and railways through animals being struck by trains, and as a measure of safety to the travelling public. It is recommended that the railways notify the officials of municipalities wherein trouble of the kind mentioned is experienced, that the suggested action is contemplated and that co-operation of such officials be requested. At places where pounds are not provided, it may be possible to arrange with the public officials for establishment of them.

Mechanical Locomotive Firing—The G.T.R. has been making a test of a mechanically fired locomotive between Montreal and Brockville, Ont., for five round trips, with maximum tonnage. The locomotive was then transferred to the Ontario lines, for a test of five trips between Fort Erie and Sarnia tunnel, after which it was to be returned to the G.T.R. lines in New England, to which territory it belongs. In each case the test was against another locomotive of the same type, hand fired. The Locomotive Stoker Co.'s type D. duplex stoker is used on the mechanically fired locomotive.

The Alberta Truck Transportation Co. has been organized in Calgary, Alta., with authorized capital of \$150,000 to carry passengers and freight by motor truck. The routes suggested out of Calgary are to Medicine Hat, Macleod, Banff, Lethbridge and Edmonton. It was stated Dec. 6, that the service will be started as soon as the trucks can be delivered. The officers of the company are reported to be: President and General Manager, M. D. East; Vice President and Assistant General Manager, R. Park; Secretary Treasurer, J. O. Campbell.

Toronto, Yonge Street Station, is the new name for the C.P.R.'s station known heretofore as North Toronto Station.

January, 1920.

Sir Robert Borden's Address to a Railway Brotherhood at Ottawa.

The Prime Minister, in addressing the Canadian Legislative Board, International Brotherhood of Locomotive Firemen and Enginemen at Ottawa, Dec. 8, 1919, said: "It is my privilege on behalf of the government to extend to you a welcome to Ottawa, and to convey our best wishes that this annual gathering may be useful and successful in every way. In the early days of my parliamentary career, I had occasion to consider very attentively the character of the organizations established by the various railway brotherhoods, and ever since I have been impressed with the thoroughness of their system, and with the fairness of their procedure for dealing with controversial questions. These organizations must necessarily exercise great power and influence in the policy which they pursue, and in the purposes which they undertake. Such power and influence carry with them a corresponding responsibility. I believe that on the whole this responsibility has been fulfilled justly and considerably, having regard to the national interests as a whole.

"History teaches us that every great war has been followed by some period of unrest and disturbance among the peoples of the belligerent nations. Such an outcome seems inevitable, and one is not surprised that such conditions prevail today, to a greater or less extent, among all the nations which have taken part in the tremendous and world wide conflict through which we have passed. While Canada has not been wholly free from these tendencies, there is reason to believe that no country in the world has suffered less from them than our Dominion. I am confident that the strong, sound, common sense of the Canadian people will support all authorities, whether federal, provincial or municipal, in maintaining public order, in the just enforcement of the law and in upholding institutions and traditions founded upon ideals of ordered liberty and progress.

"I have already spoken in parliament of the character and terms of the treaty of peace which was consummated a few months ago, and which will doubtless be ratified by the required number of belligerent nations in the early future. That treaty embodied a sincere attempt to bring together the nations of the world in such co-operation and by such methods as would greatly minimize the risk of future wars. It is impossible to imagine that the existing organization of society can be maintained, if the unmeasured destruction of human life and the maiming of countless millions, with all the tragic sorrow and sacrifice which have been the outcome of this war, are to be the sole or even the chief means of arbitration in international disputes. If the plenipotentiaries of the allied powers had not given their best energy and their highest endeavor to prevent any such outcome in the future, assuredly they would have failed in the duty which they owe to this and future generations. No nation can divorce itself from the responsibility measured by its power and influence. More and more the oceans have become international highways. There is no hermit nation and there can be none. I venture to submit to you a conclusion which I think may be drawn from the purpose embodied in the League of Nations covenant. That covenant received the unanimous approval of plenipotentiaries representing 32 nations, in-

cluding the dominions of the British Empire. Only those who participated in the deliberations of the Peace Conference can fully realize the rivalry of ambitions, the sharp antagonisms, the intense jealousies, and the deep rooted prejudices which manifested themselves between peoples represented at the conference. Moreover there is every diversity in the standards of living, the educational and industrial development, the temperament and character of the peoples concerned. It is at once remarkable and highly encouraging that all these nations should have agreed upon the organization and the methods by which their co-operation is assured, in the endeavor to secure the world's peace so far as that is humanly possible.

"One lesson which we may learn from this relates to our own domestic concerns. In any country, but especially in a country of vast area and scattered communities, the problem of transportation is all important. The efficiency of transportation in Canada is an essential factor in the national life. Railways, waterways and highways all have their part. From conditions which have gradually developed during many years has arisen the result that about one half the total railway mileage of Canada is, or shortly will be, in the ownership of the state. You must realize, and I hope you will agree, that this condition emphasizes the importance of devising some means by which this great essential and national activity shall not be interrupted or prejudiced by disputes between employers and employed. Even as between a private corporation, operating a great public utility, and its employes there should be some more reasonable method than the imposition upon the general public of the inconvenience, the loss, and the suffering which are occasioned by strikes. If, between jealous and sometimes antagonistic nations, the principle of settling international disputes by peaceful means has been acknowledged and adopted, surely disputes between employers and employed can be investigated and adjusted by means other than those which may bring upon the whole people distress and suffering comparable to that entailed by war. So far as railways in the ownership of the state are concerned, there is one additional consideration of which you should not lose sight. Those responsible for the administration of state railways are not actuated or influenced therein by any motive of private interest. Their duty is, on the one hand to the public whom they serve, and on the other hand to the employes who also serve the same public. So that in this instance employers and employed alike serve the people as a whole.

"I commend to your most thoughtful consideration the results which have been obtained in this country by the establishing of the tribunal known as Board of Adjustment No. 1 in connection with the Canadian Railway War Board. It was constituted on Aug. 7, 1918, under an agreement made between the Canadian Railway War Board and the six leading railway brotherhoods. It consists of 12 members, 6 representing the railway companies and 6 the brotherhoods. The board has given decision in 52 cases, as well as 6 supplementary cases, or in all, 58 disputes, which have thus been settled without resort to strike. In ad-

dition about a dozen potential disputes have been adjusted through the board's good offices without the necessity of a formal hearing. Disputes have also been adjusted for organizations which were not parties to the agreement. It is open to any class of railway or transportation employes to present a case to the board, provided they agree to be bound by its decision. Is there not in this record, food for the most careful reflection and consideration as to the future determination of disputes between organization of railway employes and those responsible for the administration of the railways? In other countries there have recently been legislative proposals for the prohibition of strikes. It would not be my purpose to have the question approached in that way. The members of the railway organizations are citizens of this country, interested like others in its development, its progress and its orderly government. Any movement to make permanent, and still more efficient, the methods which have had such good results during the past 18 months, might well originate with them. This obligation is imposed, and this responsibility is created, not only by the power and influence of the organizations in question, but by the duty which their members owe to the state as good citizens. On our part we must not be unmindful of corresponding obligations. The problem of administering about 22,000 miles of railways in this country is one of exceptional moment and difficulty. Upon its successful solution probably depends the success of state ownership, not only in Canada, but upon the whole North American continent. We must give earnest attention to some means by which the employes shall have just representation in the executive administration of this great system. I have given to this question some study in the consideration of the problem as a whole and you may be assured that such a proposal will command my entire sympathy.

"I am grateful for the opportunity of addressing you, and I pray that the new year, which will shortly dawn, may bring to you and to all our people, every happiness and prosperity."

The Paris, Lyons and Mediterranean Ry. of France, as a result of successful experiments with a new process of using oil for locomotive fuel, is reported to be transforming 200 of its locomotives to oil burners.

Railway Equipment Needed—Howard Elliott, President, Northern Pacific Rd., is reported to have stated before the Association of Life Insurance Presidents, at New York, recently, that United States railways need an equipment of \$3,000,000,000 and that if provision is not made for developing railways continuously, the cost of living, instead of being reduced, will go higher.

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

	Acres
Alberta and Great Waterways Ry.....	137.06
Canadian Northern Ry.....	795.43
Canadian Pacific Ry.....	1.31
Edmonton, Dunvegan and British Columbia Ry.	5.95
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.....	6.63
Total	946.43

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 274. Nov. 20.—Interpreting, on application of Canadian Railway War Board on behalf of railway companies, certain sections of the Railway Act, 1919, re free transportation.

28,988, 28,984. Nov. 11.—Approving Bell Telephone Co. agreements with Maniwaki Electric Co., Ottawa County, Que., Oct. 28, and Augsburg Telephone Association, Renfrew County, Ont.

28,985. Nov. 11.—Authorizing C.P.R. to build spur for Cardston Creamery Association, Cardston, Alta.

28,986. Nov. 12.—Ordering Grand Trunk Pacific Branch Lines Co. to appoint station agent at Hoey, Sask., and to build station by June 30, 1920.

28,987. Nov. 8.—Authorizing Quebec, Montreal & Southern Ry. to use bridge over Salvail River, near St. Jude, Que.

28,988. Nov. 10.—Approving location of Canadian Northern Pacific Ry. Kamloops-Vernon-Kelowna-Lumby Branch, from mile 14.23 to 32.96 east from Kamloops Jct., B.C.

28,989. Nov. 11.—Authorizing G.T.R. to operate over two spurs, serving Roger Miller & Sons, Toronto.

28,990. Nov. 12.—Recommending to Governor in council for sanction, agreement between Edmonton, Dunvegan and British Columbia Ry., and Alberta and Great Waterways Ry., May 3, 1918, covering joint use of each company's terminal property at Edmonton, Alta.

28,991. Nov. 10.—Authorizing C.P.R. to build two spurs for Eugene Patenaude, Loranger Tp., Que.

28,992. Nov. 10.—Approving location of Canadian Northern Pacific Ry. Kamloops-Vernon-Kelowna-Lumby Branch, from mile 0 to 14.23, Lumby Jct. to Lumby, B.C.

28,993. Nov. 10.—Relieving Toronto, Hamilton & Buffalo Ry. from maintaining station agent at Mineral Springs, Ont.

28,994. Nov. 10.—Approving location of Canadian Northern Pacific Ry. Kamloops-Vernon-Kelowna-Lumby Branch from mile 0 to 33.26 south, and mile 0 to 1.29 north, Vernon to Kelowna, B.C.

28,995. Nov. 10.—Authorizing Saskatchewan Government to build crossing at south end of Canadian National Rys. station grounds at Osler, Sask.

28,996. Nov. 12.—Approving C.P.R. clearances of extension to Farmers' Exchange Building, Salmon Arm, B.C.

28,997. Nov. 12.—Approving location and details of Michigan Central Rd. telegraph station at Edward, Ont.

28,998. Nov. 12.—Authorizing Canadian National Rys. to build siding across public road between lots 224 and 226, Cons. 10 and 13, Chicomitini and Jonquiere Tps., Que.

28,999. Nov. 12.—Authorizing C.P.R. to build spur for H. L. Martin Lumber Co., Saskatoon, Sask.

29,000. Nov. 8.—Rescinding order 27,254, May 26, 1918, re Quebec, Montreal & Southern Ry. train service, between Montreal and Sorel, and between St. Lambert and Fortierville, Que.

29,001. Nov. 12.—Dismissing complaint of Black & Son, Belleville, Ont., against limitation of hours of collection of fresh fish shipments by express companies to period between 8 a.m. and 5 p.m. each day.

29,002. Nov. 11.—Extending to June 30, 1920, time within which Kettle Valley Ry. shall erect fences from mile 56.3 to Osprey Lake, mile 38, gates to be put in where required.

29,003 to 29,006. Nov. 11.—Authorizing C.P.R. to build bridges over Kneehill Creek at 4 points on its Acme to Empress extension, Langdon North Branch.

29,007. Nov. 12.—Authorizing C.P.R. to build spurs for Southern Saskatchewan Co-operative Stock Yards, Ltd., Moose Jaw, Sask.

29,008. Nov. 12.—Authorizing Canadian National Rys. to build passing siding across public road on Lots 18 and 19, Con. B, Murray Tp., Ont.

29,009. Nov. 13.—Dismissing, after hearing at Toronto, Oct. 31, matter of Canadian Car Demurrage Rules, as affected by strikes.

29,010. Nov. 13.—Approving C.P.R. clearances of ash conveyor, ash tank, and accessories to be erected at Place Viger Hotel, Montreal.

29,011. Nov. 10.—Approving location of Canadian Northern Pacific Ry. Kamloops-Vernon-Kelowna-Lumby Branch, mile 66 to 82.22 east from Kamloops Jct., B.C.

29,012. Nov. 10.—Authorizing Windsor, Essex and Lake Shore Rapid Ry. to build siding for McDonald Tobacco Co., Kingsville, Ont.

29,013. Nov. 13.—Approving detail plans of dam built by Canadian Northern Quebec Ry. across North River for Canadian Consolidated Rubber Co., St. Jerome, Que.

29,014. Nov. 13.—Authorizing Ontario Govern-

ment to build crossing over C.P.R. Sault Ste. Marie Branch at the Sault Ste. Marie and Sudbury trunk road west of Cutler station, Ont.

29,015. Nov. 13.—Approving Canadian National Rys. location through Tps. 21 and 22, Ranges 11 and 12, west principal meridian, Man., mile 59.49 to 69.73.

29,016. Nov. 13.—Authorizing G.T.R. to build spur for Christie Henderson Co., near Hespeler, Ont.

29,017. Nov. 13.—Authorizing City of Montreal to make grade crossing over Canadian National Rys. at Haig St.

29,018. Nov. 14.—Approving agreement, Oct. 28, between Bell Telephone Co. and Huron, Tp., Ont.

29,019. Nov. 14.—Approving location of Esquimalt & Nanaimo Ry. Great Central Lake Branch from its Alberni Branch, in District Lot 42, at mile 0 to District Lot 204, near Swamp River and Great Central Lake at mile 10, and a portion of its Sproat Lake Branch from the Great Central Lake Branch in Lot 84, to Lot 98, about 1½ miles.

29,020. Nov. 17.—Authorizing Canadian National Rys. to divert road in s.w. ¼ and s.e. ¼, Sec. 15, Tp. 55, Range 24, west 3rd meridian, Sask.

29,021. Nov. 17.—Authorizing G.T.R. to build spur for R. H. Ashton, Williamsburg Tp., Ont.

29,022. Nov. 17.—Relieving Michigan Central Rd. from maintaining day and night watchmen and providing further protection at crossing near Ruscomb station, Ont.

29,023. Nov. 15.—Authorizing Canadian Northern Western Ry. for four months from date, to carry freight over its Hanna-Medicine Hat Branch from Bonar, mile 256.9 from Saskatoon to mile 47.

29,024. Nov. 15.—Authorizing G.T.R. to install two automatic bells at Government Road crossing, Beachville, Ont.

29,025. Nov. 15.—Dismissing complaint of residents of Wilberforce, Ont., re Iroindale, Bancroft and Ottawa Ry. (C.N.R.) train service.

29,026. Nov. 15.—Authorizing Canadian National Rys. to build its Amaranth Extension across highways between miles 59.49 and 69.73, Man.

29,027. Nov. 15.—Authorizing G.T.R. to build siding for Consumers Metal Co., Lachine, Que.

29,028. Nov. 17.—Authorizing Canadian National Rys. to divert road in the n.w. ¼, Sec. 35, and n.e. ¼, Sec. 34, Tp. 54, Range 24 west 3rd meridian, Sask.

29,029. Nov. 11.—Relieving C.P.R. from providing further protection at Notre Dame St. crossing, at north end of station at Roxton Falls, Que.

29,030. Nov. 15.—Dismissing application of United Brotherhood of Carpenters and Joiners of America, Local 730, for order directing Canadian National Rys. to run passenger train between Quebec and Loretteville Parish, Que.

29,031. Nov. 15.—Dismissing application of Z. Marien, Cabane Ronde, Que., for order directing C.P.R. to deepen drain on Lot 321 and between Lots 322 and 323, also C.P.R. culvert 370.

29,032. Nov. 17.—Authorizing Ontario Government to build highway crossing over C.P.R. Sault Ste. Marie Branch at Sudbury Trunk Road, between Algoma and Spragge stations, mileage 44.2 from Webbwood, Ont.

29,033. Nov. 18.—Relieving C.P.R. from providing further protection at highway crossing at Sinaluta, Sask.

29,034. Nov. 18.—Rescinding orders 27,741, 27,864, and 28,339, respecting Quebec, Montreal and Southern Ry. train service.

29,035. Nov. 18.—Ordering G.T. Pacific Ry. to appoint station agent at Peers, Alta.

29,036. Nov. 18.—Extending to Dec. 15, time within which Canadian National Rys. shall build third class station and extension to passing track at Elie, Man.

29,037. Nov. 18.—Relieving C.P.R. from providing further protection at highway crossing near Lang station, Sask.

29,038. Nov. 18.—Authorizing G.T.R. to operate over Toronto Harbor Commissioners' siding to Nikol Fuel Co.'s premises, Toronto.

29,039. Nov. 18.—Relieving G.T.R. from providing further protection at crossing at New Hamburg, Ont.

29,040. Nov. 18.—Authorizing Canadian Northern Western Ry. Co. to divert north and south road between Secs. 23 and 24, Tp. 17, Range 9, west 4th meridian, Alta.

29,041. Nov. 18.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur for Dominion Lumber & Coal Co., Hamilton, Ont.

29,042. Nov. 18.—Approving plans and specifications of Cheeseman and branch drains to be built under G.T.R. in south half of Lot 34, Con. 9, Malahide Tp., Ont.

29,043. Nov. 17.—Authorizing Niagara St. Catharines & Toronto Ry. (C.N.R.) to build spur for Interlake Tissue Co., Merriton, Ont.

29,044. Nov. 19.—Approving route map of C.P.R. Lanigan Northeasterly Branch from mile 26 to 32.

29,045. Nov. 19.—Approving route map of Kettle Valley Ry., from Penticton, B.C., south to

International Boundary on east side of Osoyoos Lake.

29,046. Nov. 19.—Authorizing C.P.R. to build extension to spur for Dominion Glass Co., Redcliffe, Alta.

29,047. Nov. 19.—Authorizing Michigan Central Rd., to remove station agent at Hewitt, Ont.

29,048. Nov. 19.—Ordering Canadian National Rys. to complete additions and alterations to station at Kamsack, Sask., by May 15, 1920.

29,049. Nov. 19.—Relieving C.P.R. from providing further protection at highway crossing at mile 2, Colonsay Subdivision, Sask.

29,050. Nov. 17.—Ordering G.T.R. to build farm crossing for A. McGuiness, Marysville, Ont.

29,051. Nov. 19.—Authorizing G.T.R. to build spur for Georgetown Coated Paper Mills, Esquesing Tp., Ont.

29,052. Nov. 20.—Ordering Pere Marquette Rd. to install automatic bell at highway crossing near Middlemarch station, Ont.

29,053. Nov. 19.—Ordering G.T.R. to erect shelter for passengers, and platform and shelter to load and unload freight at the E. Clark section house, near Frome, Ont., and to stop trains on flag at Paynes Mills, and Bairds, Ont.

29,054, 29,055. Nov. 21.—Authorizing Canadian National Rys. to build bridges over Whitefish River at miles 18.9 and 21.6, North Lake Subdivision, Ont.

29,056. Nov. 20.—Approving revised location of C.P.R. Rosetown Southeasterly Branch from mile 40 to mile 43.23, in Sec. 7, Tp. 24, Range 15, west 3rd meridian, Sask.

29,057. Nov. 21.—Approving Campbellford, Lake Ontario & Western Ry. (C.P.R.), revised location through Cobourg, Ont., from Division St. to Ontario St., miles 119.69 to 120.18.

29,058. Nov. 21.—Authorizing Canadian National Rys. to build bridge over Whitefish River at mile 20.3, North Lake Subdivision, Ont.

29,059. Nov. 20.—Relieving Hamilton Radial Electric Ry. from providing further protection at crossing at Birmingham Ave., Hamilton, Ont.

29,060. Nov. 22.—Approving C.P.R. plan showing change of junction numbers and dwarf signals pipe connected.

29,061. Nov. 22.—Extending to Feb. 22, 1920, time within which C.P.R. shall complete spur for Gunns Ltd., Toronto.

29,062. Nov. 22.—Authorizing G.T.R. to operate over Toronto Harbor Commissioners' siding on Villiers St., Toronto.

29,063. Nov. 26.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur for Canadian Westinghouse Co., Hamilton, Ont.

29,064. Nov. 25.—Authorizing C.P.R. to build spur for Federal Coals, Ltd., Lethbridge, Alta.

29,065. Nov. 25.—Authorizing G.T.R. to operate over Burlington Steel Co.'s sidings, Hamilton, Ont., on undertaking to keep men off tops of cars.

29,066.—Approving location of Canadian Northern Pacific Ry. Kamloops-Vernon-Kelowna-Lumby Branch, mile 32.96 to 56, east from Kamloops Jct.

29,067. Nov. 25.—Authorizing C.P.R. to build spur for Imperial Oil Ltd., Moose Jaw, Sask.

29,068. Nov. 21.—Approving agreement, Nov. 3, between Bell Telephone Co., and Mount Forest Wellington & Grey Telephone Co., Wellington and Grey Counties, Ont.

29,069. Nov. 26.—Authorizing G.T.R. to build spur for The Wm. Kennedy & Sons, Ltd., Owen Sound, Ont.

29,070. Nov. 26.—Authorizing G.T.R. to build spur for Toronto Harbor Commissioners, connecting with Dominion Shipbuilding Co.'s spur, Toronto.

29,071. Nov. 26.—Authorizing Canadian National Rys. to divert road between Secs. 7 and 18, Tp. 25, Range 20, west 3rd meridian, Sask.

29,072. Nov. 26.—Extending to Feb. 26, 1920, time within which C.P.R. shall build spurs for Merritt Collieries Ltd. mile 41.2 from Spences Bridge, B.C.

29,073. Nov. 26.—Authorizing G.T.R. to remove station agent at Keppel, Sask., caretaker to be appointed to see that station is kept clean, heated and lighted for passengers to care for l.c.l. freight and express shipments.

29,074. Nov. 27.—Ordering Grand Trunk Pacific Ry. to build farm crossing for J. Downie, Viking, Alta.

29,075. Nov. 27.—Extending to Dec. 31, 1919, time within which Niagara, St. Catharines & Toronto Ry. (C.N.R.) shall install interlocking plant where it crosses G.T.R. on Elm St., Port Colborne, Ont.

29,076. Nov. 26.—Authorizing C.P.R. to build spur for Canadian Avery Co., Winnipeg.

29,077. Nov. 27.—Ordering C.P.R. to build standard portable station at Squilax, B.C., by June 15, 1920.

29,078. Nov. 27.—Recommending to Governor in council for sanction, agreement, July 1, 1919, with C.P.R. re G.T.R. trains over C.P.R. at North Bay, Ont.

29,079. Nov. 27.—Relieving Canadian National Rys. from providing further protection at highway crossing near North Battleford, Sask.

29,080. Nov. 27.—Relieving C.P.R. from providing further protection at highway crossing at mile 13, Belleville Subdivision, Ont.

29,081. Nov. 27.—Relieving Lake Erie & Northern Ry. from providing further protection at crossing between Cons. 2 and 3, Townsend Tp., Ont.

29,082. Nov. 27.—Ordering Grand Trunk Pacific Ry. forthwith to erect stock yard at Heath, Alta.

29,083. Nov. 21.—Authorizing Toronto, Hamilton & Buffalo Ry., and G.T.R. to discontinue operating over Berlin Machine Works spur, Hamilton, Ont.

29,084. Nov. 28.—Approving Kettle Valley Ry. location miles 1.62 to 3.99 from Penticton wharf, B.C.

29,085. Nov. 28.—Amending order 28,958, Nov. 4, re C.P.R. siding for J. H. Gignac, Ltd., Quebec, Que.

29,086. Dec. 1.—Approving location and plans of C.P.R. station at Corinne, Sask.

29,087. Nov. 28.—Ordering C.P.R. to make highway crossing between Lots 18 and 17, Range 8, of Eardley Tp., Que., cost to be paid by the township.

29,088. Nov. 28.—Ordering C.P.R. to make highway crossing between Lots 10 and 11, Range 6, Eardley Tp., Que., cost to be paid by the township.

29,089 to 29,092.—Approving revised location of Canadian Northern Pacific Ry. Kamloops-Ver-non-Kelowna-Lumby Branch, mile 37.22 to 39.64; 10.4 to 11.5 from Lumby Jct.; s.w. ¼, Sec. 28 to lot 474, Group I.C.G. Tp. 18, Range 14, near mileage 28.4 from Kamloops Jct., and mile 41.60 to 43.58, east from Kamloops Jct., B.C.

29,093. Dec. 1.—Authorizing Canadian Northern Ontario Ry. to build spur for Ontario Good Roads Commission at mile 244.7, Rideau Sub-division.

29,094. Dec. 2.—Approving agreement, Nov. 17, between Bell Telephone Co. and Rumney Settlement Telephone Co., Victoria County, Ont.

29,095. Dec. 1.—Ordering G.T.R. to build sub-way for vehicular and pedestrian traffic under its tracks at St. Paul's Ave., Brantford, Ont.

29,096. Dec. 2.—Authorizing C.P.R. to build spur for City of Sherbrooke, Que.

29,097. Dec. 3.—Approving Canadian Northern Ontario Ry. at mile 21.7, Nipigon Subdivision, Ont.

29,098. Dec. 3.—Amending order 29,060, Nov. 22, re C.P.R. plan of change in function numbers and dwarf signals pipe connected.

29,099. Dec. 3.—Authorizing Canadian Northern Ontario Ry. to rebuild bridge over Black-water River at mile 21.7, from Jellicoe, Ont.

29,100. Dec. 5.—Authorizing G.T.R. to build temporary track on public road allowance between Cons. 1 and 2, Brantford Tp., Ont.

29,101. Nov. 22.—Ordering Vancouver, Victoria & Eastern Ry. and Navigation Co. (G.N.R.) to fill in planks between its tracks on Front St., Vancouver, from Columbia St., to point opposite Courthlan property, as now filled in by the city.

29,102. Dec. 5.—Dismissing complaint of Great West Coal Co., Brandon, Man., against Grand Trunk Pacific Ry. freight charges on coal from Drumheller to Raymore, Sask., and afterwards diverted to Punichy, Sask.

29,103. Dec. 8.—Rescinding order 28,872, Oct. 7, re C.P.R. spur for E. J. Bawlf & Co., Win-nipeg.

29,104. Dec. 3.—Ordering Canadian National Rys. to maintain crossing on road allowance between Sec. 18 and 19, Tp. 2, Range 7, east prin-cipal meridian, and to make diversion on north and south road through southeast portion of Sec. 19, connecting it with east and west road.

29,105. Dec. 5.—Approving revised location of C.P.R. Russell Northern Branch from Sec. 10, Tp. 21, Range 28, at mile 0 to Sec. 36, Tp. 22, Range 28, west principal meridian at mileage 12.34.

29,106. Dec. 3.—Authorizing C.P.R. and Pere Marquette Rd. to operate over crossing at Walker-ville Jct., Ont., and the interlocking plant, as rebuilt.

29,107. Dec. 5.—Authorizing C.P.R. to build its Langdon North Branch, Acme to Empress, at grade, across 19 highways between mileage 39.03 and 52.79, Sask.

29,108. Dec. 6.—Authorizing Canadian National Rys. to cross 23 highways with its Oakland Ex-tension, Man.

29,109. Dec. 6.—Authorizing Canadian North-ern Ontario Ry. to divert side road between Lots 20 and 21, Con. 7, Chisholm Tp., Ont.

29,110. Dec. 12.—Rescinding order 24,673, Jan. 22, 1916, de cancellation by railways of all re-turn transportation of live stock shipped west of Port Arthur, effective Feb. 1, 1916.

29,111. Dec. 9.—Dismissing application of City of Port Alberni, B.C., for order directing Esquimalt & Nanaimo Ry. to remove obstruction and to restore public highway known as Shore Road along the water front.

29,112. Dec. 5.—Authorizing Grand Trunk Pa-cific Ry. to divert highway in Sec. 24, Tp. 12, Daly Municipality, Man.

29,113. Dec. 5.—Ordering that cost of main-aining west approach to Provencher Ave. traffic bridge, Winnipeg, be paid by Canadian National Rys.

29,114. Dec. 9.—Authorizing Grand Trunk Pa-cific Saskatchewan Ry. to operate over crossing

of C.P.R. Weyburn-Lethbridge and Soo Branches, at Weyburn, Sask., pending installation of inter-locking plant.

29,115. Dec. 9.—Authorizing Canadian National Rys. to rebuild bridge over West River, Lachute, Que.

29,116. Dec. 6.—Authorizing C.P.R. to divert road allowance on east boundary of n.w. ¼ Sec. 2, Tp. 28, Range 22, west 2nd meridian, Sask.

29,117. Dec. 9.—Ordering C.P.R. to appoint station agent at Sylvan Lake, Alta., by July 1, 1920.

29,118. Dec. 9.—Approving Grand Trunk Pa-cific Ry. clearances at coal tipples works over North American Collieries' spur, at Evansburgh, Alta.

29,119. Dec. 9.—Relieving Canadian National Rys. and Grand Trunk Pacific Ry. from maintain-ing a signal man on Sundays at crossing at Cam-rose, Alta.

29,120, 29,121. Dec. 9.—Ordering C.P.R. to ap-point station agents at Benalto and Kootuk, Alta., by July 1, 1920.

29,122. Dec. 10.—Dismissing complaint of Board of Grain Commissioners for Canada against alleged unsatisfactory conditions at Canadian National Rys. crossing over Powder House Road, from Fort William and Port Arthur highway to terminal elevators at Port Arthur, Ont.

29,123. Dec. 9.—Dismissing complaint of Lake Lumber Co., J. C. Wilson Lumber Co., and mer-chants of Qualicum Beach, B.C., against Esqui-malt & Nanaimo Ry.'s freight train service.

29,124. Dec. 6.—Approving Toronto Suburban Ry. bylaw, Nov. 20, authorizing W. J. Radford and Frank Butcher, to issue tariffs of passenger and freight tolls, respectively.

29,125. Dec. 9.—Authorizing C.P.R. to build spur for Iroquois Sand & Gravel So., Scarboro Tp., Ont.

29,126. Dec. 9.—Authorizing Rutland Rd., and Rutland and Noyan Ry. to alter interlocking plant at crossing of G.T.R. at Noyan Jct., Que.

29,127. Dec. 10.—Ordering Canadian National Rys. to install wigwags and improved automatic bell at crossing of Amelia St., Fort William, Ont.

29,128. Dec. 10.—Dismissing application of Westlock, Alta., Board of Trade, for order direct-ing Edmonton, Dunvegan & British Columbia Ry. to make highway crossing over its track at West-lock.

29,129. Dec. 10.—Dismissing application of City of Saskatoon, Sask., for authority to make high-way crossing over C.P.R. at Avenue J.

29,130, 29,131. Dec. 10.—Ordering Canadian National Rys. to install wigwags and improved automatic bells at Brock St. and Frances St. crossings, Fort William, Ont.

29,132. Dec. 11.—Relieving C.P.R. from com-plying with requirements of order 16,900, June 27, 1919, which approved C.P.R. tariff of class freight rates between stations west of North Bay to Mackenzie and Sault Ste. Marie, Ont., and stations in Canada east of North Bay on the C.P.R. and connecting railways.

29,133. Dec. 10.—Authorizing C.P.R. to build spur for J. J. Gartshore, in Lot 38, Block A, Plan 2035, York Tp., Ont.

29,134. Dec. 9.—Ordering that demurrage charged by railways in connection with delays to cars at Winnipeg, due to the general strike there, from May 15 to July 1, inclusive, be \$1 a car a day.

29,135. Dec. 10.—Relieving C.P.R. from pro-viding further protection at crossing at mile 89.4, Shogomac Subdivision, N.B.

29,136. Dec. 9.—Authorizing Canadian Northern Western Ry. to divert highway crossing between Secs. 19 and 30, Tp. 57, Range 21, west 4th mer-idian, Alta.

29,137. Dec. 10.—Dismissing Grand Trunk Pa-cific Ry.'s application for extension of time within which to complete station at Prince George, B.C., as directed by order 28,680, Aug. 20.

29,138. Dec. 9.—Authorizing C.P.R. to close station at Phoenix, B.C., and to discontinue train service on condition that station be reopened and train service continued at any time on board's re-quest, should conditions warrant.

29,139. Dec. 11.—Authorizing C.P.R. to divert road allowance on north boundary of n.e. ¼ Sec. 32, Tp. 38, Range 5, at mile 100.2, Outlook Sub-division, Sask.

29,140. Dec. 11.—Approving changes in C.P.R. interlocking plant at Drumbo, Ont.

29,141. Dec. 12.—Approving changes in C.P.R. interlocking plant at crossing of G.T.R., Wood-stock, Ont.

29,142. Dec. 11.—Authorizing Canadian North-ern Ontario Ry. to extend siding across the high-way between Cons. 2 and 3, Malvern, Ont.

29,143. Dec. 12.—Authorizing G.T.R. to build spur for Paris Sand and Gravel Co., South Dum-fries Tp., Ont.

29,144. Dec. 11.—Relieving G.T.R. from pro-viding further protection at first crossing west of Lacolle station, Que.

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

Week ended Dec. 5, 1919.	Wheat. Bush.	Oats. Bush.	Barley. Bush.	Flax. Bush.	Rye. Bush.	Totals. Bush.
Port William—						
C.P.R.	146,746	33,274	99,238		26,796	306,104
Empire Elevator Co.	229,681	109,839	163,491	14,077	18,276	535,364
Consolidated Elevator Co.	614,822	35,837	66,743	40,779	4,047	762,228
Ogilvie Flour Mills Co.	264,697	108,898	41,116		29,089	443,800
Western Terminal Elevator Co.	440,590	42,749	15,141	24,355	6,927	529,762
G. T. Pacific	369,264	160,514	37,503	13,071	14,208	594,560
Grain G'wers' Grain Co.	297,059	171,358	123,491		40,876	632,784
Port William Elevator Co.	186,939	109,386	15,587	8,900	5,400	317,212
Northwestern Elevator Co.	452,220	15,007	257,965	43	69	493,306
Port Arthur—						
Port Arthur Elevator Co.	408,021	326,588	175,704	151	41,205	951,669
Sask. Co-op. Elevator Co.	646,893	165,347	81,068	23,513	11,706	923,527
Canadian Government Elevator	115,510	56,664	23,190	57,542	4,409	257,515
Thunder Bay	330,960	263,235	115,169	7,919	7,582	724,865
Davidson and Smith	100,770	84,138	27,720			212,628
Eastern-Richardson	303,588	57,853	44,342	7,514	29,653	442,950
Vancouver Can. Gov't. Elevator	2,649	28,169	1,363			32,181
Total public terminal elevators...	4,910,409	1,759,858	1,056,881	197,864	240,243	8,165,255
Saskatoon Can. Gov't. Elevator	460,214	432,793	1,538		13,671	894,545
Moose Jaw Can. Gov't. Elevator	340,355	198,970	6,056	5,626	1,270	555,948
Calgary Can. Gov't. Elevator	1,536,343	327,691	17,382	182	5,629	1,887,227
Total Interior Terminal Elevators..	2,336,912	959,454	24,976	5,808	10,570	3,337,720
Depot Harbor	173,775					173,775
Midland—						
Aberdeen Elevator Co.	311,551	452,257	101,763		62,857	928,428
Midland Elevator Co.	299,740	514,348	172,085		164,492	1,150,665
Tiffin, G.T.P.	1,461,836					1,461,836
Port McNicoll	1,925,808	991,329	89,128			3,006,265
Goderich—						
Elevator and Transit Co.	257,402	47,262				304,664
Port Colborne—						
Maple Leaf Milling Co., Ltd.	913,300					913,300
Montreal—						
Harbor Commissioners No. 1 and 2	4,442,675	489,086	42,086		1,297	4,957,481
Montreal Warehousing Co.	1,701,281	56,887	10,622			1,768,790
Ogilvie Flour Mills Co.	1,059,799	47,860				1,059,799
Quebec Harbor Commissioners	543,126	47,860				590,986
West St. John, N.B., C.P.R.	471,405	76,555	23,450			571,410
St. John, N.B., Can. Nat. Rys.	90,512					90,512
Halifax, N.S.	101,835		41,082			142,917
Total Public Elevators	18,736,045	2,675,584	480,553		228,646	17,120,828
Total Quantity in Store	20,983,366	5,394,896	1,562,410	203,672	479,459	28,623,803

†Corn.

Aerial Transportation Notes.

A. S. Baxendale, formerly Manager of the Pacific Cable Board, is reported to have been appointed Aerial Traffic Manager for the Aircraft Transport and Travel Co. of Great Britain.

The Aero Club of France is the agency through which an offer is reported to have been made of a prize of \$100,000 for the design of an aircraft that will rise and land vertically, and have a speed of 134 miles an hour.

The Eastern Canada Air Lines have applied to the St. John, N.B., commissioners for aid in securing suitable grounds in the city for an aerodrome there. The company proposes to operate aircraft from St. John, to other points in the Maritime Provinces, the Magdalen Islands, Quebec and Ontario, and the Eastern States.

A London, Eng., cable states that a weekly airship service between England and North America is contemplated by a combination of aviation firms, which are credited with the intention of acquiring the R-34 and her sister ship the R-39. It is reported that these craft are being altered to meet requirements for freight and passenger carrying.

A Western Ontario branch of the Canadian Flying Club was formed in London, Ont., Dec. 6, with Major Hume Cronyn, M.P. as President, and Ivan Hunter as Secretary. It is proposed to get an aerodrome established so that when commercial flying begins in the spring, London will be able to provide accommodation and stop over privileges for passing machines.

The Royal Canadian Mounted Police will, it is reported, be the title of the former Royal North West Mounted Police after its amalgamation with the Dominion police. It is reported that the new force will use aircraft for patrolling the thinly populated areas of the north-west. The old time romance attaining to the R.N.W.M.P. will be revived by any extensive use of aeroplanes in its work.

H. W. Brodie, General Passenger Agent, C.P.R., Vancouver, is reported to have said Dec. 15, that the hydroplane will displace the ferry transportation between the mainland and Vancouver Island within the next few years and that the possibilities of aircraft developments will make transportation companies think twice before embarking in building or buying additional steamships for such services.

Major A. G. Lincoln is reported to be travelling through the prairie provinces obtaining estimates for the Dominion Government for the inauguration of a trans-Canada air mail and express service. It is said that a station will be located between Calgary and Banff, Alta., as the taking off place for the flight across the Rocky Mountains. Captain J. F. Hobbs is reported to have been making similar investigations in British Columbia.

The Prince Edward Island Transportation Co. is a party to an application to the Halifax, N.S., City Council, for permission to build an aerodrome at Halifax. The company, which is to operate in conjunction with the De Vere Aviation School, proposes to establish air vines, with branch lines to Montreal, routes throughout the Maritime Provinces, with branch lines to Montreal, Boston and New York.

The Aerial Transport and Taxi Co. Ltd., has been incorporated under the Dominion Companies Act, with \$75,000 authorized capital, and office at Winnipeg, to maintain and operate a service of air craft of all kinds for the carriage for hire of passengers, mail, express and freight between points within or without Canada. G. A. H. Dysart, A. E. Bell, H. N. Streight and R. Tidmus, Winnipeg, are the incorporators.

Captain Ross Smith, an Australian who left London, Eng., Nov. 12, to make a flight to Australia, within 30 days, reached Port Darwin, the most northerly town on the island, Dec. 10, well within the time limit. He won the £10,000 prize offered by the Australian Government, and a \$10,000 prize offered by a London, Eng., newspaper. The route followed was via Cairo, Delhi, Rangoon, along the Malay peninsula, and the Oceanic Islands, and the distance flown is estimated at 11,500 miles.

The possibilities of Moncton, N.B., as a center for air routes, and the location of an aerodrome and aviation school are under consideration. The mayor and members of the city council received a deputation Dec. 10, when the advantages of Moncton as a center for aviation were urged. The council appointed a committee to act with the promoters in looking over sites and to report at a future meet-

ing. It was stated that here would probably be 10 machines used on the line, with 6 for training purposes.

The Aerial Transport and Taxi Co. Limited, has been incorporated under the Dominion Companies Act with an authorized capital of \$75,000 and office at Winnipeg, to operate aircraft services of all kinds for the carriage for hire of passengers, mails, express and freight between points within or without Canada, and with various other powers necessary for the carrying out of the same. The provisional directors are: G. A. H. Dysart, A. L. Dysart, A. E. Bell, H. M. Streight and R. Tidmus, Winnipeg.

Bishop-Barker Aeroplanes Ltd. has been incorporated under the Ontario Companies Act with authorized capital of \$300,000 and office in Toronto, to manufacture and deal in all kinds of goods, ware and merchandise, and in particular to make and deal in, and to operate all kinds of aircraft; to organize and carry into effect aviation and flying meetings, exhibitions, completions and contests, etc.; to maintain lines of aircraft, to carry passengers, freight and goods by aircraft; to carry on schools for the teaching of flying, and to do various other things incidental thereto. A press report states that the transfer of the Bishop-Barker Co.'s interests has been completed, that Colonel W. G. Barker, V.C., is the managing director of enterprise, and that the Armour Heights aerodromes, Toronto, have been acquired as the headquarters of the business.

Lotbiniere and Megantic Railway Bought by Dominion Government.

The Dominion Parliament passed an act in 1918 authorizing the Governor in council to acquire, under the provisions of the statutes of 1915, chap. 16, upon such terms as might be approved the Lotbiniere and Megantic Ry., together with such equipment and properties as might be deemed necessary for its operation. The consideration to be paid for the line and for the "equipment and appurtenances" to be the value thereof as determined by the Exchequer Court. In explaining the bill, which provided also for the purchase of the Quebec and Saguenay Ry., and the line known formerly as the Quebec, Montmorency and Charlevoix Ry., also from the Quebec Railway, Light, Heat & Power Co., the Minister of Railways gave the following information relating to the L. and M.R. The capital cost of the line was \$349,208.85; and the price at which it would be taken over, subject to the finding of the Court of Exchequer, was to be \$330,000. Parliament at the same session voted \$300,000 to acquire the railway.

"(a) The line of railway commonly known as the Quebec Montmorency and Charlevoix Ry., extending from St. Paul Street in the City of Quebec, to St. Joachim, a distance of about 43 1-5 miles.

"(b) The Quebec and Saguenay, extending from its junction with the Quebec, Montmorency and Charlevoix Ry. at St. Joachim, in the County of Montmorency to Nairn Falls, in the County of Charlevoix, a distance of about 62 8-10 miles.

"(c) The Lotbiniere and Megantic Ry., extending from Lyster, in the County of Megantic, to St. Jean des Chaillons in the County of Lotbiniere, a distance of about 30 miles.

"That the authority given by the said act of 1916 was not exercised, owing to certain legal difficulties which arose in connection with the Quebec and Saguenay Ry., which line has since, however, been taken over by the government under authority of the appropriation acts passed during the first session of parliament this year. The Minister, on the advice of the Deputy Minister of Railways and Canals, recommends that, in pursuance of the above mentioned act, 1915, chap. 16, authority now be given for the purchase of the Lotbiniere and Megantic Ry. at the price of \$330,000, such price to include the whole of the company's undertaking, including all real estate, tracks, buildings, franchises, rolling stock and tools, and all other property whatsoever of the company, free and clear of all encumbrances, and to be paid only after the amount has been appropriated by parliament for the purpose, and upon receipt of a deed of conveyance to be obtained through and satisfactory to the Justice Department, such conveyance to cover all the aforesaid property, free of all encumbrances and claims whatsoever; the extent of right of way including station grounds and terminals to be conveyed, to be such as may be satisfactory to the Railways and Canals Department, the said railway to be transferred to the Crown on Dec. 1, 1919, and, pending settlement, interest to be paid on the purchase price at the rate of 5% per annum from such date of final payment; the said railway to be operated as part of the Canadian Government Rys. System by the Canadian Northern Ry. board of directors. The Minister observes that the Lotbiniere and Megantic Ry. connects with the G.T.R. at Lyster Junction,

with the Canadian Government Rys. at Villeroy, and with the Quebec, Montreal and Southern Ry. at Fortierville.

"The committee concur in the foregoing recommendation and submit the same for approval."

The Quebec Railway, Light, Heat & Power Co.'s directors ratified the sale at a meeting in Montreal, Dec. 10, 1919.

The Lotbiniere & Megantic Ry., which was built under a Quebec charter, extends from Lyster on the G.T.R. to St. Jean des Chaillons, 30 miles. The results of its operations for the year ended June 30, 1918, were as follows:

Earnings—		
Passenger earnings	\$ 6,167.78	
Freight and switching	35,324.22	
Other earnings	15.00	\$41,507.00
Expenses—		
Maintenance of Ways and Structures	\$11,824.11	
Maintenance of equipment..	4,279.26	

Traffic expenses	411.00	
Transportation	13,817.79	
General expenses	5,575.40	\$35,907.56
Net operating earnings.....		\$ 5,599.44
Deductions—		
Taxes		\$ 900.00
		\$ 4,699.44
Corporate Income—		
Rentals		\$ 2,106.96
Net income		\$ 2,592.48

The railway carried during the year under June 30, 1918, 11,370 passengers, and 62,867 tons of freight. The company was reported to own 4 freight locomotives, 2 first and 2 second class passenger cars, 1 box, 24 flat and 1 other car in freight service, and one caboose. The company received subsidies from the Dominion amounting to \$96,000; and from Quebec, \$126,994. In 1907, the Quebec Legislature incorporated the Quebec

Eastern Ry. to build a railway from Sherbrooke to the site of the Quebec Bridge, with power to arrange for the operation of the line into Quebec; a branch line to Lyster, with power to acquire the Lotbiniere & Megantic Ry.; a branch to Lime Ridge, and unnamed branch lines. Extensions of time for the building of the lines were granted from time to time, but nothing was ever done. Several years ago the L. & M.R. was acquired by the Quebec Railway, Light, Heat and Power Co.

The Exchequer Court held several sittings towards the end of 1916, at which evidence as to the cost of the railway and its property was given.

The L. & M.R. has been operated for several years under the Quebec Railway, Light, Heat and Power Co.'s officials, G. W. Robins being the Superintendent at Lyster, Que.

Conservation of Lumber in Farm, Street and Highway Crossings.

The following committee report was presented at the Roadmaster and Maintenance of Way Association's last annual meeting in Chicago:—

It rests with the maintenance of way department men to advocate substitutes for lumber to a larger extent than the managements have yet seen fit to do, or we ourselves have recommended. For instance, only a few roads have adopted such excellent substitutes as asphalt, road oil, macadam, etc., for farm, street and highway crossings, and while concrete is not a novelty on railways, as for years past its value and usefulness have been developing, this development has been much slower in the maintenance of way department than circumstances would appear to warrant, especially in the lighter forms of construction where timber has been and is now used, such as fence, mile and whistling posts, town and county markers, chaining stakes, gate posts, pipe line supports and signal and telegraph poles. However, it will be the purpose of this report to treat only of crossings.

It was, of course, following the lines of least resistance that plank or timber was laid between and outside the rails to permit a vehicle to be driven across a railway track, and, for a more highly finished job, planks of specified thickness, length and width were made standard supplies, and laid with care and precision, fastened with 6, 8 or 10 in. spikes and the ends leveled. Because of wear and tear, derailments, heaving in winter, etc., they had to be renewed frequently. Without going into details as to the maintenance expense of wooden crossings, a report from one supervisor's division shows that it required 53,678 ft. of lumber, 3,226 lb. of crossing spikes and a labor charge of \$5,642.96 to maintain the public and private crossings on his territory for one year, the cost of the plank alone being \$1,717.70. It is not the purpose of this report to go into the details of the unit cost of maintaining single crossings, but as the subject assigned to the committee implies, to advocate the conservation of lumber by using well recognized substitutes. If on one division 53,678 ft. of lumber can be conserved, assuming that it requires 512 ft. for one single track highway crossing or twice the amount for a double track crossing, and assuming that there are

50 or more highway crossings on each of 3,000 supervisors' divisions on the railways of the country, the use of some other material than lumber would mean the conservation of 76,800,000 f.b.m., amounting to \$2,457,600. And this does not include farm crossings or streets sometimes planked solidly from one side to the other of six or more tracks.

Since maintenance is an operating expense, it has to be paid out of the income and as a crossing must be kept up continually, the method of maintaining it should be simple so as to be grasped readily by the average workman. To be practical the work should be performed with the least possible equipment and this should be of such character as will always be on hand. To be economical, the expense must be within reason and not exceed that of other methods and materials that are used for work of like nature, producing like results.

The committee recommends that, as far as possible, all rail joints be eliminated in road crossings; that good drainage be installed; that all road crossings in high speed tracks be made of crushed stone of standard size, mixed either with good road oil, bituminous, macadam, asphalt or other good substitute for lumber. In parts of the country where there is considerable frost, and where tracks heave, the sealing of the crossings with these substitutes will keep out the moisture and frost, and eliminate the heaving of tracks to a considerable extent; also, the heaving of crossing planks, which is a source of danger, will be eliminated. On slow speed tracks and where heavy trucking is done in yards, etc., track should be paved.

Excellent results have been obtained in eliminating signal failures and also from the standpoint of safety from crossings constructed according to the following specifications:

Formula 1—Clean out all dirt and ballast down to 2 in. below the bottom of the ties for the full width of the crossing and for a distance of 2 ft. outside of the outside rails.

Replace all damaged rails and ties in the crossing, bond all joints, that cannot be eliminated, with 3 copper bonds per joint, put all track through the crossing in first class line and surface, thoroughly tamp them up and install good drainage.

Paint rails with asphalt, applied hot with a brush or swab, covering thoroughly the entire surface of the rail below

the under side of the head, including the under side of the base.

Pack around the rails for 8 in. on each side with a mixture of crushed stone up to ½ in. in size, and hot asphalt, tamping this mixture thoroughly to ensure a complete bond with the rail at all points.

Refill the crossing with good clean crushed stone (ballast size), up to the level of the under side of the head of the rail, rolling or tamping it thoroughly.

Cover the entire crossing with fine stone up to the level of the top of rails, sprinkling freely with a good quality of road oil while fine stone is scattered. Roll or tamp this covering thoroughly and sprinkle the entire surface with road oil.

Cost of formula 1, with road oil at 1918 prices:

Double track—	
Ballast size stone, 6.46 cu. yd. at 80c.....	\$ 5.17
½ in. size stone, 3.26 cu. yd. at 70c.....	2.28
Oil to cover 352 sq. ft., 100 ga. at 18c	
a gal.	18.00
	\$25.45

Planking for a similar crossing would cost \$56.

Single track—	
Ballast size stone, 2.53 cu. yd. at 80c.....	\$ 2.02
½ in. size stone, 1.33 cu. yd. at 70c.....	.93
Oil to cover 144 sq. ft., 50 gal. at 18c	
a gal.	9.00
	\$11.95

Planking for a similar crossing would cost \$28.

Formula 2—Clean out all dirt and ballast down to 2 in. below the bottom of the ties for the full width of the crossing and 2 ft. outside of the outside rails.

Replace all damaged rails and ties in the crossing, bond all joints that cannot be eliminated with 3 copper bonds per joint, put all tracks through the crossing in first class line and surface, thoroughly tamp them up and install good drainage.

Paint rails with asphalt, applied hot with a brush or swab, covering thoroughly the entire surface of the rail below the under side of the head, including the under side of base.

Pack around the rails for 4 in. with a mixture of crushed stone of ½ in. size and hot asphalt, tamping it thoroughly to ensure a complete bond with the rail at all points.

Refill the crossing with good clean crushed stone (ballast size) up to the level of the under side of the head of the rail, mixed with a good mixture of good bituminous macadam, rolling and tamping it thoroughly.

Cover the entire crossing with fine stone of ½ in. size, to the top of the

rails, thoroughly mixed with good bituminous material and rolled or tamped thoroughly.

Cost of formula 2 with bituminous at 1918 contract prices:

Double track—
Ballast size stone, 6.46 cu. yd. at 80c.....\$ 5.17
½ in. size stone, 3.26 cu. yd. at 70c..... 2.28
Oil to cover 352 sq. ft., at 2½c..... 8.80

\$16.25

Planking for a similar crossing would cost \$56.

Single track—
Ballast size stone 2.53 cu. yd. at 80c.....\$2.02
½ in. size stone 1.33 cu. yd. at 70c..... .93
Oil to cover 144 sq. ft., at 2½c..... 3.60

\$6.55

Planking for a similar crossing would cost \$28.

Formula No. 3.—Clean out the ballast, dirt, etc., for the full width of the roadway, down to 2 in. below the bottom of the ties.

Eliminate all joints, or as many as possible, from the limits of the roadway.

In automatic signal or electric track circuit territory, insulate the rail on all sides, except the head, by the application of asphalt or similar insulating material.

See that all ties through the crossing are good and provided with tie plates under each rail. Tamp tracks thoroughly and see that they are put in first class condition as respects ties, line and surface.

Fill the spaces between the ties, and between the tracks, for the full width of the road between the outside ends of the outside tracks, and for the full width of the highway, with clean stone ballast thoroughly settled together, this stone of ballast size to come up to the under side of the head of the rail.

Make a concrete mixture of clean small

stone or gravel and emulsified asphalt as follows: Select a good grade of stone screenings containing particles of stone up to ½ in., but with the fine dust and loam screened out, or a clean fine gravel containing a very small percentage of loam makes a good aggregate. Mix 2 gall. of good no. 1 road oil with 1 gall. of cold water, or larger quantities in proportion. Use 2 gall. of the mixture to 1 cu. ft. of aggregate, and mix well until all particles are well coated with this emulsified asphalt, the same as in mixing concrete. Spread the concrete thus made over the surface of the road and roll or tamp thoroughly to the level of the tops of the rails. Better results will be obtained in the way of a smooth surface if traffic can be kept off the new surface for about 24 hours after placing. If this is not possible the surface should be watched and all ruts smoothed out until it has thoroughly hardened.

Where the existing crossing is good except for the top surface, all that is necessary is to scrape off this top surface for about 2 in. below the top of the rail and proceed as above, beginning with the last preceding paragraph.

Cost for formula 3 at 1918 prices:

Double track—
Ballast size stone, 6.46 cu. yd. at 80c.....\$ 5.17
½ in. size stone, 3.26 cu. yd. at 70c..... 2.28
Oil to cover 352 sq. ft., 100 gal. at 22c..... 22.00

\$29.45

Planking for a similar crossing would cost \$56.

Single track—
Ballast size stone, 2.53 cu. yd. at 80c.....\$ 2.02
½ in. size stone, 1.33 cu. yd. at 70c..... .93
Oil to cover 144 sq. ft., 50 gal. at 22c..... 11.00

\$13.95

Planking for a similar crossing would cost \$28.

Disallowance of New Brunswick Railway Legislation Asked.

The New Brunswick Legislature at its 1919 session passed an act of seven sections, relating to provincial railways, the last of which enacts that its provisions do not apply to any street railway. Sec. 1 provides that notwithstanding anything contained in the charter of any provincial railway, or any amendment thereof, or chap. 91 of the Consolidated Statutes of 1903, or of any other act affecting railways operating under provincial statutes, the tolls charged on such railway shall be subject to revision or alteration by the Lieutenant-Governor in council, or by the Board of Railway Commissioners for Canada, and names penalties for failure to comply with the terms of the section. Sec. 2 provides that all tolls proposed to be charged by any railway operating under a provincial charter must be approved by the Lieutenant-Governor in council, and names penalties for failure to comply.

The following four sections deal with another matter which is of special importance to the few companies in New Brunswick which are under provincial jurisdiction. Section 3 provides that if it shall appear to the Minister of Public Works that a railway company operating under a provincial charter is not providing proper, safe or adequate service for the public, he shall cause an investigation to be made, and of this should show that the failure to provide such service as the Minister of Public Works may deem necessary arises "either from lack of proper maintenance facilities, lack of proper equipment in the matter of locomotives, rolling stock, train and section

crews, or defects in the bridges, culverts, or any portion of the road, the Lieutenant-Governor in council shall have power to order that provision be forthwith made as necessary. Sec. 4 provides that if the investigation shows that the failure to provide adequate service is caused in whole or in part by the bridges, culverts, or any portion of the roadbed being in such a condition that freight or passenger traffic is not handled in as expeditious and safe manner as the same should reasonably be, then the Lieutenant-Governor in council shall have power to order the reconstruction or repair of any bridge or culvert or any portion of the roadbed which he may deem necessary for the safe and expeditious transportation of freight and passengers. Sec. 5 provides for the giving notice to the company affected of the work required to be done, etc., and names penalties for noncompliance with the notice. Sec. 6 provides for the enforcing of a daily service and penalties for failure to conform to requirements.

Sec. 7 is perhaps the most important in the act, as it provides that in the event of the failure of any railway company to carry out any order . . . under secs. 3 or 4 . . . and notwithstanding that a fine may have been imposed and collected for such failure, the Minister of Public Works may have such work done under his supervision and the costs of the same paid out of the revenue of the defaulting company. The section provides that in case the company's revenues are not sufficient, the unpaid balance shall be a lien on the company's

property, and the line may be seized and sold. The Minister of Public Works shall then discharge the lien, and the balance shall be distributed among those entitled thereto under the orders of a judge of the N.B. Supreme Court. The section also authorizes the Minister of Public Works to give a good and efficient conveyance for any railway so sold.

The Caraquet and Gulf Shore Ry. bondholders have petitioned the Dominion Government to disallow the act. The petition alleges that the act is "so drastic, unjust and confiscatory in its scope and character" as to destroy the selling value of the bonds of the railway, to render valueless the assets held by trustees in the bonds, to prevent the borrowing of money for betterments, and that the expressed object in passing the act, although general in its scope, was to compel the petitioning company to bring its railway up to a higher standard of efficiency and to force it to comply with the provisions of the act. It is further alleged that the real logical effect will be to take away all security of the bondholders without compensation and "with such refined pretention as to shock the conscience of all honorable men, and to shake the confidence of foreign and domestic investors in Canadian securities." The petition was signed by Sir John Gibson, for Canadian bondholders and by C. E. Ritchie for United States bondholders. Up to the time of writing no action has been taken by the Dominion Government in request to it.

The English Channel Tunnel Project.

A London, Eng., cable of Dec. 9, gives considerable information with regard to the present position of the project for the construction of a tunnel under the Straits of Dover, to connect England and France. Sir Edward Fell, Chairman of the Channel Tunnel Committee of the House of Commons, is reported to have said the British Government is supporting the project. The railways interested are the South Eastern and London, Chatham and Dover Ry. in England and the Chemin de Fer du Nord in France. The total length of the tunnel, including approaches will be about 30 miles, and it will consist of 2 tubes, with a drainage tube underneath. Starting about three miles inland from Dover, it will follow the gray chalk bed of the channel, which does not run in a straight line across, and will emerge near Marquise, a village between Calais and Boulogne. It is stated that work will be started simultaneously in England and France, and that it is expected to be completed within five years after the start. Electricity will be used to operate the trains. The cost of the tunnel and its equipment is estimated at from \$150,000,000 to \$160,000,000.

The C.P.R. Films Prince's Tour.—The C.P.R. has taken a complete set of films of the Prince of Wales tour through Canada while passing over its line. A set of these was given to the Prince, for his own use. The films were shown by the C.P.R. at Albert Hall, London, Eng., Dec. 15, when the King and Queen, together with other members of the royal family, were present. Sir George McLaren Brown, European General Manager, C.P.R., presided over a subsequent exhibit, the proceeds of both being in aid of the London Hospitals. It is said that the films will be shown throughout the country.

The Railway Association of Canada's Organization.

Canadian Railway and Marine World for December contained some particulars about the organization of the Railway Association of Canada, to succeed the Canadian Railway War Board.

The Constitution is as follows:

The name of this organization is The Railway Association of Canada.

The purposes of the association are, consideration and recommendation upon matters pertaining to the operation of steam railways in the Dominion of Canada. To make such representations to the Government of Canada, the Board of Railway Commissioners for Canada, or to such other public bodies or other railway associations as in the opinion of the association may be desirable in matters of common interest to member companies. To act on behalf of member railways, either jointly or severally, as may be authorized, as the executive committee may from time to time approve.

Arrangements and agreements entered into by the association, after receipt of due authority from member railways, shall be binding upon railways which give such authority, until amended or annulled in accordance with the understanding reached by the respective parties at the time of making such arrangements and agreements. In other matters the action of the association shall be recommendatory and not binding upon any member.

Its membership consists of carriers which operate steam railways in Canada, but no carrier operating less than 50 miles of road, including trackage rights, or which operates primarily as a plant facility, shall be eligible for membership. Each carrier shall be entitled to exercise the right of one membership for each 1,000 miles of road or fraction thereof operated by it, including trackage rights. The executive committee, as may be necessary, shall determine the qualifications for membership under this constitution. The executive committee may admit to the association as associate members, carriers which are not eligible for full membership.

Each membership is entitled to one vote. Where member companies have more than one vote on basis of mileage, one officer of such company may cast total vote. Associate members shall not be entitled to vote.

A carrier may withdraw from the association by formal notice after payment of assessments due; or if a carrier shall fail to pay its assessments for one year from date of first unpaid assessment, shall be excluded as a member of the association.

Its organization shall include an executive committee to consist of five members (one of whom shall be President of the association), who shall be elected at a regular session of the association, to serve for three years, and an Honorary Chairman, who shall be ex officio a member of the executive committee. Each member of the executive committee shall be president of a Canadian railway. A vacancy on the executive committee may be filled by nomination by remaining members of committee pending next regular session of the association. There shall be an operating, a traffic, a financial and a legal committee, each to consist of five members selected by the member lines. There shall be on each committee, a chairman and a vice chairman who shall be elected by a majority vote of the

members present at a meeting of the committee. Office will be held for one year. A vacancy may be filled by election at any meeting of the committee concerned.

It is the duty of the executive committee to direct general policies of the association, to pass upon recommendations and reports of committees, and, if approved, to authorize the completion of arrangements or agreements recommended by such committees. The Honorary Chairman, or, in his absence, the President, shall attend all regular sessions of the association.

It is the duty of the operating, traffic, financial and legal committees to exercise general supervision over those features of the association's work which are generally recognized as coming within the jurisdiction of the department of railway organization which corresponds to the respective committees; to make recommendations and reports to, and to give effect to instructions received from the executive committee; to appoint such sub-committees or sections as may be considered necessary to the prompt and efficient handling of the work of the association and to receive and pass upon reports and recommendations of and to direct the activities of subcommittees.

The head office of the association shall be located in Montreal.

The office work and staff of the association shall be in charge of a General Secretary appointed by the executive committee.

It is the duty of the General Secretary to keep a full and complete record of the proceedings of each meeting of the association or its committees and subcommittees; to notify members of the date and location of, and to provide copies of the proceedings of each meeting. He shall act as secretary of the several committees and subcommittees or arrange for a secretary in his absence. He shall select an Assistant General Secretary and such other assistants as the business of the association may require, subject to approval of the executive committee. The General Secretary shall also act as Treasurer of the association and shall receive, disburse and account for all monies received or expended, and shall deposit the funds of the association in such banks or places of deposit, as may be approved by the executive committee. He shall make a quarterly report of the finances in detail to the executive committee. All cheques issued by the association shall bear the signature of the General Secretary and be countersigned by a member of the executive committee.

Bylaws—Following are extracts from the bylaws:

A regular session of the association will be held on the second Tuesday of May of each year at such place as the executive committee may determine. Special sessions may be called by the General Secretary at request of the Honorary Chairman or President, or on a written request of three members. The executive committee may change the date of a regular session when in its judgment the best interests of the association will be thereby conserved. Statements of subjects which member lines may require to present at a regular session shall be forwarded to General Secretary not later than 30 days prior to date of meeting.

Docket of matters to be dealt with at regular session shall be sent to all member lines not later than 15 days prior to date of meeting.

Any officer or a member will be admitted to the sessions and may join in the discussion and serve on the committees and subcommittees, subject to the provisions of the constitution.

The association shall have a working fund of \$15,000, established by assessment against member railways. Assessments shall be made on the basis of half in proportion to the mileage operated (including trackage rights) and the other half in proportion to the gross earnings for the preceding fiscal year, as shown in Railway Statistics of the Dominion of Canada. The working fund shall be maintained by assessments on the above basis against member railways at the end of each quarter, to cover expenses incurred by the association during the quarter.

The fee for associate membership shall be ten dollars per annum.

Each member has the privilege of voting for five candidates for membership on each of the executive, operating, traffic, financial and legal committees. The five persons receiving the highest number of votes cast for membership, shall be declared elected. All such votes shall be by ballot prepared by the General Secretary.

Committee—The composition of the committees was given in Canadian Railway and Marine World for December. Following are the subcommittees:

The Railway Association of Canada.

TRANSPORTATION—H. T. Malcolmson, Superintendent, T., H. & B. Ry.; H. Shearer, General Superintendent, Michigan Central Rd.; C. G. Bowker, General Superintendent, G.T.R.; F. P. Brady, General Manager, Canadian National Rys.; A. Price, General Manager, C.P.R.; W. H. Farrell, General Manager, Algoma Eastern Ry.; W. A. Griffin, Superintendent of Traffic, T. & N.O. Ry.

CAR SERVICE—J. E. Duval, General Superintendent Car Service, G.T.R.; A. Hatton, General Superintendent Car Service, C.P.R.; A. E. Lock, Superintendent Car Service, T., H. & B.R.; J. P. Driscoll, General Superintendent Car Service, Canadian National Rys; W. S. Moy, Car Accountant, Quebec Central Ry.; W. M. Hugill, Superintendent Car Service, Algoma Central & Hudson Bay Ry.; J. S. Gordon, General Manager, Quebec Oriental Ry.; C. A. Stewart, Manager, Temiscouata Ry.

ROLLING STOCK—W. H. Sample, General Superintendent Motive Power, G.T.R.; W. H. Winterrowd, Chief Mechanical Engineer, C.P.R.; W. U. Appleton, Mechanical Superintendent, Canadian Superintendent, Canadian National Rys.; H. L. Rodgers, Mechanical Engineer, T. & N.O. Ry; W. T. Kuhn, Superintendent Motive Power, T., H. & B. Ry.; G. M. Robins, Master Mechanic, Quebec Central Ry.; G. E. Parks, Mechanical Engineer, Michigan Central Rd.; T. C. Hudson, General Master Mechanic, Canadian National Rys.

ENGINEERING—F. L. C. Bond, Chief Engineer, G.T.R.; A. F. Stewart, Chief Engineer, Canadian Northern Ry.; J. M. R. Fairbairn, Chief Engineer, C.P.R.; S. B. Clement, Chief Engineer, T. & N.O. Ry.; R. S. McCormick, General Superin-

tendent and Chief Engineer, Algoma Central & Hudson Bay Ry.; R. L. Latham, Chief Engineer, T., H. & B. Ry.

WAGES AND WORKING CONDITIONS—E. R. Battley, Superintendent Motive Power, G.T.R.; A. J. Hills, Assistant to President, Canadian National Rys.; George Hodge, Assistant to Vice

President, C.P.R.

Additional subcommittees will probably be appointed to deal particularly with details of matters pertaining to railways operating west of the Great Lakes. It is probable also that some additional committees will be appointed in the east.

The End of Year One of Canadian National Railways.

By D. B. Hanna, President, Canadian National Railways.

Completion of the first year in the life of the Canadian National Rys. is an important milestone on the road of transportation progress. If it were a plough we had put our hands to we might not look back, but the careful engine driver, still keeping a hand on the throttle, should look back now and then to see if his train is all right, and if the tail end is coming along, and also to get a high ball or stop signal as he approaches a station. We in the railway world, therefore, can justify a certain amount of retrospection.

The year's operations have, of course, been affected by the fact that 1919 was the first year of the readjustment period following the cessation of hostilities. Apart from the movement of returning troops, the almost immediate effect of the armistice was a falling off in traffic in war commodities, including foodstuffs. It was only to be expected that it would take time for after war activities to make up the traffic created by the tremendous munition industries established throughout Canada; also foodstuffs bottled up in other countries, which had not, during the war, had a submarine swept course to European ports, were thrown on the world's markets, somewhat affecting our exports of such commodities. For these reasons railway freight traffic has shown that the higher fares have not kept the public from travelling. The resumption of some train services that were curtailed as war measures has been justified.

The return of our soldiers from the front and the release of men from war activities in Canada has resulted in more labor being available for maintenance work. This condition, coupled with the lifting of restrictions on capital expenditures which the war enforced, has enabled the railways to put in a busy year on betterment work, and the completion of certain lines in the west, commenced before the war, has been proceeded with.

The activities of the year have, therefore, been sufficient to test the management under government ownership. I am glad to state for the information of those who wish us success, but who doubt that this can be achieved, that I have not observed the slightest tendency of officers to become slack, or in any way to lose their interest. Our men are as much on the job as any railway officers I have come in contact with, and, man for man, I do not think the staff of the Canadian National Rys. is surpassed anywhere on this continent. We have been watching very carefully the train operation, particularly where the service initially was not satisfactory, and I am glad to say that we see a marked improvement. We shall continue our efforts and hope that "national service" will become synonymous with "good service."

During the year a step of great importance has been taken by the Dominion Government in passing legislation to acquire the Grand Trunk Ry. System

lines for addition to the Canadian National Rys. While some time will necessarily elapse before the lines will be operated as one system, yet the action taken ensures what I regard, and what I believe the people of Canada will quickly learn to recognize, as a wise solution of the railway problem of this country, namely the creation of a strong competitor for the C.P.R. The President of the C.P.R. in speaking recently in Toronto, said that one of the reasons why he hoped (against his fears) that the national system would be a success was that railways generally dreaded the competition of an irresponsible competitor, which is a railway truth.

It may be accepted as another railway truth that the day of the small independent railway system has passed. In the United States, where the railway problem is very much in the public eye, the experience obtained in the two years during which U.S. railways have been under government control has shown that certain measures, which railway managements had resorted to as good business moves, but which regulating bodies had more or less recently made illegal, were really in the best interests of the country as a whole; therefore it is proposed, in turning back the railways to their owners, that certain of these practices previously frowned upon, should now be encouraged. Consolidations and mergers, and the pooling of traffic, earnings, equipment and facilities are to be permitted. There is to be a greater co-ordination between rail and water carriers, more especially on inland waters.

Several plans put forward, by various groups, for legislation to cover the situation, provided for compulsory consolidation of the lines into great, but competing, systems. So that an accepted condition of proper transportation for a large country would appear to be large systems, but preserving competition. It should afford the people of Canada considerable satisfaction to know that the contemplated plans and generally accepted proper policy for the U.S. to adopt with respect to the railway problem seem to be largely along the lines of securing what the Canadian Government has taken steps to obtain. In Canada, two strong systems, serving every community in the country, will compete for the nation's business. We look forward with confidence, not to the death by exhaustion of our single, but great, competitor, but to a healthy and active rivalry, with full co-operation, should the transportation requirements of the country ever demand it. That one of the two systems is owned by the people through the government should, in my opinion, improve rather than adversely affect the situation. After a year's trial of the present plan of control of the National railway system, there has been, I am able to say, no governmental or political interference. Those of the government, or other members of parlia-

ment, who wanted information have received it. I have not been approached to make a single political appointment. I see no reason why this condition should not continue. The national railways system, in my opinion, has a future as bright as the nation itself. We must be identified with the progress of every community in Canada. We shall assist wherever we can, consistent with good business principles.

As a new year's thought, I would like to ask the public to help, but co-operating with us, to rectify such conditions as should be improved, by advising our officers when they see things that are not just as they should be. Our officers will appreciate such assistance from the public, with whom it is our endeavor to operate in closest harmony. We will not be able to do everything at once, but will endeavor to make such progress as traffic and other conditions will warrant. Our officers regard their duties as a public trust, and the public should not hesitate to approach them on subjects which mean improvement to the service, consistent, of course, with efficiency and economy.

When it is realized that over 50% of the country's railway mileage will, with the inclusion of the G.T.R. lines, be operated by the Canadian National Rys. System, it should be appreciated to what a great extent the future welfare of Canada may be affected by the success or failure of this system, and the public generally should support the line which is national in ownership and extent, and which the management desires should be truly national in helpful identification with Canada's development as a nation.

Proposed Windsor-Detroit Bridge.

Organization of a company comprised of Canadian and United States capitalists is reported to be in progress to build a railway and general traffic bridge across the Detroit River, to connect Windsor, Ont., with Detroit, Mich. A press report states that a fund has been credited for investigation purposes, including the collection of data on traffic possibilities.

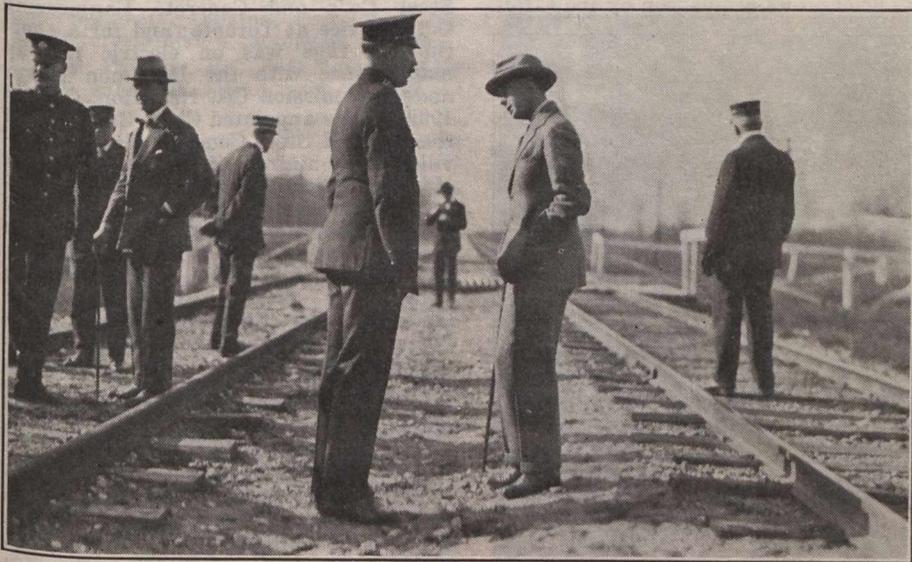
The proposition is to erect a bridge, supported on towers on either side of the river with a double deck suspension span. Capable of carrying railway, street car, automobile and general traffic. Connection would be made, so far as the railway is concerned, with the Fort St. Union Depot Co.'s terminal tracks on the Detroit side and with the Essex Terminal Ry. tracks on the Windsor side. The floor of the span would be 100 ft. above water level, high enough to permit the passing of the largest ships. It is said that the Lake Carriers' Association will not offer any objection to the building of a bridge which gives a sufficient headway for navigation. The details of the approaches have been worked out, it is said, on different plans. G. L. Lindenthal of New York, and C. E. Fowler, are mentioned as the engineers. The estimated cost of the undertaking is \$28,000,000.

Railway Lands Patented—Letters patent were issued during Nov., 1919, in respect of Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

Alberta and Great Waterways Ry.....	Acres. 65.10
Canadian Northern Ry.....	163.00
Edmonton, Dunvegan and British Columbia Ry.	6.17
Total	234.27

The Prince of Wales' Tour Over the G.T.R.

When the Prince of Wales was making part of his Canadian tour over the G.T.R. lines in Ontario recently, H. R. Charlton, General Advertising Agent, G. T.R., representing President H. G. Kelley, presented him with a handsome composite picture, composed of a photograph of the then Prince of Wales (the late King Edward VII.) and staff, taken at Montreal in 1860; a photograph of the Duke and Duchess of Cornwall and York (King George V. and Queen Mary), and staff on the Victoria Jubilee Bridge, Montreal, in 1901; views of the old Victoria tubular bridge and the present Victoria Jubilee bridge; a photograph of the locomotive that pulled the royal train in 1860 and the locomotive used on the royal train in 1919. The picture is surrounded with a gold frame and enclosed in a beautiful Canadian birdseye



The Prince of Wales saying goodbye to his bodyguards on the C.P.R. at Flavelle, between Colborne and Grafton, Ont., Nov. 6, 1919.

The Prince is shown talking to Constable C. Rippington. Admiral Sir Lionel Halsey (to the left in civilian clothes) is talking to Constable R. Beresford. Conductor R. Dort is also shown in the illustration.

maple box, upholstered in royal blue with a gold plate on the cover bearing an inscription.

Rear Admiral Sir Lionel Halsey, the Prince's chief of staff, wrote President Kelley as follows:—"I am writing to you on behalf of the Prince to say how much he appreciates the magnificent present, consisting of the composite picture which has been presented to him by the Grand Trunk authorities through Mr. Charlton. His Royal Highness very much appreciates this gift and he will keep it as a souvenir of a very pleasant time spent on the G.T.R. System."

Sir Lionel Halsey, also wrote Mr. Kelley as follows:—"I am most grateful to you for the kind present of the descriptive itinerary which has been made to me. The book is most beautifully got up, and besides being a work of art is most useful, and I can only say that from a staff point of view it has saved some of us an endless amount of work in ferretting out for ourselves details of the various places we visit. Whoever compiled it is, in my opinion, worthy of a very good mark. His Royal Highness desires me to thank you very much for the copy of the book which has been handed to him by Mr. Charlton."

Canadian Pacific Railway Construction, Betterments, Etc.

West St. John Baggage Shed—We are officially advised that the baggage shed which is being built at West St. John, N.B., is 500 x 60 ft. with a covered baggage loading platform 12 ft. wide on one side and a covered passenger loading platform on the other. Both shed and platform are being built on pile foundations, and will be all timber construction. The shed will be steam heated and electrically lighted. The baggage shed will be reached from the immigration rooms on the upper floor of the present wharf shed by an enclosed overhead passage way over the tracks and an enclosed rampway down to the baggage shed floor level. Work was started Nov. 14, and it is expected to have the shed ready for use by Jan. 15. The plans were prepared under the direction of J. M. R. Fair-

Consul, Sask., easterly; mile 0 to 30; grading, 41% completed.

Leader, Sask., southerly; mile 0 to 25; grading 46% completed.

Acme-Drumheller line, Alta.; mile 0 to 37; grading, 22% completed.

The contractors for the six last mentioned lines are Stewart and Welch, Calgary, Alta.

Corinne Station—The Board of Railway Commissioners has approved plan for station building at Corinne, Sask., mile 120 from North Portal, on the line to Moose Jaw.

Acme-Empress Extension—The Board of Railway Commissioners has authorized the building of a bridge over Kneehill Creek, mile 34.21 on the Acme-Empress extension, Langdon North Branch, Alta.

Calgary Spur Line—A press report states that the Calgary, Alta., City Council proposes to apply to the Board of Railway Commissioners for an order for the electrification of the company's spur line from Twelfth Ave., along Fifth St. East.

Squilax Station—The Board of Railway Commissioners has ordered the placing of a standard portable station at Squilax, B.C., 41 miles east of Kamloops, on the main transcontinental line.

Vancouver Improvements—A press report states that the bunkers, construction tracks and construction material, together with the poles and wires at Twenty-seventh Ave., will be removed early this year. (Dec., 1919, pg. 661).

Regina Spur Lines—A press report states that the Regina, Sask., City Council has authorized the company to build a spur line to the T. Eaton Co.'s warehouse.

Lanigan Northeasterly Branch—The Board of Railway Commissioners has approved the route map of the branch from Lanigan, Sask., northeasterly from mile 26 to 32.

Rosetown Southeasterly Branch—The Board of Railway Commissioners has approved the revised location of the branch from Rosetown, Sask., southeasterly, from Sec. 22, Tp. 24, Range 16, west 3rd Meridian to Sec. 7, Tp. 24, Range 15, West 3rd Meridian, mile 40 to 43.23.

Dunelm-Instow Connection, Etc.—A press report states that a delegation from the Swift Current district interviewed D. C. Coleman, Vice President, Western Lines, Dec. 12, and asked for the construction of a line to connect Dunelm, on the Vanguard branch line, with Instow on the Weyburn-Lethbridge line, and a line from Swift Current through the Vermilion Hills to near Moose Jaw. Consideration of the request was promised.

Accident to Board of Railway Commissioners' Car—The tire of one of the rear wheels of the Board of Railway Commissioners' official car Acadia, attached to the Ocean Limited, leaving Halifax, N.S., on the Canadian National Rys., Dec. 14, came off, and a serious accident was prevented by the brakeman putting on the brake, and stopping the train on a high embankment on the shore of Grand Lake, near Windsor Jct., N.S. Hon. F. B. Carvell, Chief Commissioner; S. J. MacLean, Assistant Chief Commissioner; J. G. Rutherford, Commissioner, and several members of the staff were on board.

bairn, Chief Engineer, Montreal.

Fredericton Station—A press report states that the C.P.R. proposes to build a new station at Fredericton, N.B., and that the plans provide for a brick and stone building at an estimated cost of \$50,000.

Campbellford, Lake Ontario and Western Ry.—The Board of Railway Commissioners has approved of revised location for this railway in Cobourg, Ont., from the west side of Division St., to the east side of Ontario St., mile 119.69 to 120.18.

Western Branch Lines Construction—We are officially advised that grading was done on eight branch lines or extensions during 1919 as follows:—

Russell, Man., northerly, mile 0 to 12; grading 23% completed; Northern Construction Co., Winnipeg, contractors.

Rosetown, Sask., southeasterly, mile 20.2 to 45.2; grading 56% completed; Canadian Construction Co., Winnipeg, contractors.

Lanigan, Sask., northeasterly, mile 0 to 50; grading 5% completed.

Wymark, Sask., easterly; mile 0 to 25; grading 27% completed.

Milden, Sask., easterly; mile 0 to 34; grading 15% completed.

Mainly About Railway People Throughout Canada.

M. J. Bannon, a former roadmaster on the Michigan Central Rd., Windsor-St. Thomas Division, died at Detroit, Mich., Dec. 12. He retired from active service in 1899.

Stephen Pearson Brown, Vice President, Ford Bacon and Davis, Engineers, New York, was drowned in Sebec Lake, Maine, Dec. 7. He was born at Dover, Me., Apr. 29, 1877, and graduated from the Massachusetts Institute of Technology, Boston, in 1900, upon which he entered, as a junior member, the firm of Collier and Brown, consulting engineers, Atlanta, Ga. He was, from 1904 to 1905, on the Bridgeport elevation and station construction, New York, New Haven and Hartford Ry., and in 1905 entered the United Engineering and Contracting Co.'s service, first on the Port Morris depression works, New York Central Ry., then on the St. Marys Park tunnel, and later as consulting engineer in the study of public utilities, San Juan, Porto Rico. Following this he was Chief Assistant Engineer, same company, on the cross town tunnels of the Pennsylvania Rd. in New York, where he had direct charge of all concrete and construction work, taking general charge later of all work west of Fifth Ave. In 1908-09 he was, in addition to being Chief Assistant Engineer, United Engineering and Contracting Co., designing engineer, Cuban Engineering and Contracting Co., and spent the summers of both years in Europe investigating European tunnel methods and studying hydro electric construction. From 1909 to 1912 he was Chief Engineer, Tidewater Building Co., and T. B. Bryson, on sec. 11-A-3 of the Fourth Ave., Rapid Transit subway, Brooklyn, N.Y. In Apr., 1912, he was appointed Chief Engineer, Montreal Tunnel and Terminal Co., and Managing Engineer, Montreal tunnel and terminal construction, Mackenzie, Mann and Co., Ltd. On the completion of this work in 1917, he returned to the U.S., where he offered his services in any war capacity, and was attached to the Engineering Department, for home service. On the signing of the armistice, he was appointed Vice President, Ford Bacon and Davis, engineers, New York, which position he held at the time of his death.

Lady Bury, wife of Sir George Bury, returned to Montreal, from Vancouver, early in December, to remain for about a month, after which she will return to Vancouver to spend the winter. Lady Bury, shortly after her arrival in Montreal, entertained at luncheon at Mount Royal Club, Montreal, in honor of Mrs. J. W. Stewart, of Vancouver, wife of Brig.-Gen. J. W. Stewart, railway contractor.

Sir George Bury, Vice President, Whalen Pulp & Paper Co., and formerly Vice President of C.P.R., returned to Vancouver, Dec. 16, from a business trip to Japan.

D. C. Coleman, Vice President, Western Lines, C.P.R., Winnipeg, was a guest at the 75th annual dinner of the St. Andrew's Society at Chicago, Ill., recently.

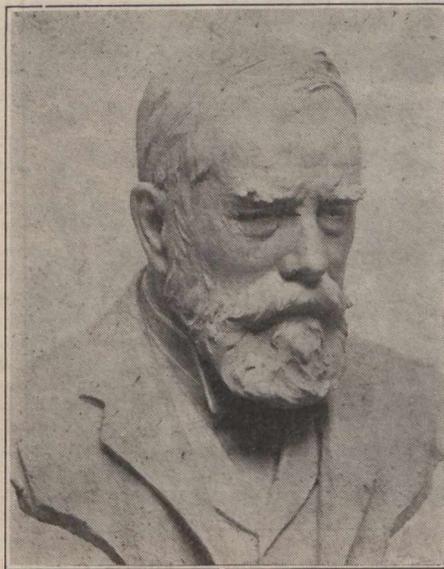
R. Creelman, Assistant Passenger Traffic Manager, Canadian National Rys., Winnipeg, was entertained to luncheon there, Dec. 24, 1919, by the local staff. Osborne Scott, General Passenger Agent, Western Lines, presiding.

M. C. Dickson, formerly District Pas-

senger Agent, G.T.R., Toronto, was reported recently to be seriously ill at his home at Hamilton, Ont.

Capt. Charles P. Disney, who has been appointed acting Bridge Engineer, Eastern Lines, Canadian Northern Ry., Toronto, took a course at the Institute of Technology, Boston, Mass., and from 1902 to 1905, was with the Dominion Bridge Co., Montreal; 1905, with Structural Steel Co., Montreal; 1905 to 1914, Bridge Department, National Transcontinental Ry.; 1914 to 1915, Bridge Department, Intercolonial Ry., Moncton, N.B. From 1915 to 1919, he was on military service, and was for 18 months a sapper with the Canadian Engineers, and three years lieutenant and captain in the Royal Engineers, his service in France being continuous for four years.

Samuel Dowsley, at one time an employe of the St. Lawrence and Ottawa Ry., prior to its acquisition by the C.P.R.,



Lord Mount Stephen.

First President, C.P.R. Co., 1881 to 1888. This marble bust, by Major Lessore, for which sittings were given in London in 1913, was the original study, from which the large bronze statue in the general waiting room, C.P.R., Windsor St. station, Montreal, was modelled.

died at Prescott, Ont., Dec. 4, aged 80. He was master mechanic of the line and for a time had charge of the shops at Prescott. He was an uncle of Hon. J. D. Reid, Minister of Railways and Canals.

Sir John Craig Eaton, who has been elected a director of the Canadian Pacific Ry. Co., in place of the late W. D. Matthews, was born at Toronto, Nov. 9, 1875, and educated at the Model School, there. He commenced business life under his father, and subsequently became Vice President, and on his father's death in 1907, President of the T. Eaton Co. He was, at one time, President, Hamilton Steamboat Co., and Turbine Steamship Co., and is a director of the Dominion Bank, Sterling Bank, a member of the board of management of Victoria University, a governor of the Toronto General Hospital, and associated with numerous charitable organizations. He was created a knight bachelor in 1915.

D. E. Galloway, Assistant to President, G.T.R., Montreal, has been decorated with the King Albert Medal for services in connection with Belgian relief work.

D. B. Hanna, President, Canadian Na-

tional Rys., spoke before the Hamilton Board of Trade, Hamilton, Ont., Dec. 4; the Dominion Commercial Travellers' Association, at Montreal, Dec. 22; and the Canadian Club, at London, Ont., Dec. 29.

Major C. S. L. Hertzberg, M.C., son of A. L. Hertzberg, Engineer, Ontario District, C.P.R., Toronto, and at one time in C.P.R. service, was relieved of his military duties recently, after four years service, and has taken up private practice with Major T. R. Loudon, as consulting engineers, Toronto. He was born at Toronto, June 12, 1886, and educated in the public schools, St. Andrew's College, and School of Practical Science, Toronto University, graduating in 1905. He spent summer vacations on C.P.R. location, and joined the staff in 1906, as transitman on maintenance. He subsequently was in the Trussed Concrete Steel Co.'s and Concrete Engineering Co.'s service at Toronto; and for a short time in 1908 was on electric railway maintenance with the Dominion Power and Transmission Co., Hamilton, Ont. In 1909 he was appointed Chief Engineer, of the Trussed Steel Concrete Co., Walkerville, Ont., and in 1911 was appointed Manager, Bishop Construction Co., Toronto. He commenced private practice as consulting engineer, as partner in James, Loudon and Hertzberg in 1912, and enlisted for active service in Dec., 1915, going overseas Jan. 1, 1916, as lieutenant, 7th Field Co., Canadian Engineers. He went to France in Apr., 1916, was awarded the Military Cross, Dec. 5, 1916, for work on the Somme and was wounded in Jan., 1917, and invalided to Canada in July, 1917. He afterwards served as adjutant at Spadina Military Hospital, Toronto, and was promoted captain and officer commanding Casualty Co. In July, 1918, he was transferred to No. 2 Service Company, and in Sept., 1918, to No. 16 Field Company, Canadian Engineers, as second in command and sailed from Vancouver, B.C., for Siberia with that company, Oct. 11, 1918, this being the only engineering unit with that force. During service in Siberia the company was engaged chiefly on water supply, building and repairing barracks, roads, etc. He returned to Canada in June, 1919.

W. P. Hinton, Vice President and General Manager, Grand Trunk Pacific Ry. Co., and Manager for the Receiver, has been elected a director of the company.

Sir John Jackson, C.V.O., one of the largest public works contractors, and head of Sir John Jackson Ltd., and Sir John Jackson (Canada) Ltd., died at London, Eng., Dec. 15, aged 68. Amongst some of the large works which he has carried out, are: a section of the Manchester, Eng., Ship Canal; foundations of the Tower Bridge, London, Eng.; Dover harbor, Admiralty docks at Keyham, Devonport; Admiralty harbor, St. Simons Bay, South Africa; the railway across the Andes from Arica to La Paz, South America and the great barrage across the Euphrates River, near Babylon. His company is now engaged on the Singapore harbor, irrigation works in Mesopotamia, harbor works at Victoria, B.C., etc. He was father-in-law of Col. C. W. P. Ramsey, C.M.G., formerly Engineer of Construction, Eastern Lines, C.P.R., and now in that company's operating department.

Howard G. Kelley, President, G.T.R., and Mrs. Kelley, left Montreal at the end of November, to spend December in the Bahamas.

Dr. B. Knight, who died at London, Ont., Dec. 17, from a heart attack, was formerly in C.P.R. service there, in the dispatcher's office.

C. W. McHarg, station ticket agent Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., has resigned from the service to enter the Firestone Tire and Rubber Co.'s service there. On behalf of the staff, he was presented with a smoking stand, Dec. 22, by G. C. Martin, General Traffic Manager.

W. D. Matthews, grain merchant, a C.P.R., director who died at Toronto, May 24, 1919, left an estate valued at \$2,291,000.

R. F. Morkill, who resigned his position as Signal Engineer, G.T.R., recently, has been appointed Continental Representative of Tyre & Co., Ltd., electrical, mechanical, railway signal and interlocking engineers, Dalston, Eng., who are about to establish a factory in France.

F. H. Phippen, K.C., left Toronto early in December, to spend some weeks in England.

H. T. Rawlings, Lake Forwarding Agent, Canadian National Rys., Cleveland, Ohio, left at the end of December, with his family, for a visit to England, expecting to return in February.

Hon. J. D. Reid, Minister of Railways and Canals, who was absent from his office at Ottawa for about two weeks, on account of ill health, returned to his duties Dec. 10.

R. A. Ross, E.E., consulting engineer, and a member of the Montreal City Administrative Committee, will be President of the Engineering Institute of Canada, for 1920.

W. A. B. Russell, Commercial Agent, Grand Trunk Pacific Ry., Regina, Sask., was married at Winnipeg, Dec. 13, to Miss A. Coughlan. Prior to his appointment at Regina, Sask., he was chief clerk to Vice President and General Manager, Winnipeg. On the eve of his marriage he was presented with a cabinet of community silver, by the Winnipeg staff.

Lord Shaughnessy, Chairman, C.P.R. Co., is among those who are applying to the Quebec Legislature for the incorporation of the St. Mary's Memorial Hospital, Montreal.

Sir Alfred W. Smithers, Chairman, G.T.R. Co., arrived in England, Dec. 9, after a visit to Canada, where he completed the negotiations relative to the acquisition of the G.T.R. by the Dominion.

Sir Thos. Tait, Montreal, President, Fredericton & Grand Lake Coal & Ry. Co. is a director of Pacific Coast Collieries Ltd., which controls 9,000 acres of coal lands and leases on Vancouver Island, and which recently offered for subscription, \$200,000 of first mortgage bonds.

E. N. Todd, General Foreign Freight Agent, C.P.R., Montreal, has been decorated with the King Albert Medal for his services in connection with Belgian relief work.

Guy Tombs, until recently Assistant Freight Traffic Manager, Canadian National Rys., Montreal, and now Traffic Manager, Canadian Export Paper Co. Ltd., has been made a Chevalier of the Order of Leopold II. of Belgium for his work in connection with Belgian relief.

The Farmers' Policy on the National Railways.

Hon. T. A. Crerar, M.P. for Marquette, Man., and ex-Dominion Minister of Agriculture, is reported to have said in speaking at the United Farmers of Ontario's annual meeting in Toronto, Dec. 18, that the farmers' policy in Dominion affairs, stands for public ownership in the widest sense. Canada has public ownership of railways, not from choice, but by virtue of necessity. If the Canadian National Rys. should be brought down to a proper basis of valuation, they would prove a valuable asset to the Dominion. In this regard he instanced the case of a stretch of some 250 or 300 miles in length in Western Canada whereon lie the rails of two nationally owned systems. These bits of line run through a section that involved a tremendous cost of construction and

railway. That provision should be made for the election as directors of a number of employes and superintendents of the railway, from among their number, by themselves, and that in the appointment of the remainder of the directors care should be taken to see that the chief sections of the country served by the railway are represented on the directorate."

Canadian National Railways Earnings.

	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
July	7,657,402	5,733,299
August	8,274,882	8,255,942
September	8,627,268	7,058,381
October	9,389,795	8,480,468
November	8,739,457	7,836,384
	\$82,797,111	\$72,808,664

Approximate earnings for two weeks ended Dec. 14, 1919, \$3,989,304, against \$2,515,075 for same period, 1918.

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	Increase or decrease
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
July ..	14,720,362	11,723,659	2,996,703	826,692
Aug. ..	15,283,654	11,505,486	3,778,168	569,534
Sept. ..	17,513,691	13,421,771	4,091,920	970,479
Oct. ..	18,296,653	12,948,871	5,347,782	261,945
Nov. ..	17,366,850	14,517,041	2,849,809	*548,663
	\$159,903,476	\$128,652,616	\$31,250,860	\$440,516
Incr. \$	18,116,633	\$18,557,149		
Decr.			\$ 440,516	

Approximate earnings for 2 weeks ended Dec. 14, 1919, \$7,732,000 against \$7,260,000 for same period, 1918.

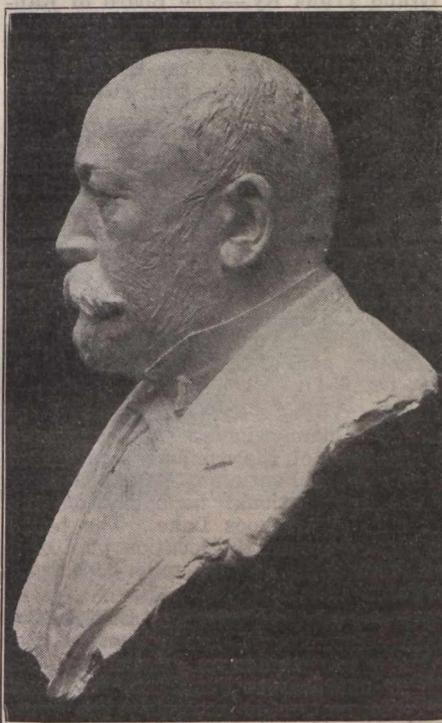
Grand Trunk Railway Earnings, Expenses, Etc.

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

	Gross	Expenses	Net	Increase or decrease
Jan. ..	\$ 4,402,229	\$ 5,118,234	\$ 716,005	* 81,794
Feb. ..	4,088,028	4,397,953	309,952	660,229
Mar. ..	5,513,593	4,673,298	840,295	762,766
Apr. ..	5,357,537	4,601,550	756,987	92,889
May ..	5,272,060	4,603,411	668,649	*36,495
June ..	4,947,795	4,644,659	303,136	*707,067
July ..	6,021,746	4,886,147	1,135,599	*35,347
Aug. ..	6,719,921	5,043,662	1,676,259	*101,890
Sept. ..	7,004,277	5,611,125	1,393,152	164,047
Oct. ...	7,136,376	5,764,044	1,372,331	189,280
	\$56,463,562	\$49,344,033	\$7,119,479	\$906,618

†Deficit. *Decrease.
Approximate earnings for Nov., 1919, \$6,092,603, against \$6,169,272 for Nov., 1918.

European Rolling Stock Building—A recent London, Eng., cable states that Premier Lloyd George stated after a visit to Woolwich Arsenal that it would probably be developed as a railway center in order to meet the world shortage in locomotives. In this connection it is of interest to notice that the Krupp works, at Essen, Germany, turned out its first locomotive, Dec. 6. The Prussian state railways are reported to have undertaken to take 108 locomotives and 2,000 cars a year from the Krupp works, which is reported to have 3,500 engaged in rolling stock construction.



The late Sir William C. Van Horne, K.C.M.G.

Second President, C.P.R. Co., 1888 to 1899. From bronze bust by Major Lessore. Sir William sat for this bust, at his summer place, Covenhoven, St. Andrews, N.B., in 1913. It is now in Lady Van Horne's house in Montreal.

maintenance, probably the most expensive in the Dominion. There are at present on every mile outstanding securities to the value of \$90,000, on which the interest has to be paid and the securities eventually retired. He added: "Much of the line was lifted during the war, now on one railway, now on another, and I venture to predict that the rails will not be laid on that bit of line in the next 50 years. We must set our faces determinedly against political influence in the operation of these roads. It can be done, and how it can be done depends upon the attitude of our governments and upon the attitude of the people."

The following resolution was adopted without discussion:—"That the present method of the appointment of all the directors of the Canadian National Rys. by the Dominion Government is not in accordance with democratic principles, and not in the best interests of the people's

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

Bagotville Ry. Co.—The Quebec Legislature is being asked to incorporate a company with this title to build a railway from near Nairns Falls, on the Quebec and Saguenay Ry., northeasterly to Chicoutimi. The provisional directors named on application are:—J. L. Macdougall, W. Murdock, H. Fitzsimons, C. Watt, B. Moses, Ottawa, Ont.

Burrard Inlet Tunnel and Bridge Co.—The Dominion Parliament is being asked to extend the time for the commencement and completion of the railway, bridge and tunnel which the company is authorized to build. The company was incorporated in 1910 to build a tunnel under the First Narrows of Burrard Inlet, Vancouver, and a bridge over the Second Narrows of Burrard Inlet, for foot passengers, carriages, street railway and railway purposes, with approaches from some points on the south shore in or near Vancouver to points on the opposite shore of Burrard Inlet, so as not to interfere with navigation, and to connect the tunnel and bridge, or either, with the railways entering Vancouver to construct one or more lines not exceeding 10 miles long, a railway from the northern end of the bridge and tunnel, or either of them easterly along the shore line of North Vancouver District Municipality, to Deep Cove on the north arm of Burrard Inlet, and westerly from the north ends of the bridge and tunnel, or either of them along the shore line of the City of North Vancouver, to the Horse Shoe Bay on Howe Sound.

The company's stock is owned by the Cities of Vancouver, North Vancouver, and other local municipalities. Some years ago plans were completed for building the bridge, and some preparatory work in the way of boring for foundations was done. The war put a stop to the project, and it has since been an abeyance. In 1918 the company obtained an extension of time for two years for carrying out its project so as to keep the project alive, and give the municipalities interested an opportunity of realizing on the company's assets. (July, 1918, pg. 285).

Canadian Niagara Bridge Co.—A Bridgeburg, Ont., report stated that it was announced, Nov. 30, that the Toronto, Hamilton and Buffalo Ry. would undertake the building of an approach line from Welland for the proposed new bridge across the Niagara River at Black Creek, 6 miles from Bridgeburg, Ont. A further report stated, Dec. 5, that representatives of the C.N.B.C. has arrived at Black Creek and North Tonawanda, N.Y., and that a gang of men with drilling machinery were expected to arrive some days later to begin testing for the foundations of the shore abutments of the bridge. The latter report also stated that it was expected a start would be made on building the bridge during the summer.

The project is often described as a Canadian Pacific Ry. one, but we are officially advised that the work will be handled either by the Toronto, Hamilton and Buffalo Ry. or by the Michigan Central Rd., and more probably by the latter company, though the C.P.R. is, no doubt, interested in it. (Dec., 1919, pg. 654).

Esquimalt and Nanaimo Ry.—The contract let to the Foundation Co. of British Columbia, Limited, Vancouver,

covers the clearing of the right of way and the grading and bridging work on the branch from near Alberni to the Great Central Lake, about 10.5 miles. The track laying will probably be done by the E. and N.R. Co. in accordance with the universal practice on C.P.R. lines.

The Victoria, B.C., City Council has approved of the revised agreement with the company respecting the erection of a new bridge at Johnson St., which has been the subject of considerable negotiation for some years past. The agreement was forwarded to the British Columbia Government for approval, and when it has been finally accepted by the company, it will be submitted to the ratepayers for ratification. It is expected that this will be done early this year. (Dec., 1919, pg. 654).

Grand Trunk Ry.—The Board of Railway Commissioners has ordered the company to build a passenger shelter, and platform with shelter at the E. Clark section house, near Frome, Ont. (Dec., 1919, pg. 654).

Grand Trunk Pacific Ry.—The Board of Railway Commissioners has ordered the company to provide a stockyard at Heath, Alta., forthwith. A press report states that the territory between Edmonon and Tofield, Alta., is rapidly filling up, and is becoming a large stock producing area. Heath, mentioned above, is about 150 miles east of Tofield, and will probably be a center of trade for the eastern part of the area named. (Dec., 1919, pg. 654).

Kettle Valley Ry.—The Board of Railway Commissioners has approved a route map of the company's projected railway from Penticton, B.C., southerly to the International boundary, on the east side of Osoyoos Lake. The board has also approved the location plan of a line from mile 1.62 to mile 3.99 from Penticton Wharf, B.C.

We are advised that the British Columbia Government has requested the company to consider an extension of its railway south from Penticton, B.C., and that the matter is receiving the company's consideration. (Dec., 1919, pg. 654).

Lacombe and North Western Ry.—We are officially advised that that the laying of track into Rimbey, Alta., was completed by the Alberta Government's Railway Department, Nov. 25, 1919. A number of residents of Bentley, heretofore the northern terminus of the line, made a trip over the line to Rimbey, Nov. 25, and joined the residents there in celebrating its completion. The line is being operated into Rimbey by the construction staff, a train being run in each direction three days a week.

W. Thompson, who has done a good deal of grading on the line, is reported to have said in Edmonton, Dec. 2, that the 20 mile extension, now completed, runs through one of the best farming districts in Alberta. The line now extends from Lacombe to Rimbey, 36.5 miles, of which about 20 miles from Lacombe to Bentley were built about three years ago. The Alberta Government took over the line, and in the spring, 1919, called for tenders for its completion. (Dec., 1919, pg. 654).

Lievre Valley Power, Traction and Manufacturing Co.—The Quebec Legis-

lature is being asked to amend the company's charter powers by authorizing it to build a narrow gauge railway, and for other purposes. The Buckingham Electric Ry., Light and Power Co. was incorporated by the Quebec Legislature with various powers in 1895. In 1905, the legislature changed the name of the company to the Lievre Valley Power, Traction and Manufacturing Co., its powers as to railway construction being as follows, to build a single or double track railway from the City of Hull, or from a point in Hull Tp. to the mouth of the Lievre River in Buckingham Tp., Parish of L'Ange Gardien, through Buckingham, and along the Lievre River Valley to the National Transcontinental Ry. Power was given to operate the projected railway by electricity, steam or other motive power, and to generate and distribute electric power.

Normandin Farmers Railway Co.—The Quebec Legislature is being asked to incorporate a company with this title to build a railway across or near Roberval, Ashuapmouchouan Dumeules, Dufferin, Normandin, Girard, Albel, Racine and Dolbeau Tps., as far as Peribonka and thence southeast to the Saguenay River at deep water, at or near Saint Fulgence. The provisional directors are:—C. Lagamier, A. Villeneuve, B. Fraser, J. S. Turcotte, Normandin, Que.

Pacific Great Eastern Ry.—We are officially advised that the British Columbia Government engaged Major C. Ewart in June, 1919, to make a survey for a route for railway between Clinton and Ashcroft to connect the Pacific Great Eastern Ry. with the Canadian Northern Ry. Major Ewart left subsequently to join the C.N.R. engineering staff on the Kamloops-Kelowna line, and was succeeded by R. Brunton, who has completed the survey for the suggested line, securing a route of approximately 42 miles. Beyond the making of the survey, nothing has been done in regard to construction. (Dec., 1919, pg. 654).

The Quebec Central Ry. has under survey an extension of its line from Scotts, Que., to a connection with the Canadian National Rys., 2.5 miles east of St. Isidore, Que., 8.11 miles.

Quebec Colonization Ry.—The Quebec Legislature is being asked to incorporate a company with this title to construct a railway from Mont Laurier, Labelle County, southwesterly to the C.P.R. near Maniwaki, and running through Campbell, Kiawika, Dudley, Pope, Robertson, Boutillier, Kensington, Cameron, Wabasse, Aumond, Egan, Maniwaki and Bouchille Tps., or any of them, or through unorganized territory; then from Maniwaki westerly in the direction of Lake Expance and Lac des Quinze to the C.P.R., near Timiskaming, then southeasterly through Tabaret, Mercier and Gendreau Tps.; also to build a railway from the Coulonge River, in Pontiac County, northerly to near Nottaway on the National Transcontinental Ry., thence northerly to the Bell River north of Lake Shabogama; with connecting lines and branches. The lines to be operated by steam or electricity. Dessales, Garneau, Desy and Lorrain, Montreal, are attorneys for applicants.

Quebec Eastern Ry.—The Quebec Legislature is being asked to amend the company's charter by extending the time for building following projected lines to

Oct., 1925: From Sherbrooke to the Québec Bridge; from some point on the main line to Lyster, a branch from Lime Ridge and other branch lines to connect with existing lines not exceeding 15 miles long. The company was also authorized to acquire Lotbiniere and Megantic Ry. running from Lyster to St. Jean des Chailons.

The act respecting the Quebec and Saguenay Ry. passed in 1912, provided as follows:—"The Quebec and Saguenay Ry. Co. is hereby authorized to amalgamate with, absorb and acquire, the Lotbiniere and Megantic Ry., and Quebec Eastern Ry., or either or both of said roads," etc. The present application to the legislation asks for a modification, on the suppression, of this section of the act.

Roberval-Saguenay Ry.—The Quebec Legislature is being asked to amend the company's charter of incorporation by giving it the power to build and operate by steam and electricity, or either of them, a branch line to connect any

mitting the building of branches, and by extending the time fixed for construction. The statute referred to authorized the company to build a railway from Grenville, westerly to Montebello, thence northerly along the Salmon River Valley to the west side of Lake Papineau thence northerly on the east side of the Nation River and Lake Noming to the Rouge River Valley, and along that to the National Transcontinental Ry. Authority was also given to build branch lines, and to develop water powers at points touched by the railway. The provisional directors named in the act are: J. S. Fassett, Elmira, N.Y.; G. W. Thayer, Rochester, N.Y.; C. Adsett, Hornersville, N.Y.; W. L. Haskell, Ulysses, Pa., and Westmount, Que.; F. W. Hibbard, Westmount, Que.; and Jas. Walker, Montreal.

Sarnia, Ont.—A press report states that the building of a spur line at an estimated cost of \$37,500 is being considered by Lambton, Ont., County Council. There is a report that a steel plant is to be built near Sarnia, and this pro-

Railway Rolling Stock Orders and Deliveries.

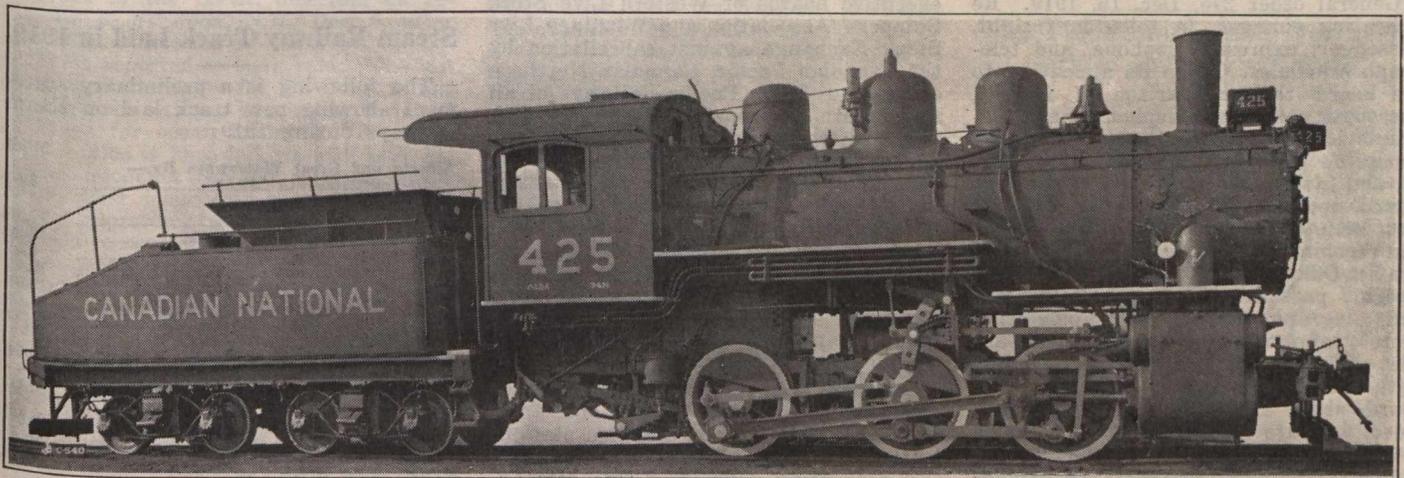
Imperial Oil Ltd. has ordered 275 tank cars, and 25 compartment tank cars from Canadian Car and Foundry Co.

Algoma Steel Corporation has ordered 2 standard gauge car trucks, 40 tons capacity, from Canadian Car and Foundry Co.

The C.P.R., between Nov. 15 and Dec. 15, ordered a single track steel snow plough, and a double track steel snow plough, from its Angus shops, Montreal, and bought a 150 ton wrecking crane.

The C.P.R., between Nov. 15 and Dec. 15, received the following rolling stock from its Angus shops, Montreal,—10 steel tourist cars, 2 freight refrigerator cars, 1 all steel grain car, and 2 Santa Fe type locomotives.

Canadian Car and Foundry Co., between Nov. 11 and Dec. 13, made the following deliveries of rolling stock,—399 repaired box cars and 283 repaired hop-



Six Wheel (0-6-0) Switching Locomotive Canadian National Railways.

point on its actually constructed railway in Chicoutimi County with the Quebec and Saguenay Ry. at La Malbie, Que. It is also asked that the time for building this previously authorized lines shall be extended to Mar., 1922, provided that they be completed by Mar., 1925. The lines in question are from Roberval round Lake St. John to the Peribonka River and thence southerly to Jonquieres; branch lines from the Ha Ha Bay Ry., and a line to the Maurice River.

The company, we are advised, has under consideration a project for the building of a line from Ha Ha Bay Jct. to Mistassini, Que., 64 miles. (Nov., 1918, pg. 488).

St. John and Quebec Ry.—We are officially advised that the entire track on the extension from Gagetown to the connection with the C.P.R. at Westfield, N.B., was laid during 1918, and that during 1919 ballasting and other finishing up work was carried out. There still remain some small works to be completed, but this is not interfering with the operation of the line. The section was taken over Oct. 1, 1919, for operation by the Canadian National Rys., which is also operating the previously completed section between Gagetown and Centerville, N.B. (Dec., 1919, pg. 655).

Salmon River and Northern Ry.—The Quebec Legislature is being asked to amend the statutes of 1905, chap. 59, by authorizing a change in the location of the main line then authorized, by per-

posal probably is for the purpose of connecting the site of the projected plant with the railways at Sarnia.

Toronto, Hamilton and Buffalo Ry.—In connection with a switch connecting the Toronto, Hamilton and Buffalo Ry. into the Canadian Westinghouse Co.'s plant at Hamilton, Ont., the Board of Railway Commissioners recently ordered the city to pay the cost of guarding the crossing of Aberdeen St. The city board of works and the board of control are reported to have decided to appeal against the order on the ground that the cost should be borne by the concerns benefitting. (Sept., 1919, pg. 491).

Toronto New Union Station—Mayor Church of Toronto, who is a candidate for re-election, said at the nomination meeting, Dec. 23:—"The union station will be finished next year. The railway will buy the right of way from Cherry St. to Scott St. So far as the viaduct is concerned, I can only say that the city will stand out for the fulfillment of every clause of the agreement."

British Railway Management—A London, Eng., cable of Dec. 8, states Sir Eric Geddes, Minister of Transportation, announced recently that the railway executive controlling the British railways would cease, Jan. 1, 1920, and would be replaced by an advisory board, consisting of 12 general managers, and 4 representatives of employees.

per cars, to G.T.R.; 86 repaired box cars to Grand Trunk Pacific Ry., and 11 tourist cars, to Canadian National Rys.

The Canadian National Rys. will be in the market in the near future for a large amount of rolling stock. While no appropriations have yet been made, Canadian Railway and Marine World understands that tenders will be invited shortly, involving an expenditure of approximately \$23,000,000, made up as follows: Locomotives, \$4,000,000; freight cars, \$16,000,000; passenger cars, \$3,000,000.

The Canadian National Rys. 6 flangers, being built by Preston Car and Coach Co., as mentioned in our last issue, will be of wood, with metal draft arms, similar to a 30 ton wooden box car, with 8 longitudinal sills 5 x 9 in., simplex 30 ton trucks, McCord journal boxes, and with cupola in the roof, with air operating mechanism in cupola for operating the flanger. The chief dimensions are,—

Length over end sills.....	36 ft.
Width over side sills.....	8 ft. 11 ins.
Width inside.....	8 ft. 2 in.
Height from rail to top of cupola.....	15 ft.
Center to center of body bolster.....	21 ft. 4½ in.
Height, top of rail to center of drawbar.....	2 ft. 10½ in.

The Canadian National Rys. 6 steel snow ploughs, ordered from Canadian Car and Foundry Co., as mentioned in our last issue, are of the all steel type, with drop nose and wing, and are operated by air. Ice cutters are provided on the front truck, also air operated. The

front of the plough is equipped with flexible type pilot coupler, with an extension cast, so that the plough can be coupled to any type of car, and the rear end of the plough is equipped with draft gear. The air brakes are Westinghouse 812, complete with signal and conductor's valves, and hand brakes are made to operate from inside and outside. The headlight is C.N.R. standard incandescent electric. The front end 40 ton trucks are equipped with outside bearings, of similar construction to the standard freight car trucks, with cast

steel trucks, 5 x 9 in. axles; rear end trucks, standard 30 ton M.C.B. standard freight car trucks; journal boxes, McCord. The chief dimensions are (snow plough):—

Length overall.....	32 ft. 19-16 in.
Width over side sills.....	8 ft. 9 1/8 in.
Height, top of rail to top of eaves angle.....	11 ft. 3 in.
Height, rail to top of cupola.....	14 ft.
Width over wings, extended.....	16 ft.
Extreme width, cupola.....	9 ft. 8 1/2 in.
Extreme length, cupola.....	4 ft. 11 1/4 in.
Truck centers.....	18 ft.
Wheel base, leader truck.....	4 ft. 2 in.
Wheel base, rear truck.....	5 ft. 3 in.
Weight, approximately.....	60,700 lb.

Traffic Orders by Board of Railway Commissioners.

Free and Reduced Railway Passenger Transportation.

General order 274, Nov. 20, 1919. See separate article: "Free and reduced railway passenger transportation," on another page of this issue.

Indication of Changes in Tariffs.

General order 275, Dec. 16, 1919. Re indicating changes in tolls in freight, passenger, express, telephone, and telegraph schedules. Upon its appearing to the board that comparison of freight, passenger, express, telephone, and telegraph schedules, with those which they supersede or amend, should be facilitated, and in pursuance of the powers conferred upon the board by the Railway Act, 1919, sec. 324, and upon the report and recommendation of the board's Chief Traffic Officer, it is ordered that all freight, passenger, express, telephone, and telegraph tariffs, and supplements thereto, applying between points in Canada, or from a point in Canada to a foreign country, hereafter filed with the board, shall, except as hereinafter provided, indicate advances thereby made by the symbol "A," and reductions by the symbol "R," with the necessary explanatory note, in the following manner, viz:

1. In schedules which show the rates opposite the station, the proper symbol to be shown against each rate, or each rule or regulation, changed.

2. In schedules in which the rates appear in a table separated from the station list: (a) Unless the station groupings have been varied relatively to their rates; the proper symbol to be shown in the rate table in the manner prescribed in sec. 1 hereof; (b) if the station groupings have been varied relatively to their rates; the proper symbol to be shown against the reference on the station page to the rate table and against each rule or regulation changed.

Provided that if it is found impracticable in a certain case to indicate changes by either of the methods herein prescribed, application may be made to the board, accompanied by a printer's proof of the proposed schedule, for relief from the provisions of this order in such case.

And it is also ordered that the character of the schedule be shown at the top of the title page, thus: "Advance," "Reduction," "Reissue," "New Rate or (Rates)" and so on, as the case may be. And it is further ordered that order 16,900, June 27, 1912, be rescinded.

G.T.P.R. Coal Freight Charges.

29,102, Dec. 5, 1919. Re complaint of Great West Coal Co., Brandon, Man., against freight charges assessed by Grand Trunk Pacific Ry. on a car of coal shipped from Drumheller to Raymond, Sask., and afterward diverted to Punniichy, Sask. Upon hearing the complaint at Winnipeg, Nov. 15, 1919, in

the presence of counsel for the railway company and a representative of the complainant company. It is ordered that the complaint be dismissed.

Free Return Transportation for Live Stock Shippers.

29,110, Dec. 12, 1919. Re complaint of executive boards of Western Live Stock Shippers' Association and Winnipeg Live Stock Exchange against cancellation by the Canadian Pacific, Canadian Northern and Grand Trunk Pacific Railways of all free return transportation for live stock shippers west of Port Arthur, to take effect Feb. 1, 1916; and order 24,673, Jan. 22, 1916, suspending such tariffs. In pursuance of the provisions of the Railway Act, 1919, secs. 45, 345 and 347, it is ordered that order 24,673, Jan. 22, 1916, suspending the tariffs therein specified, be rescinded; this order to come into force Jan. 1, 1920.

C.P.R. Class Freight Rates.

29,124, Dec. 11, 1919. Re C.P.R.'s proposed tariff of class freight rates between stations west of North Bay to Mackenzie and Sault Ste. Marie, Ont., and stations in Canada east of North Bay, on C.P.R. and connecting railways. Upon its appearing impracticable to indicate the rate changes by symbols, as required by order 16,900, June 27th, 1912; it is ordered that the C.P.R. be relieved from complying with the requirements of the said order.

Car Demurrage During Winnipeg Strike.

29,134, Dec. 9, 1919. Re application of Winnipeg Board of Trade for an order determining whether, or to what extent, the Car Demurrage Rules shall apply in connection with delays to cars due to the general strike in Winnipeg during May and June, 1919. Upon hearing the application at Winnipeg, Nov. 15, 1919, the Winnipeg Board of Trade, Empire Sash & Door Co., Imperial Oil Co., Blackwood Limited, E. L. Drewry Limited, Canadian Manufacturers' Association, Canadian Car Service Bureau, and Tees and Persse being represented and what was alleged the railway companies affected consenting; it is ordered that the demurrage toll to be charged by railway companies in connection with delays to cars at Winnipeg due to the general strike in Winnipeg, from May 15 to the fifth day after its termination, viz., July 1, 1919, both dates inclusive, be \$1 a car per day.

Grand River Railway Passenger Fares.

29,145, Dec. 12, 1919. Re application of Grand River Ry., for authority to file tariffs providing for a general advance in tolls for the carriage of passengers in the same manner and to the same extent as permitted by the board in the case of steam railways. Upon reading what is filed in support of the application, it is ordered that the company be authorized

to increase its standard maximum fare for the carriage of passengers to 2,875c a mile; such increased fare not to become effective until the company has complied with the requirements of the Railway Act, 1919, sec. 334.

Coal Handling Facilities at Ottawa.

29,161, Dec. 17, 1919. Re application of O'Reilly & Belanger for an order under sec. 312, 316, 317, 319 and 320 of the Railway Act, directing the G.T.R. to provide reasonable and proper facilities for unloading, handling, storing and delivery of the applicants' coal at the coal trestle erected upon the railway company's lands in its station yards at Isabella St., Ottawa, and for mandatory order directing the railway company forthwith to terminate an agreement or lease, in respect to the said coal trestle, dated Oct. 25, 1916, made between the railway company and the Coal Trestle Co. Ltd.; upon hearing the application at Ottawa, Dec. 2, 1919, in the presence of counsel for applicants and the railway company, it is ordered that the application be refused.

Steam Railway Track Laid in 1919.

The following is a preliminary statement showing new track laid on steam railways during 1919:

	Miles
Alberta and Great Waterways Ry.—	
Mileage 276.90 to 283.50.....	6.60
Canadian National Rys.—	
Thunderhill branch, Sask.....	17.45
Swift Current branch, Sask.....	12.96
Melfort-Humboldt line, Sask.....	0.35
Luck Lake branch, Sask.....	19.75
Hanna-Medicine Hat line, Alta.....	48.57
Oliver-St. Paul de Metis line, Alta.....	55.57
Peace River line, Alta.....	4.30
Vancouver Island line—	
Mileage 24.59 to 52.43.....	27.84
	186.30
*Dolly Varden Mines Ry.—	
Dolly Varden Mines to Alice Arm, B.C.	18.00
*Lacombe and North Western Ry.—	
From near Bentley to Rimbey, Alta.....	17.00
Pacific Great Eastern Ry.—	
Lone Butte near Horse Lake to Deep Creek near Soda Creek, B.C.....	82.00
Total	309.90

*Approximate.

The Canadian National Rys. graded 261.10 miles on 17 branch lines during 1919 in the prairie provinces, and graded approximately 40% of the mileage of the Kamloops-Kelowna-Vernon-Lumby line in British Columbia. Track was laid on 158.46 miles on seven of the prairie branch lines. In addition 6.75 miles of second track was laid near Munson, Alta., in the Drumheller coal mining region.

While the Canadian Pacific Ry. did not lay track on any new lines during 1919, it put under contract, eight branch lines, or extensions, totalling 213 miles, in Manitoba, Saskatchewan and Alberta, on which grading is reported to be from 5% to 56% completed.

Canadian Collieries (Dunsmuir) Ltd.

Reorganization—A London, Eng., cable of Dec. 5, states that a plan of reorganization for this company has been drawn up, and that a meeting of shareholders to sanction it will be held Jan. 19. The plan it is said will virtually hand over the property to the bondholders. The company a Mackenzie-Mann one was incorporated April 8, 1910, and acquired the capital stock and coal interests of the Wellington Colliery Co., and James Dunsmuir on Vancouver Island, B.C. The property includes the Wellington Colliery Ry. The liabilities include \$15,000,000 of capital stock, \$10,000,000 of funded debt and \$2,599,885 accrued bond interest.

Canadian National Railways Construction, Betterments, Etc.

Sydney Terminal Facilities—A press report states that Mr. Gregory, of the Dominion Government's engineering staff has been in Sydney, N.S., taking some soundings near the old government wharf, and running some levels in the vicinity of Victoria Park, in connection with some projected improvements of the railway and shipping terminal facilities. The report states that the government has all the necessary data on hand for the construction of the terminals, and it is expected that tenders will be called for shortly for the work to be done. The government is said to have provided \$100,000 in the estimates for the erection of a new wharf to replace the old one destroyed by fire some years ago. The construction of railway facilities with the report states, involve an additional expenditure of \$500,000.

St. John Improvements—A. P. Barnhill, one of the C.P.R. directors on returning to St. John, N.B., Dec. 5, after attending a meeting of the board in Toronto, is reported to have said: "The important matter now for St. John is not so much the railway service as terminal facilities for ocean business. The railway service is here but we still lack facilities adequate for the ocean business which must soon come here. In answer to my representations that St. John is entitled to consideration in the allotment of steamships equal to that given to any other port, the fear has been expressed that there will be congestion at this port, that is, that the facilities are not adequate for the steamships which are scheduled to arrive here. While I am assured by the harbor master and by others having knowledge of our facilities that these are adequate for the present year, yet it is apparent that they must be greatly increased at once to take care of the business of the immediate future."

West River, Lachute Bridge—The Board of Railway Commissioners has authorized the rebuilding of the railway bridge across the West River, Lachute, Que.

Brockville Terminal Facilities—The old Brockville, Westport and Northern Ry., now a part of the Canadian National Rys., had its southerly terminus at Brockville, Ont., with terminal yards, etc. Now that the G.T.R. is about to be taken over by the Dominion Government, an arrangement is reported to have been concluded under which the G.T.R. terminal facilities will be utilized for both lines. It is also reported that a new station may be built and the terminal facilities enlarged.

Whitefish River Bridges—The Board of Railway Commissioners has authorized the building of bridges over the Whitefish River, at miles 18.9, 20.3 and 21.6, North Lake Subdivision, Ont.

Oakland Extension—The Board of Railway Commissioners has authorized the building of the extension of the Oakland line across 23 highways in Manitoba.

Amaranth Extension—The Board of Railway Commissioners has approved location plans for the Amaranth, Man., extension, through Tps. 21 and 22, range 11 and 12, west principal meridian, mile 59.49 to 69.73, and has authorized the building of the line across highways between those points.

Kamsack Station—The Board of Railway Commissioners has ordered the completion of additions and alterations to Kamsack, Sask., station by May 15.

Oliver-St. Paul de Metis Branch—A press report states that track has been laid to the north end of Cache Lake, mile 98.5 from Oliver, in Sec. 31, Tp. 59, Range 12, west of 4th meridian, Alta. From this point to St. Paul de Metis, 21 miles, grading is reported to be practically completed, but owing to shortage of rolling stock, the track will not be laid at present. Ballasting is reported to have been completed from mile 38.9 to 98.5. A station has been built at Radway Centre, mile 43. A station and stock pens have been built at Sinoky, mile 65, and a freight shed and stock pens at Cache Lake.

Peace River Branch—Track lying was reported to be in progress on the extension of the line from Sangudo, Alta., in the direction of Peace River, early in Dec., 1919. The line has been in operation for some years between Peace River Jct., 36 miles westerly of Edmonton, to Sangudo, 31 miles, and grading was completed in 1913 to Whitecourt. This grading was repaired during the summer of 1919. Material for laying 15 miles of track was reported to be on the right of way at the end of Nov., 1919, and it was expected that rails for an additional 18 miles would be secured from Ranfurly, Alta., on the main line, where 60 lb. rails have been replaced by 85 lb. rails.

Kamloops - Vernon - Kelowna - Lumby Branch—The route map of this branch shows a line from Kamloops Jct., on the north side of the Thompson River, entering Kamloops by a bridge over the river and proceeding along the south bank for several miles, then turning south and east, passing by Monte Lake and reaching Armstrong, then almost directly south to Vernon, and passing by the west side of Long Lake, and the east side of Woods Lake, reaching Kelowna, on Okanagan Lake. From Lumby Jct., just south of Vernon, a branch runs easterly to Lumby.

The Board of Railway Commissioners has approved the location of the following sections of the branch: Mile 14.23 to 32.96 to 56 east of Kamloops Jct.; mile 66 to 88.22 east of Kamloops Jct. From Lumby Jct. to Lumby, mile 0 to 14.23; from Lumby Jct., north to Vernon, 1.29 miles, and from Lumby Jct., south to Kelowna, 33.26 miles. These approvals cover the entire line with the exception of a section between Kamloops and mile 14.23, east of Kamloops Jct., and between mile 88.22 (near Armstrong) and Vernon. The management's desire is said to be to link up its line with and to obtain running rights over the C.P.R. between the points named. (Dec., 1919, pg. 658).

Flin Flon Mine and Projected Railway—A Winnipeg, Man., report, Dec. 18, states that nothing further has been done in connection with the proposed sale of the Flin Flon mine near Pas, Man., to Hayden Stone & Co., of Boston. Hon. E. Brown, Treasurer of Manitoba, stated that the present financial situation is responsible for the delay in the sale, but added that a sale would be made in the future though not necessarily to Hayden Stone & Co.

Arrangements for Acquisition of G.T.R. by Dominion Government.

A meeting of G.T.R. shareholders will be held in London, Eng., in the middle of January, to ratify the agreement between the company and the Dominion Government, for the acquisition of the G.T.R. system. In referring to this, the London Times says that, while nobody will pretend that the government has been generous, the terms are better than at one time seemed probable, so on the whole the arrangement must be regarded as satisfactory, and that it renders safe something like \$70,000,000 to \$80,000,000 of British capital invested in Canadian railways.

It is said that in the arbitration proceedings between the Dominion Government and the G.T.R., in respect to the acquisition of the G.T.R. system, the G.T.R. will be represented by W. H. Biggar, K.C., Vice President and General Counsel; F. H. Phippen, K.C., Toronto; A. W. Atwater, K.C., Montreal; and Eugene Lafleur, K.C., Montreal.

The Timiskaming and Northern Ontario Railway's Future.

In the course of a recent trip to Cobalt and other points in Northern Ontario, Hon. E. C. Drury, Premier of Ontario, received several delegations who presented for his consideration matters connected with the future of the Timiskaming and Northern Ontario Ry. In reply to what was suggested he is reported to have intimated at Cobalt, Dec. 8, that the Ontario Government might suggest the acquisition of the T. and N.O.R. by the Dominion Government. The T. and N.O.R., running from North Bay to Cochrane, connects the Grand Trunk lines in old Ontario, which are to be acquired by the Dominion, with the National Transcontinental Ry., which the Dominion now has. The Canadian National Railways system now has running rights over the T. and N.O.R. The Ontario Government railway might be considered a useful addition to the national system if it could be acquired on satisfactory terms.

An Ottawa dispatch of Dec. 9, stated that the Ontario Premier's suggestion did not occasion any surprise in government circles there, and that the opinion was that such a proposition would be favorably received.

Curtaiment of Canadian Train Service—In connection with the coal shortage in the United States, which affected the supplies for Canada, and the general curtaiment of the train service south of the border, a very general withdrawal of trains was put in effect by Canadian lines Dec. 1, and on subsequent days up to Dec. 10. The last and most important train to be affected was the C.P.R. fast train, Trans-Canada Limited, which was taken off Dec. 31. The trains affected were mostly local ones although some having U.S. connections were cut off to suit the curtailments south of the border line. The G.T.R. is reported to have had about 90 trains, and the C.P.R. 35 trains cut off. For the convenience of Christmas traffic, most of the trains cut off were operated temporarily on Dec. 24, 25 and 26. With the settlement of the strike in the United States, the possibilities of the restoration of all the services is looked for, but it is reported that it will take at least two months to clear up the situation created.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canadian National Rys.—T.W.BROWN, heretofore Roadmaster, Muskoka and Orillia Subdivision, Toronto, who, as announced in our last issue, was transferred to other services, has since resigned.

T. CARROLL has been appointed Supervisor of Work Equipment, with jurisdiction south of the St. Lawrence River. Headquarters, Moncton, N.B.

C. P. DISNEY, formerly in the Bridge Department, Intercolonial Ry., Moncton, N.B., and more recently in military service overseas, has been appointed acting Bridge Engineer, Eastern Lines, Canadian Northern Ry., vice W. P. Chapman, who has been granted leave of absence, at the expiration of which he will leave the service.

G. F. FOWLER, City Passenger Agent, Hamilton, Ont., has resigned to enter White Star Line's service at Toronto.

J. MACGILLIVRAY, formerly Manager, and afterwards Receiver, Inverness Coal & Ry. Co., Inverness, N.S., is now attached to the office of the General Manager, Western Lines, C.N.R., Winnipeg, and is handling special work.

W. F. SECORD has been appointed Supervisor of Work Equipment, with jurisdiction north of the St. Lawrence River. Headquarters, Toronto.

Canadian Pacific Ry.—SIR JOHN EATON, President, The T. Eaton Co. Ltd., Toronto, has been elected a director of the C.P.R., succeeding the late W. D. Matthews.

H. L. McKEAN, heretofore, Soliciting Freight Agent, has been appointed Travelling Freight Agent, St. John, N.B., vice J. P. Doherty, resigned on his appointment as Port Agent, Canadian Government Merchant Marine, Ltd., St. John, N.B., as announced in our last issue.

Lieut.-Col. BLAIR RIPLEY, C.B.E., D.S.O., formerly Engineer of Grade Separation, North Toronto, later in military service overseas, has been appointed Engineer, Ontario District, vice A. L. Hertzberg, retired. Office, Toronto.

T. D. UTLEY, heretofore Car Inspector and relieving Car Foreman, Swift Current, Sask., has been appointed Car Foreman, Weyburn, Sask., vice F. C. Reid, transferred to Vancouver, B.C.

Canadian Pacific Ocean Services Ltd.—W. BAIRD, General Agent, Liverpool, Eng., has been appointed General Passenger Agent for Europe. Office, Liverpool, Eng.

E. T. STEBBING, heretofore Passenger Manager, Liverpool, Eng., has returned to his former position as General Agent, Passenger Department, New York.

Grand Trunk Pacific Ry.—J. T. ARMSTRONG, heretofore Chief Dispatcher, Biggar, Sask., has been appointed Chief Dispatcher, Edmonton, Alta., vice C. H. Brown, whose appointment as Assistant Superintendent, Edmonton, Alta., was announced in our last issue.

G. C. BARNETT, heretofore Roadmaster, Biggar to Wainwright, Biggar, Sask., has been appointed Roadmaster, Biggar-Calgary, and Battleford and Cutknife Branches, Biggar, Sask., vice A. Rimstad, transferred.

J. H. GROAT heretofore Assistant Superintendent, Edmonton Alta., has been

appointed Chief Dispatcher, Biggar, Sask., vice J. T. Armstrong, transferred to Edmonton, Alta.

A. RIMSTAD, heretofore Roadmaster, Biggar-Calgary and Battleford and Cutknife Branches, Biggar, Sask., has been appointed Roadmaster, Biggar to Wainwright, both inclusive, Biggar, Sask., vice G. C. Barnett, transferred.

W. H. TURNBULL, has been appointed locomotive foreman, Biggar, Sask., vice J. A. Moran, resigned.

Canadian National Railways Staff Concert, Etc.

The Canadian National Railways, Toronto office staff held a social evening recently, which included a concert and dance. During the evening a hand-



C. P. Disney,
Acting Bridge Engineer, Eastern Lines, Canadian Northern Railway.

somely illuminated address was presented to the President, D. B. Hanna, reading as follows:—

"We, the employes of the Toronto offices of the Canadian National Rys., take this opportunity of conveying to you an expression of our united loyalty, devotion and affection. We realize the great task you have undertaken as President of one of the largest publicly owned enterprises in the world and that the unflinching loyalty and support of all your employes are necessary to make this an unqualified success. We know that efficiency is the keynote to the ultimate success of the Canadian National Rys., and with your wonderful example of courage and devotion to duty always before us we wish to assure you that our great aim will be to assist you in making the service of this great railway one hundred percent efficient and sincerely hope that you may be spared to serve for many years as its President. 'Heaven keep ye free frae care and strife till far ayont fourscore.'"

Mr. Hanna, in replying, said he was at a loss for words to reply to such a testimonial and that it was something he would treasure more highly than anything else which could have been given him, and would be handed down to his family as an heirloom. While he did not require the address to assure him of the esprit de corps, loyalty and devotion existing between the employes of the Canadian National Rys. and himself, for he already had found it through years of service together, he appreciated this expression of it more than he could tell.

Railways Taken Over by Dominion Government.

Following is a list of railways which have been acquired by the Dominion Government, since Aug. 1, 1914, and now operated as Canadian National Railways, the dates mentioned being those on which they were taken over:—

Owned Lines:

International Ry. of New Brunswick..	Aug. 1, 1914
New Brunswick and Prince Edward Island Ry.	Aug. 31, 1914
Moncton & Buctouche Ry.....	June 1, 1918
Salisbury & Albert Ry.....	July 1, 1918
Elgin & Havelock Ry.....	June 1, 1918
St. Martins Ry.....	June 1, 1918
York & Carleton Ry.....	June 1, 1918
Quebec & Saguenay Ry.....	Sept. 1, 1919
Hudson Bay Ry.....	Oct. 1, 1918

Controlled Lines:

Canadian Northern Rys. System.....Nov. 20, 1918

Leased Lines:

St. John & Quebec Ry.....	Jan. 1, 1916
Vale Railway	May 1, 1915

Dominion Engineering and Machinery Co. Ltd., has been incorporated under the Dominion Companies Act with authorized capital of \$3,000,000 and office in Montreal, to carry on the business of general engineers and contractors for the construction of public and private works and a variety of other businesses incidental thereto. The provisional are L. H. Ballantyne, F. G. Bush, G. R. Drennan, H. W. Jackson, and M. J. O'Brien, Montreal. In connection with the announcement of the incorporation of the company, there also appeared notice of the passing of a bylaw, numbered 21, increasing the number of directors from 5 to 12. The bylaw was passed at a meeting of directors Dec. 8, and the notice is signed by F. G. Bush, Secretary.



Department of the Naval Service.

NOTICE OF SALE

SEALED TENDERS addressed to the undersigned and endorsed on the envelope "Tender for C.G.S. Thirty-Three," will be received up to noon of Thursday, the 22nd day of January, 1920, for the purchase of the steamer "Thirty-Three," as she now lies at Halifax.

The length of this vessel is 80' 1", gross tonnage 79, registered tonnage 33, H.P. 21, with a speed of approximately 9 knots and is constructed of steel.

Full particulars and permission to inspect may be obtained on application to the undersigned, or to the Captain Superintendent H.M.C. Dockyard, Halifax, N.S.

G. J. DESBARATS,

Deputy Minister of the Naval Service.

Department of the Naval Service,
Ottawa, December 27, 1919.

Unauthorized publication of this notice will not be paid for.

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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, JANUARY, 1920.

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President Hanna's Christmas Message to Officers and Employees.

D. B. Hanna, President, Canadian National Rys., issued the following, Dec. 24: "To officers and employees:—In this Christmas message I desire to express my hearty appreciation of the co-operative efforts of officers and employees who, with gratifying results, have worked hard to make the first year of the Canadian National Rys. one of progress and success. During the new year let us keep up the good work and show that government owned railways in Canada can be operated efficiently. I do not believe that personal incentive and ambition are eliminated from the make-up of our officers and employees because they work for the government. You may rest assured that the opportunities for promotion are yours and that good work will be recognized and rewarded. In a spirit of goodwill I extend the wish that a full measure of happiness be yours at this Christmas season and that wellbeing attend you throughout the new year."

Collection and Compilation of Transportation Statistics.

As foreshadowed in previous issues of Canadian Railway and Marine World, the collection, compilation, etc., of railway, canal, express, telegraph and telephone statistics carried on formerly in the Railways and Canals Department, by Comptroller of Statistics, J. L. Payne, has been transferred to the Trade and Commerce Department's, Dominion Bureau of Statistics, where it will be carried on under the direction of the Dominion Statistician and Comptroller of Census, R. H. Coats, B.A. The following staff have been transferred from the Railways and Canals Department to the Dominion Bureau of Statistics, viz.: J. S. Woodill, clerk, railway statistics; S. L. T. McKnight, clerk, canal statistics; C. B. Robinson, clerk, telephone and telegraph statistics; F. L. Kemp, clerk. J. L. Payne, Comptroller of Statistics, Railways and Canals Department, has not been transferred, and it is said that he will have no further connection with the work he has carried on heretofore.

In June and again in Oct., 1919, the Civil Service Commission issued the following notice inviting applications:—A railway accountant for the Transportation Division of the Dominion Bureau of Statistics, Department of Trade and Commerce, at an initial salary of \$3,000 a year. Candidates must have a thorough knowledge of railway accounting and statistics in their various phases, based on experience in large railway accounting office, preferably head office of Canadian railway; they must be qualified by education and training to undertake original investigations in different aspects of cost accounting. The position requires initiative and resourcefulness, as well as first hand knowledge of existing railway accounting systems.

We are officially advised that G. S. Wrong, of Toronto, has been appointed to the position. He was in the Hydro Electric Power Commission of Ontario's service up to May, 1918, when he enlisted and he returned to the commission's service after demobilization.

English Railways Freight Rates are reported to have been advanced recently from 60 to 70%.

Railway Finance, Meetings, Etc.

Canadian National Rys.—There has been deposited with the Secretary of State at Ottawa duplicate original of a deep of collateral trust and mortgage dated Oct. 1, 1919, between the Canadian Northern Ry., the National Trust Co., and the Crown, securing certain 5½% guaranteed secured notes of the Canadian Northern Ry.

There has been deposited with the Secretary of State at Ottawa, duplicate original of lease and assignment made between the Canadian Northern Rolling Stock Co. and the Canadian Northern Ry., and the Gerard Trust Co., dated Nov. 29, 1919, supplementary to a lease and assignment dated May 1, 1919, in connection with the Canadian Northern Equipment Trust, Series C, 1919.

The Guelph Jct. Ry.'s net earnings for the last financial period of 13 weeks, were reported, Nov. 26, to be to \$20,675, out of which the directors authorized the payment of a dividend of \$19,975 to the City of Guelph, Ont. The total amount paid to the city for the last financial year was \$69,700, or 14% on the capital stock held by the city. For the preceding financial year the city received \$61,569.86. The line which extends from Guelph Jct. to Guelph, is leased to the C.P.R.

Ottawa Terminals Ry.—Following are the directors for the current year:—President, H. G. Kelley; Vice President, W. D. Robb; Vice President and Treasurer, F. Scott; other directors:—J. E. Dalrymple, R. S. Logan, W. H. Biggar, all being G.T.R. officers.

Timiskaming and Northern Ontario Ry.:

Passenger earnings	\$ 81,561.37	\$ 50,704.37
Freight earnings	233,167.82	204,219.57
Total earnings	\$314,729.19	\$254,923.94

Grain Inspected at Western Points.

The following figures, compiled by the Dominion Bureau of Statistics, show the number of cars of grain inspected on railways, at Winnipeg and other points in the western division, for Nov., 1919, and for two months ended Nov. 30, 1919, and Nov. 30, 1918, respectively:

	Nov., 1919	2 mons. to Nov. 30, 1919	2 mons. to Nov. 30, 1918
C.N.R.	6,848	22,593	20,107
C.P.R.	12,296	36,890	36,665
G.T.P.R.	3,169	10,056	7,519
G.N.R. (Duluth)	73	413	552
Total	22,386	69,952	64,843

Smoke From Railways' Stationary Plants—The Board of Railway Commissioners issued the following circular, Nov. 26, 1919:—Complaint has been made to the board of serious nuisance arising in cities by reason of the befouling of the atmosphere by dense or opaque smoke emitted from the stationary plants of railways in such municipalities. The board desires to be informed by the railway companies subject to its jurisdiction, within 30 days of the date of this circular, whether they are agreeable to the issuance of a general order extending the application of general order 18 to stationary plants, and requiring that such stationary plants be equipped so as to prevent the unnecessary and unreasonable emission of dense or opaque smoke, failing which a hearing of all parties involved will be held and a decision arrived at in the matter.

Railway Track Design and Manufacture.

By W. E. L. Dyer, A.M.E.I.C., Montreal.

The object of this paper is to outline in as few words as possible the steps taken to overcome difficulties in track construction, that have arisen from time to time, in an endeavor to keep pace with the increased loads and speeds so necessary to modern civilization. It would be impossible to give any detail and I trust these few words may give some idea of the necessity of having more co-operation between manufacturer and user. Our United States friends have several well known track societies, and their publications and standards are practically accepted as standard in Canada. This may

ment than bridges, water works and sewers combined, the subject is well worth consideration, but in this short paper it would be impossible to go into any detail and the chief points of interest only will be dwelt on.

The word tramway is of Scandinavian origin and primarily means a beam of wood, where the first reference was made in 1555. In lowland Scottish "tram" was used both as a beam of wood, and specifically of such a beam employed as the shaft of a cart, and in some places to-day the name is still given to wheeled vehicles used for carrying coal in min-

strengthening the casting. This rail was not satisfactory to the general public who found difficulty in crossing the flanges, and in 1789 the edge rail shown in fig. 2 was tried, the wheel being kept in place by guards of either blocks or timbers. This rail was used extensively as it did away with the faults of the first experiment.

About 1800 a complete change of design was required, owing to the introduction of flanged wheels. The first flanged wheels had a tread of $1\frac{3}{4}$ in. which probably established the standard track gauge of 4 ft. 8 $\frac{1}{2}$ in., as used by us today, the first flanged rails having been laid 5 ft. between flanges as mentioned above. Improved methods of manufacture allowed of rolled rails being made about 1820. These rails were supplied in 18 ft. lengths, weighing 2.8 lb. per yard and of the section shown in fig. 3, the rails being spiked to longitudinal ties. This rail was not satisfactory, owing to vehicle wheels catching in the groove and the design was altered to fig. 4, which section was used extensively on American roads.

Fig. 5 shows the first step in obtaining vertical stiffness combined with side spiking.

Important developments in rails were rapid owing to increase in wheel loads, due to the introduction of steam traction and briefly were as follows:

Flat bottom rail (fig. 6), introduced in 1830, weight 36 lb.

Bridge rail (fig. 7), introduced in 1837.

Double headed rail (fig. 8), introduced in 1837.

Bull head rail (fig. 9), introduced in 1840.

The combination of the flat bottom and bull head rails gave the T rail, as used today. The girder rail, as used on public right of way, was first patented in 1859 and successfully rolled in 1877.

Rail joints have been the chief source of revenue to patent attorneys for a number of years and it is difficult to find two people with the same ideas as to what a joint should be. The evolution of joint fastenings has advanced through four stages: 1, Spikes at the end of a rail. 2, The chair, which maintained the ends of the rail in alignment and served as a bearing plate on the joint tie. 3, The fish plate, which kept the rail in alignment and gave partial support to the head. 4, The angle bar, which combining the features of the fish plate, effected a great improvement in both the vertical and horizontal stiffness of the joint and generally speaking is the universal joint fastening of today.

Experiments are being continually tried to eliminate the joint by welding and casting, but the results obtained have up to the present not been of such a nature as to warrant a wholesale adoption. One of the largest Canadian electric railways has developed a joint which is giving very satisfactory results; their method being to bolt up the plate as tight as possible with plates slightly staggered. The plate is then electric welded top and bottom to the rail.

This does away with bonding the track and tests show a perfect joint after severe service. To take care of expansion split points are introduced at proper intervals.

The total cost of joints as described is about \$3 each for rails weighing 80 lb. per yard and increasing in proportion to the weight of rail.

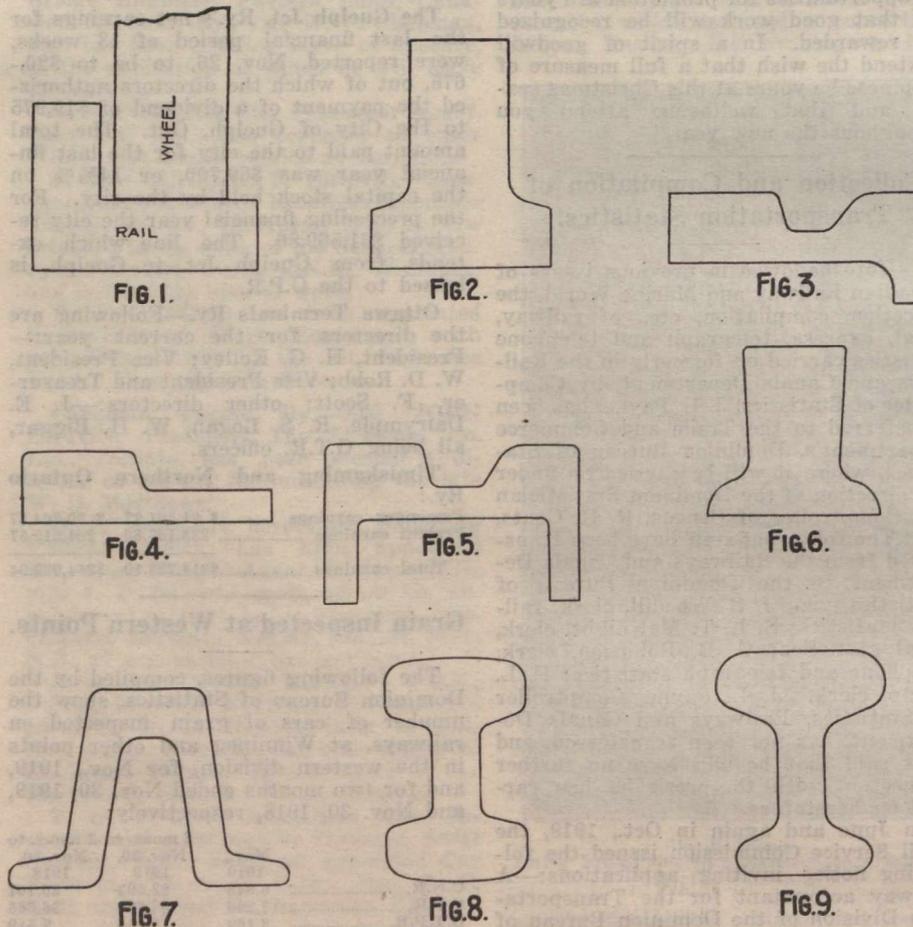


Fig. 1. Plate rail, 1767, cast iron. Fig. 4. Stringer rail without groove. Fig. 7. Bridge rail, 1837, 92 lb.
Fig. 2. Edge rail, 1789, cast iron. Fig. 5. Livesey rail. Fig. 8. Double head rail, 1837.
Fig. 3. Stringer rail, 1800. Fig. 6. Flat bottom rail, 1830, 36 lb. Fig. 9. Bull head rail.

have its advantages, as it saves us any responsibility, but on the other hand it does away with the possibility of developing our own ideas, which are usually turned down until they revert back from other sources. This does not seem reasonable and it looks as though the Engineering Institute of Canada might take this into consideration along with its other worries. To bring this point before you, I may say that the proper construction of track and the efficient and economical maintenance involve the science of engineering, although broadly it is not recognized as such.

Of the three recognized stages having to do with tracks in service, either construction or maintenance are as much engineering as that of track location, and when one considers that track and roadbed represent a much larger invest-

ing. "Tramway" therefore is primarily either a way made with beams of wood or one intended for the use of "trams" containing coal. The usage of today has converted the meaning into the form of electric traction as applied to city traffic and with which we are all familiar.

There has been considerable experimental work done since the first beams of wood were used to lighten the labor of hauling loads, and it was not till 1767 that attempts were made to use better wearing materials, and build on a more permanent basis. The first rails were made of cast iron about 3 ft. long, the section at the middle being shown as in fig. 1, and tapering in depth to the ends; thus making each rail a small girder. The rails were placed 5 ft. between the flanges, which served the double purpose of keeping the wheels in place and

In practice the length of splice bars varies from 20 in. to 48 in. A splice less than 26 in. is considered short and one exceeding 32 in. in length is considered long. The objection to a long splice bar is that when bolted up tight proper expansion is not allowed, whereas if bolted loose, there will be trouble very shortly with loose joints.

One method of overcoming bad joints is either to mitre the railends about 55° or to lap the joints. The cost of this method would be prohibitive on straight track, but on special work this practice is usually followed by manufacturers, especially when crossings are made of manganese steel and from my experience it is about the most satisfactory way. I have checked over several lap joints after 18 months service and could not find any additional wear.

The roadbed embraces the foundation or earth support, the fill, and lastly the track. We are only interested in this paper in the roadbed in so far as it allows proper support for the tracks and that is one thing that should have consideration.

Diamond crossings are made extra heavy, to withstand excessive strain, but railways still continue to treat the foundation for the crossings as though there were no undue strains, with the result that in a number of cases failure of the track is due to failure of the foundation. Little extra expense would be occasioned to put in a solid concrete foundation at these points, with ties properly cushioned with 2 in. stone and the life of a crossing would be increased in many cases at least 25%. This point is well worth experimental work as I know one case of a crossing failure, due to foundation being too weak to stand the strain, and satisfactory results were obtained by making a reinforced concrete foundation at that point.

Special Work of Electric Railways—It is safe to say that no railway has ever been built that has not had a piece of track that required some special preparation other than that given to plain, straight track before it could be laid in place. It may further be stated that no two street intersections have the same angle combined with similar manhole locations and that railways delight to lay tracks so that curves will run through diamond crossings. It is of course impossible to change location angles to any extent, but it should be possible, with co-operation between engineers in charge of gas, water, conduit and other departments to arrive at some standards of manhole location. Most systems have a considerable percentage of their trackage made up of curves, crossings, switches, etc., and as they are made specifically to fit given locations, they are called "special work."

The possibility of standardizing intersection work is practically impossible, although several spasmodic attempts have been made from time to time, and manufacturers and railway engineers have agreed that switches and mates be standardized for length and radius and that each manufacturer be allowed to supply his own designs; without doubt this makes a very satisfactory arrangement.

It is stated by some authorities that in tracks made with rails of 5 in. or under, all curves over 500 ft. radius may be "sprung in" and that for heavier rails, such as girder rails, all curves of 1,000 ft. and over may be sprung. I am in favor of all curving being done either

with power benders or a crow, as curves from sprung rails, after one year service, usually show angle joints.

The first special work manufactured was made with as small a radius as possible, and no attempt was made to ease off the ends of the curve. Consequently switches and mates were made the same radius as the curve. This practice was hard on the tracks, and required a heavy stock of spares being always kept on hand as in many cases there would not be two switches or mates interchangeable in the same intersection. This made an impossible condition and combined with increased speed and loads intersection work began to standardize on radii and curve easements.

The first step was to compound the curves, and as speeds and weights further increased, three centered curves were used for a number of years, only to be replaced by the spiral, or a curve of constantly changing radius. The selection of a spiral is governed by three main points, viz.: 1, The radius of the main curve must be less than the preceding branch of the spiral, must be more than the next branch would be, were it produced, and should nearly equal the latter. 2, The longer the spiral the easier the entrance will be. 3, The larger number of branches, the easier on maintenance.

The manufacturer of special work has his own spiral standards and if a student wishes to get any special information he can easily obtain it from catalogues of different manufacturers. At first, special work was made by the nearest blacksmith, but today it is one of the highest branches of manufacturing skill, and very few realize that intersection work, going together on the street like a puzzle picture, has been calculated to about 10 decimal places and that not 1-32 in. variation is allowed in the joints.

Many of the larger intersections require more than a week for calculations, and after that the whole has to be designed so that the several pieces may be manufactured in sizes that can be readily handled in the shop and on the field. Maintenance engineers would prefer crossings made in one piece and the manufacturers would prefer them made in four pieces. This point has been the subject of considerable dispute between the interested parties and had the idea of single piece crossings been adhered to, the manufacturer would have been put out of business.

Special work was first built up from the rail section being laid, bolted together with corner brackets, and sometimes clipped to a bearing plate. To increase wear, the point proper was shortly afterwards machined out from blocks of tool or other toughened steel, held in place with cast iron, which was also used to hold rail ends in place, or of manganese steel.

K. W. Blackwell can be looked on as a pioneer in the introduction of steel centered frogs in Canada, he having imported the steel centers and bolted the rails in place in Montreal. These frogs, I understand, were put into service on the G.T.R., and I happened to see one after about 15 years service, which looked good for about another 15 years. However, traffic was not heavy at that point. For the cheaper types of intersection work this practice is adhered to, but with the advance of knowledge as regards manganese steel, the prospects are that eventually the entire intersection, in-

cluding the closure rails, will be made of manganese steel. At present the prices asked for this class of work have to be considered. The first cost of solid manganese is higher, but with recent improvements in production the cost can be materially reduced.

There has been, and still is, considerable difference of opinion regarding the merits of what is known as "insert work" and solid manganese steel. One conclusion arrived at, after exhaustive study of the question, is that insert work equalled, and in some cases surpassed, the serviceability of solid manganese work. This conclusion was arrived at without taking into consideration the defects in the entire piece of insert work which develop in service, but was based on the quality of steel insert as compared with solid work. Insert work may be divided into three classes so far as the insert setting is concerned, viz., that which is supported entirely in a splter bed, that which is partially supported on a machined bed and surrounded with splter, and that which is supported with a completely machined bearing.

Insert fastenings are of two kinds, those which are renewed from pavement surfaces, and those which are renewed by removing portions of the pavement. The latter type may be either bolted down, or keyed down, construction; the former may be bolted down, keyed in, or have special set screw fastenings. The purchaser of this commodity has a wide range to choose from, and as they all have certain merits and none are perfect it is practically a question of cost which type to use. The defects of insert work may be loose rails, defective body casting or inferior shop practice placing inserts; and if any of the above mentioned defects develop, the wheel loads will rapidly set up a pumping action, which will affect the roadbed, causing complete failure of the piece.

Solid manganese work does not lend itself to any such defects and a piece properly designed, of good workmanship and quality, will not require continual inspection once installed, as breakages do not occur and wear only has to be considered. The first cost of solid manganese is higher, but with recent improvements in production the cost can be materially reduced.

Special Work for Steam Railways: It is advisable at this point to draw a distinction between the two types of special work as the operating conditions are so different. Canadian railways have about 40,000 miles of track, and 11,000 turnouts and a number of crossings, to maintain. The greater number of turnouts and crossings are built up from rail.

A frog of any of the kinds in general use, is made of 4 pieces of rail properly shaped and held together by some device or arrangement of minor parts. Frogs are of two kinds, rigid or stiff rail, and spring rail frogs. Rigid frogs are the cheaper type, wearing out rapidly, while spring rail frogs are more durable, and have a life generally conceded to be three times that of a rigid frog. Manganese frogs of various designs are beginning to be used where wear warrants the expenditure, and from tests made the life of a manganese frog is at least six times that of built up work and I have known them to be in service ten times as long. There is little doubt that the built up frogs will rapidly be replaced by manganese, rigid, and spring rail frogs.

To persons not familiar with tracks,

it may be opportune to say that a turnout consists of the combination of a pair of points or switches, with necessary connections for operation and support, a frog and guard rails. Turnouts are either right or left hand, depending on the direction in which they transfer the traffic when running towards the switch point. This point must be borne in mind when spring rail frogs are used, but is not so important with rigid frogs.

At the crossing of 2 tracks, 4 frogs are required. The manner of constructing them depends largely upon the angle at which the tracks meet and on the traffic to which they are subject. In a general way 4 styles of crossing construction are recognized. 1, For crossings of small angles—15° or less—the usual way is to use 4 frogs connected up with intermediate rails. 2, For angles 80° and less, the middle frogs are replaced by movable point frogs, operated

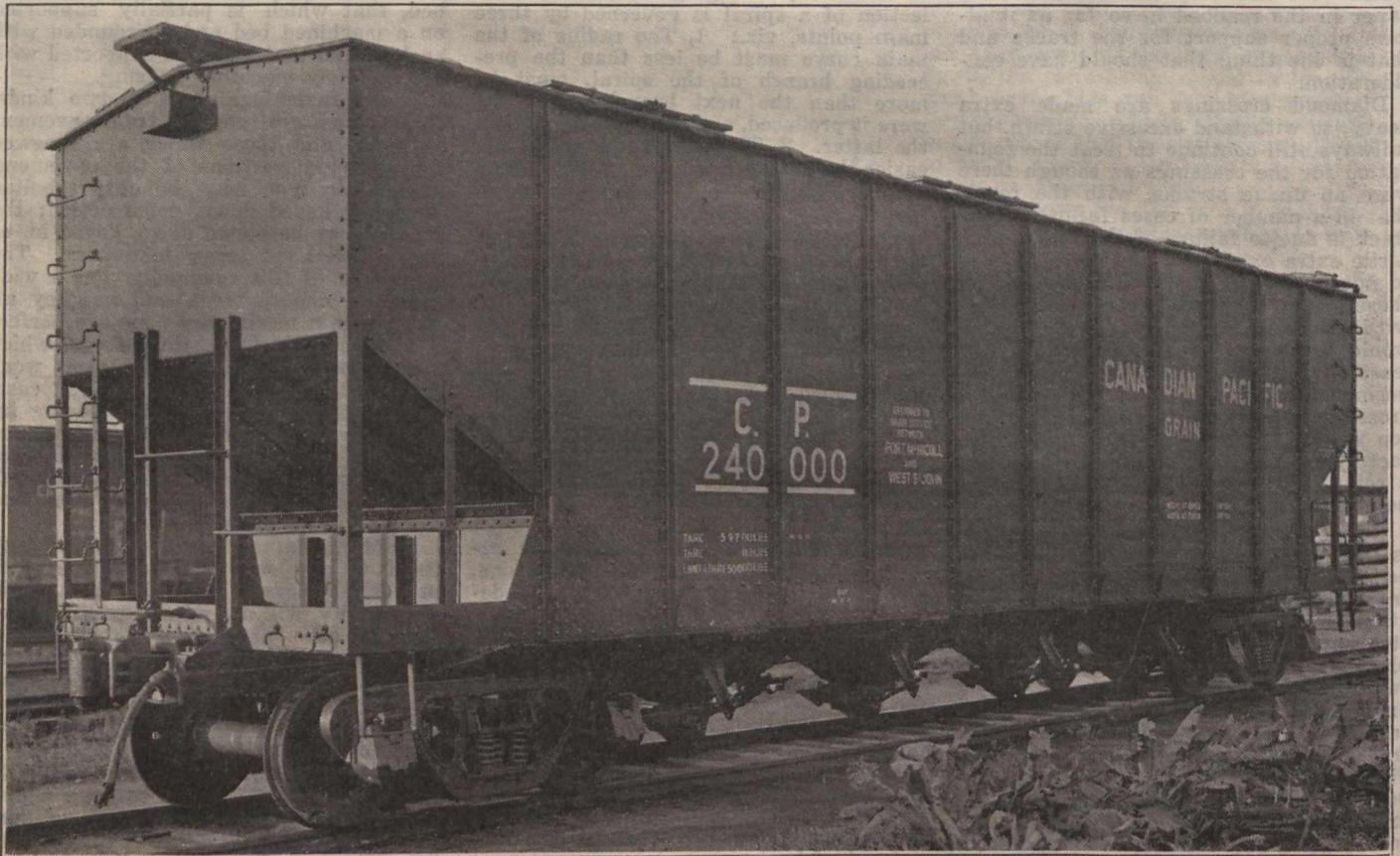
On checking over failures of diamonds, I have found that after about 1,500,000 wheel impacts a manganese crossing is about ready to scrap, and the results obtained are no better than a built up crossing. For angles below 75° manganese can be used economically, and the smaller the angle the longer will be the life of the crossing.

In designing manganese castings, it is advisable to have the sections checked by those familiar with the action of the metal, and numerous failures could be avoided by following these few suggestions: Make the section of uniform thickness. Avoid abrupt changes in thickness. Use parallel ribs, instead of transverse. Arrange ribs to offer the least resistance to shrinkage. Shrinkage of manganese castings will go about $\frac{3}{8}$ in. per ft. A bead along the thin edge of casting will prevent cracks and makes for sound castings.

C.P.R. Steel, Hopper, 75-Ton Grain Car.

The car illustrated on this page was built recently at the C.P.R. Angus shops, Montreal, to determine, by actual service test, the net advantages to be obtained from a grain tight, self clearing, car of maximum tonnage capacity, as compared with standard box cars of ordinary capacity.

The basis of the design for tonnage is 4 M.C.B. axles, having 6 x 11 in. journals. The length was determined by the distance, center to center, of unloading hoppers in the modern elevators at Montreal and West St. John, N.B., there is one elevator having hopper centers 48ft. The height was determined by the actual cubic space required to contain the full load of wheat, plus an allowance of at least 12 in. on top to permit of full load



Steel Hopper Grain Car, 75 tons capacity, Canadian Railway.

mechanically from the signal tower. 3, For angles between 15° and 35° the crossing is made in 4 sections, the end and middle frogs meeting at joints all round. 4, For angles 35° and up the rails on the tracks subjected to heaviest traffic are continuous throughout the length of the crossing and grooves are slotted out to allow flangeway through them. These four styles are again subdivided into guarded and fourth rail types, depending on traffic conditions.

The advantage of using manganese steel for crossings is at once apparent, as the numerous bolts used in crossings will stretch in service, allowing the crossing to loosen, and unless track men are continually tightening the bolts the crossing will quickly wear out. A manganese crossing should not be used as a wear economic for angles of from about 75° to 90°, as between these angles it is not a question of wear, but of metal fatigue.

The foregoing paper was read before the Engineering Institute of Canada's Montreal branch recently.

British Railway Rates—London, Eng. cablegram, Dec. 29.—British shippers are to pay the increased cost of railway labor. The new freight rates, which go into effect Jan. 15, show advances from 25 to 100%. Thus the commerce of the country, struggling to revive, foots the bill of higher wages and enhanced cost of material. The revised rates, the government hopes, will put the railways upon a paying basis.

The King Edward Construction Co., which has been formed to build an addition to the King Edward Hotel, Toronto, offered recently for subscription, \$1,350,000 guaranteed 7% cumulative redeemable preference shares. The C.P.R. Co. subscribed for \$75,000.

being placed in the car without trimming.

The car is all steel, with the exception of the running board and the ridge on top of the center sill. The general design is practically the same as commonly used for coal cars of equal capacity, except that this car is built with a steel roof. The roof is provided with 3 hatch openings on each side of the running board. The hoppers are arranged 4 on each side of the center sill. The hopper openings are purposely made relatively small, and the frame and slides are machined and carefully fitted. The slides are opened and closed by a rack and pinion arrangement. The slides are locked by a sealing pin passing through the slide and hopper frame. The trucks are Vulcan type, built to U.S.R.A. dimensions.

The car, having given satisfactory performance on its initial trip between Port McNicoll, Ont., and Montreal, has been placed in regular service between the

same port and West St. John, N.B. We are indebted to W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., for the foregoing particulars.

Locomotive Terminal Equipment Association.

The Locomotive Terminal Equipment Association has been organized, with headquarters in Chicago, "to make surveys for, and distribute data to the public and corporations interested, concerning the equipment of locomotive terminals, in order to secure speedy, efficient and economical handling, cleaning, repairing and returning to service of locomotives; such data to be impartially secured and published, without advertisement, or a special advantage to any individual, firm or corporation that may be a member of the association." There are two classes of members; active members, consisting of individuals, firms or corporations engaged regularly in the manufacture or sale of locomotive terminal equipment, or in any way interested in the construction of locomotive terminals; and honorary members, who shall be elected by the directors, but who shall have no vote nor pay any dues or assessments. The active member's fee is \$1,000, and assessments may be made, not exceeding \$1,000 a year for each active member.

The following are the officer: President, W. R. Toppan, Manager Railroad Department, William Graver Tank Works, Chicago; Vice President and Secretary, Bruce V. Crandall, Chicago; Treasurer, J. S. Maurer, Secretary and Treasurer, National Boiler Washing Co., Chicago; General Counsel, Frank J. Loesch, 1540 Otis Building, Chicago. Other directors: Spencer Otis, President, National Boiler Washing Co., Chicago; N. S. Lawrence, Vice President and Assistant Sales Manager, Whiting Foundry Equipment Co., Harvey, Ill.; Wm. Robertson, William Robertson & Co., Chicago; R. A. Ogle, President, Ogle Construction Co., Chicago; F. W. Miller, President, F. W. Miller Heating Co., Chicago.

The association's headquarters are at 1824 Lytton Building, 14 East Jackson Boulevard, Chicago, where there is a conference room, and where data will be arranged for easy reference, so that railway officials may have every opportunity for obtaining information of every kind pertaining to the rebuilding re-equipping and laying out of locomotive terminals.

Disposal of Worn Out Railway Ties—

The Railway Association of Canada has issued the following circular to member railways: A number of complaints have reached the association that notwithstanding the existing shortage of fuel, large quantities of worn out railway ties are burned on the right of way. Coupled with this complaint is the suggestion that railways arrange to give surplus old ties to the public and thereby alleviate the fuel shortage, at least to some extent. After consideration of the matter at a recent meeting of the association, the complainants were informed that the railways would be glad to dispose of the old ties as suggested, provided this can be done without expense to the railways. It is suggested that at places where surplus worn out ties are available, notice be given the municipal officials so that if they desire to do so they may avail themselves of the opportunity to obtain them.

Freight and Passenger Traffic Notes.

The Canadian National Rys. has removed its lower town ticket office in Quebec City to 38 Dalhousie St., a few doors north of the ferry landing.

Owing to the continued increase in the cost of railway operation, no reduced fares were given the general public for the Christmas and New Year holidays.

Pacific Great Eastern Ry. traffic from Squamish, B.C., northerly is reported to have been interrupted for some days, pending the clearing out of a tunnel 18 miles out of Squamish, which caved in Nov. 29.

Alberta reports state that during Sept. and Oct., 1919, the railways handled over 800,000 tons of coal in Alberta. The outfit shipped from the mines is said to be between 500 and 1,000 tons a day in excess of the outfit for 1918.

The G.T.R., which was compelled to reduce its passenger train service, Nov. 30, on account of the coal situation, resumed its full service, Dec. 28, and all trains which has had been temporarily cut off were restored.

The Board of Railway Commissioners has authorized the Canadian Northern Western Ry. (Canadian National Rys.) to carry freight for its Hanna-Medicine Hat branch from Bonar to Saskatoon, Sask., for four months from Nov. 15, 1919.

Following is a comparative statement of the number of loaded cars hauled over Quebec Bridge for the week ended Nov. 29:

	1919	1918
From Bridge Station to Chaudiere Jet...	424	359
From Chaudiere Jet. to Bridge Station...	359	230

The Board of Railway Commissioners has recommended the Dominion Government to sanction an agreement between the Edmonton, Dunvegan and British Columbia Ry. and the Alberta and Great Waterways Ry. respecting the joint use and operation of each company's terminal property at Edmonton, Alta.

Quebec City residents are reported to be agitating for a sleeping car for that city to be attached to the westbound Ocean Limited train, on the Canadian National Rys. Intercolonial section. At present, it is stated, travellers going into Quebec City from the Maritime Provinces, have to get off the train at Levis at 4 a.m.

The Edmonton, Dunvegan and British Columbia Ry., is reported to have carried out from Edmonton, Alta., during the 11 months ended Nov. 30, 1919 the following freight: Settlers effects, 527 cars; cattle, 709 cars; horses, 300 cars; sheep, 19 cars, and to have carried in and transferred to other railways at Edmonton, the following freight: Hay, 1,150 cars; wheat, 296 cars; oats, 414 cars; barley, 49 cars; cattle, 243 cars.

The Canadian National Rys. has arranged an exchange system with the G.T.R., under which additional facilities are offered passengers who desire to travel between eastern and western Canada via Montreal and Toronto. Travellers now have a choice of routes and may travel on "The National" train via North Bay and Cochrane or on train 1, via Capreol and Port Arthur. "The National" leaves Toronto 9.15 p.m., Monday, Wednesday and Friday, arriving Winnipeg 6 p.m., Wednesday, Friday and Sunday. Train 1 leaves Toronto 9.15 p.m., Tuesday, Thursday and Saturday, arrives Winnipeg 6 p.m., Thursday, Saturday and Monday. Both these trains

carry standard and tourist sleeping cars, dining car, first class and colonist coaches. This exchange system of tickets provides a daily, except Sunday, service from Toronto to Winnipeg.

The Chief Railway Commissioner, Hon. F. B. Carvell, is reported to have said at a sitting of the Board of Railway Commissioners in Winnipeg, Dec. 1, in connection with a complaint as to alleged insufficient accommodation on a Canadian National Rys. branch line: "In view of the fact that the cost of operating railways has more than doubled in the last two and a half years, and that the expense to the railways has increased by \$60,000,000, the people may as well realize that they cannot have excessive railway accommodation, such as a train a day or two trains a day, unless they are prepared to pay for it."

The car ferry steamship Prince Edward Island, operating between Tormentine, N.B., and Port Borden, P.E.I., is reported to have made 288 trips in the 48 days from Oct. 1 to Nov. 21, 1919, an average of 3 round trips a day. The number of cars ferried across was 2,865, an average of 59 a day. On the third rail district of the P.E.I.R., there were 1,297 cars handled, of which 738 were received from and 559 forwarded to the mainland; while from the narrow gauge districts there were 1,440 cars forwarded to Port Borden and there transhipped to standard gauge cars, and 78 narrow gauge cars were loaded at Port Borden with freight from the mainland, during the period named.

The Edmonton, Dunvegan and British Columbia Ry., and its subsidiaries—the Alberta and Great Waterways Ry., and the Central Canada Ry.—put a new schedule of passenger trains in operation out of Edmonton, Alta., Nov. 30. A train leaves Edmonton at 3 p.m., Mondays and Thursdays, arriving at McLennan, 7.30 a.m., Spirit River, 2.20 p.m., and Peace River 1.30 p.m., on Tuesdays and Fridays. The return train leaves Peace River, 3.30 p.m., Spirit River 3.00 p.m., and McLennan, 11.20 p.m., Tuesdays and Fridays, and arrives in Edmonton, 2.50 p.m., Wednesdays and Saturdays. A train leaves Spirit River at 2.30 Tuesdays and Fridays, arriving at Grande Prairie at 8 p.m., the same days; and a train leaves Grande Prairie at 8 p.m., arriving at Spirit River 1.30 p.m. Tuesdays and Fridays. A train leaves Edmonton at 8.20 a.m. on Mondays and Thursdays, arriving at Lac la Biche at 6.30 p.m., and returns thence at 6.30 a.m. Tuesdays and Fridays, arriving at Edmonton, at 4.30 the same evenings.

United States National Accident Prevention Drive—The U.S. Railroad Administration has received a report from its safety section, showing the standing of all roads under Federal control, during the National Accident Prevention Drive from Oct. 18 to 31, 1919. The Grand Trunk Western Lines Rd. had 0.011 casualties per 100 employes during the drive, which is the lowest rate of any road having as many employes. The Atlantic Coast Line, with 24,307 employes, made a record of 0.012 casualties per 100 employes, which is the next best record. The Grand Trunk Western Lines Rd. has 1,001 miles of track and 9,699 employes, only 2 of whom were injured during the period mentioned.

Electric Railway Department

Taxation of Electric Railway Substructures and Superstructures in Ontario.

Under the Ontario Assessment Act, prior to the Ontario Legislature's last session, considerable discrimination was made between the mode of assessment of electric and steam railway companies properties. Previous to this year, a number of appeals were prosecuted by the Canadian Northern Ry.'s Tax Department on behalf of the Niagara, St. Catharines & Toronto Ry., a C.N.R. subsidiary company, on the grounds that the substructures and superstructure of an electric railway, when situated on the company's private right of way, was exempt from taxation. The grounds of the company's appeal were substantiated under sec. 44 of the Ontario Assessment Act, R.S.O., 1914, chap. 195, which provides that, "The property by paragraph 5 of clause (h) of sec. 2 of the act declared to be land . . . owned by companies operating steam and electric railways, etc., shall be assessed in the ward in which the head office of such companies or person is situate, and in assessing such property, whether situate or not situate, on a highway, street or road or other public place, shall be assessed at its actual cash value as the same would be appraised upon sale to another company, possessing similar rights and franchises."

The property referred to in paragraph 5 of clause (h) of sec. 2, is described under this particular section as being "All structures, fixtures, affixed to any highway, lane or other public communication."

The company, therefore, contended that the intention of the act was merely to assess the structures and fixtures, situate on a highway as declared by sec. 44 above referred to, and to exempt in a similar manner to steam railway lands, structures and superstructures situate on a private right of way. The matter was finally disposed of on appeal to the county judge in the case of Grantham municipality, where it was held that the ambiguous subsec. 3 of sec. 44, providing for the assessment of lands described under paragraph 5 of clause (h) of sec. 2 (superstructure situate on a public highway), would also include superstructure situate on a private right of way by virtue of the fact that the subsection ambiguously read, "The superstructure and substructure on any highway" should be assessed whether situate on any highway or not (private right of way), at its actual cash value as the same would be appraised upon sale to another company possessing similar rights and franchises. The decision of the county judge in this matter meant that where steam was the motive power, the superstructures and substructures situate on a private right of way were exempt from taxation under sec. 47 of the act (which specifically held this class of property exempt from taxation), while similar property of a railway operated by electricity would be held assessable.

Finally, the attention of the Ontario Government was drawn to the unfair discrimination and an amendment was passed at the legislature last session providing that "Notwithstanding anything contained in this section or any other section of this act, the structures, substructures, superstructures, rails, ties,

poles and wires of an electric railway, shall be liable to assessment in the same manner and to the same extent as those of a steam railway are under the provisions of sec. 47 and not otherwise."

Irrespective of this amendment, the City of Toronto again assessed the Toronto Suburban Ry. Co., another C.N.R. subsidiary, for substructure, superstructure and machinery, etc., situate on the private right of way of the company. The C. N. R. Tax Commissioner, T.G. Watson, prosecuted the appeal before the court of revision on June 2. The assessment, however, was confirmed and further appeal was made to the county judge. The principal grounds of the appeal are as follows:

The amendment passed, at the legislature's last session, to sec. 44, relating to the assessment of electric railway companies, provides that, "The structures, substructures and superstructures, etc., of an electric railway company 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 sec. 47 and not otherwise."

Sec. 47 of the Assessment Act provides in subsec. (a) that the roadway or right of way of a railway company shall be assessed at its actual cash value, not including the structures, substructures and superstructures, rails, ties and poles, and other property thereon and subsec. (c) provides that the structures, substructures and superstructures, rails, ties and poles upon, in, over, under or affixed to any highway, shall be assessed at their actual cash value as the same would be appraised upon sale to another company possessing similar rights and franchises.

Subsec. 3 of sec. 47 provides that, "Notwithstanding anything in this act contained, the structures, substructures and superstructures, rails and other property on railway lands and used exclusively for railway purposes or incidental thereto (except station, freight sheds, offices, warehouses, elevators, round-houses and repair shops), shall not be assessed."

Further, it is provided, under subsec. 5 of sec. 47, that, "A railway company assessed under this section shall be exempt from assessment in any other manner for municipal purposes, except for local improvements."

The Toronto Suburban Ry. Co.'s appeal in the City of Toronto was filed on the two grounds: First, that the recent amendment to the Assessment Act, providing that the assessment of electric railway companies should be made in the same manner and to the same extent as the property of a steam railway under sec. 47 of the act, above referred to, would exclude from taxation the substructures, machinery, etc., of the company, situate on lands owned by the company in a similar manner as the exemption granted the same class of property of a steam railway. Further appeal was prosecuted on the grounds that the Toronto Suburban Ry. would be exempt from business taxes under the recent amendment to sec. 44, which provides that an electric railway shall be assessed in the same manner and to the same extent as steam railways under sec. 47 of the act.

Subsec. 5 of sec. 47 provides that, "A railway company assessed under this section shall be exempt from assessment in any other manner for municipal purposes except local improvements." This subsection has always excluded, without question, the lands of a railway company from business taxes, and it was, therefore, submitted that an electric railway company under the recent amendment is entitled to a similar exemption.

The act itself seems perfectly clear on this point, and on equitable grounds, it would seem reasonable that all railway companies, whether operated by steam or electricity, should be granted the same basis of assessment. On appealing before the court of revision for the City of Toronto, the court was somewhat divided in opinion. The assessment was finally confirmed and further appeal was, therefore, made to the county judge.

The matter came before County Judge Coatsworth towards the end of October, when he at first decided to confirm the assessment and then, by request, consented to reserve decision. It appears that he is of the opinion that the company's transformers are not in the nature of a structure and are, therefore, correctly assessable under the provisions of the 1919 amendment to sec. 44 of the Ontario Assessment Act.

County Judge Coatsworth finally held that the Toronto Suburban Ry. Co.'s transformers could not be defined as structures under the 1919 amendment to the Assessment Act which provides that, "The structures, substructures and superstructures, etc., of an electric railway company shall be liable to assessment in the same manner and to the same extent as those of a steam railway company are under sec. 47 of the act."

In this particular case, the Toronto Suburban Ry. is not the owner of the building containing the transformers, and there was, therefore, no appeal by the railway as to the assessment of the building. The Grand River Ry. has appeals pending in Preston and Kitchener, where the power houses are assessed. It would seem that these buildings would be exempt from assessment under sec. 47 of the Assessment Act which declares that "Structures of a railway company shall be exempt, except stations, freight sheds, offices, warehouses, elevators, hotels, round houses, machine, repair and other shops."

Service at Cost Defeated in Minneapolis—The Minneapolis, Minn., City Council passed an ordinance, Sept. 4, 1919, granting a new franchise to the Minneapolis St. Ry. (Twin City Rapid Transit Co.), on a cost of service basis. The franchise was submitted to the rate-payers on Dec. 9 for ratification and was defeated by a vote of 30,546 to 23,161.

Hydro Electric Power Commission of Ontario's Power Canal—In connection with the construction of the new Chipewawa Power Canal, the Hydro Electric Power Commission of Ontario received tenders to Dec. 22 for the erection of the steel superstructure for a bridge to carry the Michigan Central Rd. tracks across the canal at Montrose, Ont.

The Hydro Electric Power Commission of Ontario's Electric Railway Projects.

The Ontario Premier, Hon. E. C. Drury, received a delegation of representatives of municipalities interested in hydro electric power and railway projects in Toronto, Dec. 12, and in reply to their representations, is reported to have said, among other things: "There is absolutely no friction between Sir Adam Beck and myself. It might not be wise at present to appoint him permanently as chairman of the commission. An arrangement will be made to suit Sir Adam."

The development has been the work of one man and we want it to be so that when that one man is taken from us the great work can go on. In regard to the proposed hydro radial railways, the situation has changed recently. The G.T.R. is about to become part of the Canadian National Railways. Some of the projected electric railways would parallel G.T.R. branches. I want to be assured that there will be no duplication.

The United Farmers of Ontario adopted the following resolution at their meeting in Toronto, Dec. 18:—"We view with alarm the proposed policy of hydro radials, involving expenditure of millions of dollars and intending in many instances the duplication of present railways, and be it resolved that the legislature be requested to move slowly in this matter."

In connection with the building of the projected Toronto-Hamilton Electric Ry., under the Hydro Electric Power Commission of Ontario's plans, a press report of Dec. 13, states that work will be started early this year, and that it is expected all problems in connection with the entrance of this and the Hamilton-Galt-Guelph-Elmira line into Hamilton will be solved by the end of January. It is reported that connection will be made with the G.T.R., either across a bridge or fill at Carroll's Point, or back on the G.T.R. level at the west of the ravine, where a bridge would not be necessary.

The municipalities interested in the proposal to build a line from Hamilton to Galt, Elmira and Guelph, will vote on Jan. 1 on the bylaws to provide their several allotments of the total cost of \$6,530,659. Meetings have been held at various centers at which Sir Adam Beck spoke in favor of the bylaws. Considerable opposition to the bylaw developed in Kitchener. Upon the initiative of the Kitchener Light Commissioners, who operate the Kitchener and Waterloo Electric Ry. The objections were: (1) The serious shortage in Niagara power at present, and the likelihood of more serious shortage before the Chippawa development is completed. With the continuous increase in applications for power from all over the Niagara system, it has been estimated that the total load available at the new Chippawa plant will be required for domestic, commercial and manufacturing purposes, without the additional loads required for the proposed hydro radial railways. (2) The amount of \$1,053,080, which is required to be guaranteed by Kitchener is altogether too large in view of the fact that Premier Drury has gone on record as saying that no duplication of existing lines will be sanctioned by the Ontario Legislature. At present there is the G.T.R. line from Elmira to Galt, which the proposed hydro radial would parallel, and Kitchener's estimate as above is based on building a new line. Should the present G.T.R. Elmira-Galt line be turned over to the Hydro Power Commission for electrification, the amount, which Kitchener should be asked for should be very considerably less. (3) The Kitchener Light Commissioners also objected to certain paragraphs in the agreement. The proposed extension of hydro radial railways includes operating their cars over the Kitchener and Waterloo St. Ry. tracks from the city limits to the northwesterly part of Waterloo. Paragraph C of the agreement gives the H.E.P.C.O. power to acquire the K. and W.S.R. Under clause E, the City of Kitchener is required to furnish free right of way for the H.E.P.C.O. railway and power lines. T. J. Hannigan, Secretary, Ontario Hydro Electric Radial Railway Association, met the Kitchener Light Commissioners, Dec. 20, and discussed with them points in the agreement to which they had taken objection. It is reported that an understanding was arrived at on the several matters, and that the H.E.P.C.O. will embody in a letter to the Kitchener Light Commissioners an interpretation of the sections of the agreement to which objection is taken, on acceptable lines.

The agreement between the Hydro Electric Power Commission of Ontario, the City of Toronto and a number of municipalities east of the city for the purchase of the Toronto Eastern Ry. from the Canadian National Rys. and its completion at a total estimated cost of \$8,360,794, had been approved by bylaws voted on by the ratepayers of the towns of Whitby, Oshawa and Bowmanville, and the townships of Scarborough, Pickering, West Whitby and East Whitby, prior to Nov. 30. Darlington Tp. ratepayers passed a similar bylaw Dec. 18 by 186 to 24 votes. Toronto ratepayers will vote Jan. 1 on a bylaw to raise \$4,328,665, as its quota of the cost of entrance and terminals and York Tp. ratepayers will vote on Jan. 17 on a bylaw to raise \$381,587 for Toronto's share of the work.

Proposals for Buying Ontario Electric Railways.

Dominion Power and Transmission Co.—A press report of Dec. 22 states with respect to negotiations which have been in progress for some time between the Hydro Electric Power Commission of Ontario and the Dominion Power and Transmission Co., that the price at which the company's common stock is proposed to be acquired is par. The common stock outstanding is reported to be \$7,714,500. There is also outstanding \$3,681,000 of preferred stock and \$8,000,000 of bonds. The company's electric railway properties are: Hamilton St. Ry.; Hamilton and Dundas Electric Ry.; Hamilton Radial Electric Ry.; Hamilton, Grimsby and Beamsville Electric Ry., and Brantford and Hamilton Ry.

Guelph Radial Ry.—In connection with the Hydro Electric Power Commission of Ontario's offer to take over the Guelph Radial Ry., free of all encumbrance, as at July 1, 1920, for \$150,000, Sir Adam Beck, spoke at a meeting of Guelph ratepayers, Dec. 4. He stated that the idea is to take over the rail-

way and incorporate it with the proposed Hamilton-Galt-Elmira and Guelph line, the bylaws for which are to be voted on on Jan. 1. Guelph City Council, at a meeting Dec. 8, decided to have the ratepayers vote on a bylaw to raise \$150,000 for the purpose of putting the G.T.R. with the H.E.P.C.O.'s railways.

London St. Ry.—The report of the Hydro Electric Power Commission of engineers as to the value of the London St. Ry.'s, was considered by the London City Council, Dec. 6. The estimated value of the property was stated as \$1,356,000, and it was estimated that the city could not pay what the property was worth, and operate it as cheaply as the company is able to do. The council decided not to ask the ratepayers to vote on a purchase bylaw on Jan. 1. A press report states that the company is willing to sell for \$1,208,000.

Port Arthur Civic Ry.—Fort William Electric Ry.—We are advised that at the request of the Port Arthur and Fort William City Councils, the Hydro Electric Power Commission of Ontario will make a valuation of these two electric railways. Some of the commission's engineers have visited the two cities and collected some of the information necessary, but, we are advised that further details will be required before a report can be completed.

Sarnia St. Ry.—The Sarnia City Council passed a resolution, Dec. 14, asking the Hydro Electric Power Commission of Ontario to make a report upon the Sarnia St. Ry. with a view to its acquisition by the city, and we are advised that the commission will have the investigation made. We are further advised that the company had not been approached up to Dec. 20, and no statement can be made as to whether it would sell.

Proposal to Change the Rule of the Road in British Columbia.

According to a report from Vancouver, legislation will be introduced by the government at British Columbia Legislature's forthcoming session to change the rule of the road from the left to the right hand. The report adds that the Vancouver Board of Trade has passed a resolution asking the government in making the change to provide that the cost attendant upon the change be borne by the people of British Columbia by taxation. George Kidd, General Manager, British Columbia Electric Ry., attended the meeting and explained that the company would not oppose the change, provided that the cost of making it was provided for by the legislature. The estimated cost of altering street cars, switches and overhead equipment, is about \$500,000. It was arranged that a delegation from the board of trade should interview the government upon the matter.

A Victoria report states that W. G. Murrin, Assistant General Manager, and T. Goward, Victoria Local Manager, B. C. E.R., met the Prime Minister and other members of the cabinet, Dec. 15, and discussed the matter. The report says it was estimated that the cost of making the necessary changes would be \$700,000 (instead of \$500,000 as stated at Vancouver), and that it would take a year to do the work. It was arranged for the B.C. Public Works Department's Chief Engineer and the company's engineer to meet and discuss details in order that a report on the whole matter may be prepared.

The Montreal Tramways Co's Snow Fighting Work.

By Arthur Gaboury, Superintendent, Montreal Tramways Co.

The Montreal Tramways Co's snow fighting force comprises three separate and distinct elements, each necessary to a successful, complete unit, viz.:—1. Experience, in every one of the snow fighting staff employes, from the head down to the switchman. 2. Esprit de corps, between every one, from the head down to the switchman, and entire confidence in one another. 3. Machines; the best that science and experience have produced. These three elements combined, and added to a staff of assistants and car men, imbued with the determination to overcome obstacles, is the secret of the successful results obtained in maintaining a car service for the public of our city during snow storms and blizzards.

The snowfall for the past 20 winters has averaged 104 in., but recently we were given 128 in., that is nearly 11 ft., and when it is said that our sweepers were sent out on Nov. 23 that year, and that they were out 65 times after, it will tell you that the lot of a tramway man is not a very pleasant one in the winter. On the other hand, if it is looked upon from the right angle, there is quite a lot of real sport in it, as there is in fighting snow the same ambition to win as there is in playing hockey or lacrosse.

In the early stages of our industry, when street cars were in the experimental stage, and all other conditions somewhat similar, all we could do was to do our best. When beaten by the storm king, the public had to wait or walk, but today the public demands not only that we keep our cars running, but that we run them on time, and in spite of our modern equipment and thorough organization, we are kept on our tip toes all the time and we are taxed to the utmost to meet the ever changing conditions that arise. Every snow storm is different from the previous one; temperature, wind, kind of snow and road conditions are all factors, which never combine in the same way and keep all of us on the qui vive to overcome their different combinations. Early in November, we have cold rain and sleet, and from December until March we have snow; that is to say, from November until the end of March there is not a moment that we can safely say "We are out of danger."

Our snow fighting battery consists of 40 sweepers, 6 ploughs, 12 levellers and 10 other pieces of apparatus of different styles, and most of them are of the very latest type. Our sweepers have two brooms, which rotate rapidly, throwing out the snow from the rails to the right hand side. Each sweeper is equipped with two wings, a large one on the right side and a small one on the left side. The idea of having the large one is to open a drive way for the vehicles, and the small one is to remove the snow from the center of the tracks. Most of our sweepers are of the single truck type, but we have had built in the last few years a number of sweepers of the heavy type, specially designed for the steep hills with which our city has been so generously blessed by nature. Our ploughs are of the railway rotary type and are used on the suburban lines through the open country. During or immediately after a snow storm our tracks are the cleanest part of the road, and all vehicles, and especially autos, immediately take to them, and naturally to the detriment of our car service. We have, in consequence, designed the level-

lers, or wing cars, to open the road alongside of our tracks wide enough to allow horse vehicles and automobiles a safe roadway clear of our cars. Our sweeper wings push back the snow from our tracks, for about 6 ft., and the levellers, which are some of our freight cars equipped with a heavy concave iron wing, pushed out by mechanism, push further back the snow left by our sweepers and leave a clear drive way of some 9 ft. for the traffic.

Next in importance to good equipment comes the need of making the best possible use of it, and long before winter comes, our organization is complete and plans have been carefully thought out and drawn up. The first actual move towards the success of the winter's campaign, takes place at the beginning of November each year, when a meeting of all men in charge of the machines is called and addressed by the Superintendent. This address takes the form of a friendly heart to heart talk, which further cements the esprit de corps. Special care is taken to impress on each man in charge that he must feel proud to be called to act as lieutenant in this fight, and that he would not have been called if it was not felt that he was the best man that could be got. Suggestions are offered by the men and considered, and after further amicable testimony of confidence, we separate, each feeling that he is an essential spoke in the wheel, and each anxiously waiting the moment that he will be able to show what he can do.

Motormen in charge, and assistant motormen in charge, are appointed for each sweeper and leveller, at the beginning of a winter, and these men keep their own sweepers during the entire winter, subject, of course, to the proper performance of their duty. The idea of this is that if a man is in charge of one special sweeper all the time, he will soon learn its strength and its weakness, and consequently we get better work from both the man and the sweeper than if he worked on one sweeper today and on another one tomorrow. Each man in charge of a sweeper is given a certain one of the routes to cover and he remains on this route each time he goes out, and thus gets to know its difficulties and danger points, and how best to overcome them. From this system, a keen rivalry amongst the different crews has grown up, each claiming that his sweeper is the best and his route kept the cleanest.

On the other hand, the Superintendent and his assistants have prepared the routes and maps to take care of the inside work of the organization. The whole street railway system is divided into territories, which are assigned to the company's four operating divisions; regular routes are laid out for the sweepers, separate and distinct from the ordinary car routes, giving to each division the sweeper routes which can be handled to best advantage, and each piece of apparatus is assigned to a particular route. As far as possible the routes are arranged so that each can be completely covered by its sweeper in from 45 minutes to an hour, and also arranged so as to have one central converging point for three to four sweepers, the idea being that when help is needed, it can be quickly sent by diverting the sweeper from another route when it reaches this spot. Large blue prints of these routes are posted in the Super-

intendent's office at snow headquarters and at each respective station. Smaller blue prints are also posted in each piece of apparatus, giving the detailed route of that particular sweeper or leveller.

Thus we have the routes specially defined; sweeper designated for each route, a man in charge appointed, who is fully aware of the danger of that route and who understands his sweeper and knows how to handle it, so as to obtain the best results, and when the order is given from snow headquarters to pull out, there is no confusion, no valuable time lost in asking questions. Each man knows where to go and what to do, and he simply goes ahead and does it. The best recording barometers are installed in the home of the man in command, and in the snow headquarters down town, and the nightly consultations begin. "Will we sleep tonight or not?" "Will it snow or not?" are the questions that are asked hundreds of times during the winter, when looking at the barometer before going to bed.

The first storm of the season is always the one awaited with the most anxiety. Sweepers have not been in use for 8 or 9 months, the men are more or less rusty at the first run out, switchmen are not available, and all this, added to the fact that the first storm always comes when least expected, makes the men in charge do a lot of anxious thinking. When it does come we hustle out the 200 odd men to man all the machines and send them all out, even if they are not all absolutely needed, so as to give each machine a real test and see whether they are all ready for their winter's work. It has always been our ambition to pull out our whole snow battery in less than an hour, and when this is done and the order given in time, it takes quite a blizzard to stop the movement of the cars.

There is little worry as regards men attached to daylight snow storms. The real worry begins between midnight and 5 a.m., and special care has to be taken, so as to be able to locate our men on time if snow begins between these hours. Call boys are held in each station and sent out to get crews as soon as the danger appears, so that all our sweepers are ready to go out when the first grain begins to fall. Our men generally live around the stations, and as they expect to be called at any moment during the winter, it does not take them long to get dressed and on the job, especially as each one is anxious to keep his own line better than the other fellow.

The first trouble in snow storms comes at switches and intersections. The snow blocks the switchpoint, and motormen have trouble in opening the switches, which explains the delays at intersections at the beginning of every storm. We have continually some 80 odd men looking after the hills and switches, brushing off the snow and salting the switches, and attending to the rails on the hills, to keep them soft and clean; but when the storm comes, some 200 additional men are rushed to help them, so as to keep hills and switches in perfect condition.

Sweeper crews are also provided with good lunches when the need arises. If possible, the sweeper is pulled into a convenient siding and the crew given a good meal at a nearby restaurant, or if it is possible to spare the sweeper off the road for half an hour, cans of coffee and good sandwiches are sent around to them.

Our snow headquarters are at our central car barn, Cote St., where special telephones are in operation, and dispatchers are at hand, and here the Superintendent takes up his position at the center of the web, and directs the movement of his forces. All orders are issued from this spot and all news is transmitted there, and I can tell you that there is lots of that. Divisional superintendents and inspectors report every hour. Sweeper and leveller crews also report every trip, giving their sweeper number, the place they are reporting from, the ground they have covered and the condition of their road, and this means some 90 calls an hour. All this information is tabulated in such a way that the assistant superintendent in charge at the desk during the snow storm can tell at a glance, the position of each sweeper or leveller. There is a lot of thinking to do and he must be a man having the whole system engraved in his mind, as the number of telephone messages per minute would not allow time to consult any map. In this way a close check can be kept on the whole system and help can be sent where it is needed and a sweeper transferred from its own line to another, where danger threatens.

Our snow season begins, as I said before, in November and continues right through till St. Patrick's Day. The snow in December is soft and comparatively easy to handle, as the cold is not severe, but in January and February, our snow storms live up to their reputation, and when the thermometer acts in conjunction and drops to 20 or 25 degrees below, then indeed we have our work to do. Storms in these two months often commence one day, continue all that day and night and the next day sometimes, and although the snow fall is scientifically given as 10 or 12 in., this means that the streets are covered with piles of snow 3 or 4 ft. deep.

In storms like these, something more is needed than equipment and plans, and that is men. If your men are of this kind that work only for pay, then the most complete equipment, the most carefully laid out plans, will not pull you through. What you need, and need badly, are men who are real men, men who work not only for their pay, but do work such as cannot be paid for, in mere money. Esprit de corps must permeate your whole staff from Superintendent down to switchman. Men are wanted whose ideals are so well put by Kipling when he says:

"No one shall work for money,
No one shall work for fame, but
Each for the joy of the working."

Men who answer the call, on the jump, who phone headquarters even before they are called, who pull out their sweepers at the beginning of a storm, and return it only when the storm is over, whether it be after 12, or 24, or 36 hours, and who are indignant when offered relief for a few hours of needful rest. With a staff that starts in with the storm and stays right with it, eating sometimes, sleeping at no time, but fighting at all times, you feel your feet on solid ground and are ready to do your best in the battle with nature's storm king. And after the storm, when the last sweeper has been ordered in and your inspectors are phoning in "cars on schedule time," you turn homeward for a much needed clean up, tired and worn out physically, but your mind at ease, and as you see the streets piled up with snow, but with the car track clean and shining in the sun, the cars filled with passengers riding safely and comfortably down to work, you are suddenly filled with a feeling of joy and pride—joy in the doing of a man's work, and pride in the organization of which you are the head.

The foregoing paper was read before the Montreal Publicity Association.

Sale of Sandwich, Windsor and Amherstburg Ry. to Hydro Electric Power Commission of Ontario.

The voting by ratepayers of Windsor, Ont., and 8 other and adjoining municipalities for bylaws providing for the raising of \$2,100,000 by debentures for the construction and operation of an electric railway under the Hydro Electric Power Commission of Ontario, details of which were given in Canadian Railway and Marine World for Dec., 1919, pg. 667, took place Dec. 6, and resulted in the bylaws being carried in all the municipalities except Anderdon Tp. Following are particulars of the votes:

	For	Against
Sandwich East Tp.....	214	14
Sandwich West Tp.....	123	45
Anderdon Tp.....	56	133
Ford City Town.....	180	....
Walkerville Town.....	198	7
Sandwich Town.....	179	17
Ojibway Town.....	8	....
Amherstburg Town.....	216	40
Windsor City.....	1,100	29
Total.....	2,254	285

The figures for Sandwich West Tp. are stated to be incomplete.

In connection with the defeat of the bylaw in Anderdon Tp., a resolution was passed by the Sandwich West Township Council, Dec. 10, guaranteeing that that township would assume its proportion of the \$143,536, which Anderdon Tp. was to have provided and other municipalities will probably do the same.

While the bylaws and the agreements to be signed by the municipalities under them provide for the construction of an

electric railway, no new line will be built, but the Sandwich, Windsor and Amherstburg Ry. lines will be acquired from the Detroit United Ry. for \$1,849,000. It was reported that the company's property would be taken over within sixty days, from the voting, and that very soon thereafter work would be started on certain betterments which are required, and for which there has been considerable agitation. The bylaws provide \$251,000 for this purpose.

The bylaws state that the amount estimated to be required for the maintenance of the railway, apart from operating expenses is \$134,000 a year. The operating revenue is estimated at \$491,000 and the operation and maintenance expenses are estimated at \$339,000.

The Sandwich, Windsor and Amherstburg Ry. also owns a light and power plant, which it is also proposed to be acquired by the Hydro Electric Power Commission of Ontario for \$190,000. The total price therefore for the railway and the light and power plant, is \$2,039,000, which will be paid in the Hydro Commission's 40 year 4½% bonds. The light and power plant is operated entirely in the City of Windsor, and will be handed over to the city's hydro electric commission for operation. A bylaw to raise the \$190,000 necessary to pay for this plant will be voted on by Windsor ratepayers on Jan. 1.

Electric Railway Employes Wages, Working Conditions, Etc.

British Columbia Electric Ry.—We have received a copy of the agreement made between the British Columbia Electric Ry., and its employes, under the terms of the award of the board of conciliation's award referred to in Canadian Railway and Marine World for Dec., 1919, pg. 671. The new wage schedule was made retroactive to Sept. 8, 1919, and is to continue in operation until changed; 30 days notice of any desired change to be given by either party. As the wages to be paid differ in some cases from those mentioned in our last issue, the schedule of conductors and motormen, as contained in the agreement, is given as follows:

City and Suburban Lines:	Per hour
First 6 months.....	45c
Second 6 months.....	50c
Third 6 months.....	53c
Thereafter.....	56c
Motormen and conductors in work train service receive 2c an hour in addition to the above rates.	
Interurban Lines —District 1, District 4, Saanich Line, 16th St. Yard and Carroll St. Yard:	
Passenger Conductors and Motormen:	
First 6 months.....	45c
Second 6 months.....	51c
Third 6 months.....	57c
Thereafter.....	58c
Freight Conductors and Motormen:	
First 6 months.....	47c
Second 6 months.....	53c
Third 6 months.....	57c
Thereafter.....	60c
Passenger Brakemen:	
First 6 months.....	45c
Second 6 months.....	59c
Third 6 months.....	52c
Thereafter.....	55c
Freight brakemen.....	53c
Trolleyman.....	52½c

Work done on Sundays and holidays to be paid time and a half. Extra men to be guaranteed 6 hours work a day.

Edmonton Radial Ry.—As a result of an application by the Street Railway-men's Union of Edmonton, Alta., the City Commissioners were reported, Dec. 15, to have taken up with the Alberta Government the question of securing, for the Edmonton Radial Ry. employes, full pay from the Workmen's Compensation Board for sickness, or injury, caused by accident over which they have no control.

The Montreal and Southern Counties Ry. has advanced its conductors and motormen's wages as follows:

	Suburban lines	Interurban lines
Conductors and motormen..	37c to 46c	38c to 48c
Conductors and motormen..	46c	48c

The new rates are an advance of from 6c to 9c an hour.

The Quebec Ry., Light and Power Co. increased its conductors and motormen's wages on its city division 3c an hour on Nov. 15 and 2c an hour more on Dec. 1, the rates per hour now being:

First year.....	31c
Second year.....	34c
Third to 6th year.....	36c
After 7 years.....	38c

Toronto Ry. and the Don Bridge—In connection with the building of a bridge on Queen St., Toronto, over the Don River, the Board of Railway Commissioners made an order in 1909, allocating the cost of the bridge among the several parties interested. The amount which the Toronto Ry. was ordered to pay was approximately \$110,000; the total cost of the bridge being \$748,035. The company appealed, and subsequently paid \$80,000 on account under protest. The case went to the Imperial Privy Council, which gave judgment Dec. 18, against the company with costs.

Canadian Electric Railway Association's Annual Meeting.

The Canadian Electric Railway Association's annual meeting was held in Montreal, Dec. 3 and 4, the President, A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway, in the chair.

The Honorary Secretary-Treasurer, Acton Burrows, reported on the association's work during the year, the report being discussed under its different headings.

J. A. Coderre, in charge of Division of Wood Preservation, Forest Products Laboratories of Canada, Interior Department, in co-operation with McGill University, read a paper on the preservation of ties, poles and other timber used by



J. E. Hutcheson.
General Manager, Montreal Tramways Co., who has been elected Honorary President, Canadian Electric Railway Association.

electric railways, which was illustrated by lantern slides.

The resignation of Acton Burrows, as Honorary Secretary-Treasurer, after serving for over 12 years, tendered by him in July, 1919, and at the executive committee's request, held in abeyance until the annual meeting, was discussed, and as Mr. Burrows stated that it was absolutely impossible for him to continue to occupy the position, owing to demands on his time for his business and his private interests, it was accepted with an expression of regret, and he was elected as the association's first honorary member.

Considerable time was spent in discussing a proposed re-organization of the association, so as to widen its activities, and extend its work, and the revision of the constitution and bylaws was referred to the executive committee, which reported at the second day's meeting. It is proposed to appoint a paid secretary-treasurer or manager, to devote his whole time to the association's work.

The following officers were elected for the current year:—

Honorary President, J. E. Hutcheson,

General Manager, Montreal Tramways Co.

Honorary Vice President, Acton Burrows, Managing Director, Canadian Railway and Marine World.

President, A. Gaboury, Superintendent, Montreal Tramways Co.

Vice President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Honorary Secretary-Treasurer (pro tem), A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.

Executive Committee—The President, Vice President, and F. D. Burpee, Superintendent, Ottawa Electric Railway Co.; C. C. Curtis, Manager, Cape Breton Electric Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.; Geo. Kidd, General Manager, British Columbia Electric Railway Co.; M. W. Kirkwood, General Manager, Grand River Railway Co.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Railway Co.; R. M. Reade, Superintendent, Quebec Railway, Light and Power Co.; Lieut.-Col. G. C. Royce, General Manager, Toronto Suburban Railway Co.; C. L. Wilson, Assistant Manager, Toronto & York Radial Railway Co.

Mainly About Electric Railway People.

O. E. Baldwin is reported to have been appointed Manager, Guelph, Ont., Radial Ry., at a salary of \$1,800 a year.

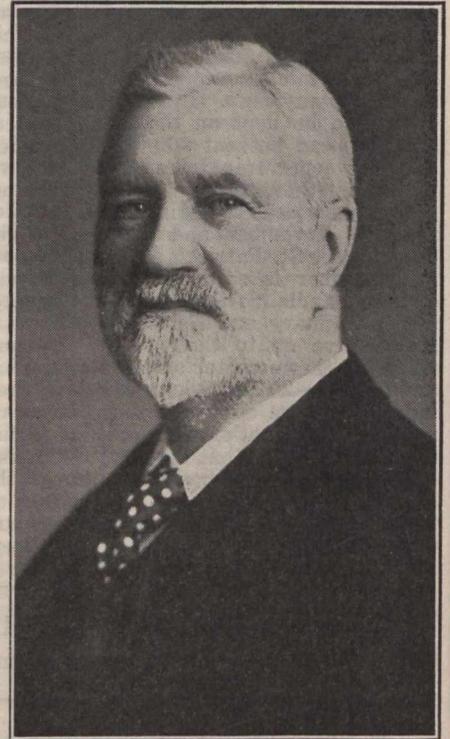
Sir Adam Beck, Chairman, Hydro Electric Power Commission of Ontario, was presented with an illuminated Christmas card by the London, Ont., Rotary Club, Dec. 8, on the eve of his departure for England, where Lady Beck is ill.

Albert Eastman, who was Vice President, Canadian Electric Railway Association, 1917-1918; President, 1918-1919, and who on Dec. 4 was elected Honorary Secretary-Treasurer, pro tem, was born in Bosanquet Tp., Ont., Aug. 21, 1870. He entered transportation service in 1889, and was to 1891, operator, Michigan Central Rd.; 1892 to 1900, freight and ticket clerk and operator, G.T.R., Detroit, Mich.; 1901, assistant agent, Michigan Central Rd.; 1892 to 1900, to Nov., 1902, Travelling Express and Passenger Agent, Detroit United Ry.; Dec., 1902, to May, 1903, General Express Agent, Utica and Mohawk Valley Ry.; May to Nov., 1903, Division Superintendent, Detroit United Ry.; Nov., 1903, to Nov., 1907, Superintendent of Employment, Public Service Corporation of New Jersey; Nov., 1907, to May, 1910, General Express and Passenger Agent, New York State Railways, Syracuse and Utica, N.Y.; May, 1910, he was appointed General Manager, and in 1914, also Vice President, Windsor, Essex and Lake Shore Rapid Ry., Kingsville, Ont.

Arthur Gaboury, who has been elected President, Canadian Electric Railway Association, was born at Montreal, April 6, 1875, and entered Montreal Street Ry. Co.'s service, June 4, 1894, since when he has been, to Oct., 1900, conductor and motorman; Oct. to Nov., 1900, Assistant Inspector; Nov. to Dec., 1900, night clerk,

Cote St. Barn; Dec., 1900, to Sept., 1903, day chief clerk, St. Denis; Sept., 1906, to May, 1906, Claims Agent; May, 1906, to 1907, Assistant Superintendent; and from 1907, Superintendent, which position he still occupies in Montreal Tramways Co.'s service. He was, early in 1918, appointed, by the French Government, an officer of the French Academy. He has been a member of the Canadian Electric Railway Association's executive committee for several years, and was its Vice President, 1918-1919.

G. Gordon Gale, M.E.I.C., who has been elected Vice President, Canadian Electric Railway Association, after having been a member of the executive committee for several years, was born at Quebec, Que., Oct. 9, 1882, and prior to 1907 was Assistant Engineer, Canadian



Acton Burrows.
Managing Director, Acton Burrows Ltd., proprietors, Canadian Railway and Marine World, who has resigned the Honorary Secretary-Treasurership of the Canadian Electric Railway Association, after having been unanimously re-elected for 12 consecutive years, and who has been elected an honorary member of the association and its Honorary Vice President.

Rubber Co.'s electrical plant; 1907 to Nov., 1908, Superintendent of Power, Hull Electric Co.; Nov., 1908 to 1909, acting General Superintendent, same company; 1909 to June, 1914, General Superintendent, same company; June, 1914 to Jan., 1917, General Manager, same company, and from Jan., 1917, Vice President and General Manager, same company.

J. E. Hutcheson, who has been elected Honorary President, Canadian Electric Railway Association was born at Brockville, Ont., Sept. 10, 1858, and entered railway service in 1874, in the G.T.R. mechanical department, afterwards serving in that company's ticket, freight and telegraph departments. In 1884 he was appointed a dispatcher, C.P.R., at Ottawa, in 1886 Chief Dispatcher, and in 1888 Trainmaster, which position he held to 1891, when he took charge of the Ottawa Electric Ry. Co.'s operation of which he was Superintendent until July, 1912, when he was appointed General Manager, Montreal Tramways Co. He

has taken an active part in the Canadian Electric Railway Association's work since its inception, having served for several years as a member of the executive committee, and also having been Vice President, and for the year 1908-09, President. He was, for several years, a member of the 43rd. Regiment, retiring with the rank of Major, in 1910, on his return from England, where he acted as Adjutant in charge of the Canadian team at Bisley. He was subsequently appointed an honorary lieutenant colonel. He has been a member of the Militia Department's small arms committee for several years.

H. A. Lemmon has been appointed Secretary, Nova Scotia Tramways & Power Co., vice H. R. Mallison, resigned.

Alexander MacDonald, whose appoint-



Arthur Gaboury,

Superintendent, Montreal Tramways Co., who has been elected President, Canadian Electric Railway Association.

ment as Traffic Superintendent, Winnipeg Electric Ry. was announced in our last issue, was born Apr. 7, 1872, and entered electric railway service June 5, 1897, since when he has been, to 1900, conductor and motorman; 1900 to 1903, Inspector; 1904 to July, 1912, Superintendent, Hochelaga Division, Montreal St. Ry.; July, 1912 to Nov., 1919, Superintendent, St. Denis Division, Montreal Tramways Co.

H. C. Nickle, General Superintendent, Kingston, Portsmouth & Cataraqui Electric Ry., who has been elected mayor of Kingston, Ont., by acclamation, was born there, May 26, 1874, and entered transportation service in Sept., 1893, and has been with the K.P.&C.E.R. Co. ever since the introduction of electric cars in Kingston.

F. W. Summer, who was a director of the Moncton, N.B., Tramways, Electricity and Gas Co., from its inception, died recently.

The Electrification of the Italian State Railways is, it is reported, to be carried out by an Italo-United States combine with a capital of 800,000,000 lire (at nominal rates of exchange \$150,000,000).

The Waterloo-Wellington Railway.

The Berlin and Bridgeport Electric Street Ry. Co., began operations between those two Ontario municipalities in 1902, and in 1912, with a view to extending the line northerly, an act was secured from the Ontario Legislature, changing the name to the Berlin and Northern Ry. Co. and authorizing the extension of the line to Fergus and Elora. In 1919, owing to the change of the name of the City of Berlin to Kitchener, the Ontario Legislature authorized the company to change its name to the Waterloo-Wellington Ry. Co. and extended the time within which the additional line of railway could be built for three years.

The company owns 2.75 miles of track serving Kitchener, Bloomingdale and Bridgeport, and operates over about a mile of the Kitchener and Waterloo Ry.



G. Gordon Gale,

Vice President and General Manager, Hull Electric Co., who has been elected Vice President, Canadian Electric Railway Association.

tracks, owned by the City of Kitchener. The company also owns a park and casino, on the Grand River at Bridgeport, where there is also a race track, country club and other features attracting a large summer business. The company operates its line directly, and uses thereon 3 motor cars, double truck and 2 single truck. One of the latter is a one man car and it is found entirely satisfactory. The company also owns 3 steel dump cars for hauling gravel, and 5 additional smaller cars.

We are officially advised that the company has had some negotiations with the City of Kitchener, as to the purchase or taking over and operating the W.-W. line in conjunction with the city's line, but no arrangement has been reached further than the conclusion of an operating agreement for the use of power and the use of trackage in the city for another year.

We are further advised that the company has a project under way for extending its line to Guelph; the city authorities of which are reported as having expressed themselves as being strongly interested in the project. With 26,000 people at the Kitchener end, and about

20,000 people at the Guelph end, and three villages directly on the route, with several more nearby, and a fine, prosperous rural territory and population intervening, an electric railway giving a good service between Kitchener and Guelph, 15 miles, would, it is contended, pay well within a few years. W. H. Breithaupt, Kitchener, Ont., is President.

Toronto Ratepayers to Vote on Street Railway Questions.

Toronto ratepayers will vote on the following questions at the municipal elections Jan. 1: Are you in favor of:— (1) The operation of the Toronto Ry. System by a commission of three ratepayers, resident in the municipality, to



Albert Eastman,

Vice President and General Manager, Windsor, Essex and Lake Shore Rapid Railway, who was President, Canadian Electric Railway Association, 1918-1919, and who has been elected its Honorary Secretary-Treasurer, pro tem.

be appointed by the city council and to act without salary? and (2) The city applying for legislation enabling it to borrow money without a further vote of the electors, to acquire the Toronto Ry. Co.'s property, which the city is entitled to take over under the agreement between the city and the company, and for the purposes of the transportation commission, and to make arrangements for the operation thereof?"

A third bylaw, which will also be voted on an Jan. 1, affirms the expediency of the city taking over certain real and personal property of the Toronto Ry. Co., pursuant to the statutes and to the agreement with the city.

The Ontario Court of Appeal, on Dec. 8, refused to grant the Toronto and York Radial Ry. leave to appeal against an order of the Ontario Railway and Municipal Board, authorizing Toronto City Council to cross the company's line on Yonge St., with its projected Mount Pleasant civic car line. It is reported that the case will probably go on to the Imperial Privy Council.

Electric Railway Projects, Construction, Betterments, Etc.

British Columbia Electric Ry.—We are officially advised that the company proposes to build early this year an extension of its Fraser Ave. line from King Edward St., on Grenville St., to connect with the tracks now laid on Wilson Road (41st St.), which will enable a direct service to be given between Kerrisdale and Vancouver. Under the agreement between the company and the C.P.R., the work is to be started at once. It is expected to have the new service in operation by May 1. (Nov., 1919, pg. 612).

Calgary Municipal Ry.—Tenders are being asked for 10,000 railway ties and 5 tons of trolley wire for use in reconstruction work on the various lines in Calgary, Alta., during this year. (Dec., 1919, pg. 670).

Chatham, Wallaceburg and Lake Erie Ry.—We are officially advised that although the company has bought rotaries and transformers to be used in connection with the installation of hydro electric power, the machinery has not been installed, and it is not expected to put it in operation before Jan. 15. It is intended to use two 250 rotary convertors at Chatham, Ont., one 250 rotary convertor at Wallace, and one of similar capacity at Cedar Springs. The line is still being operated by the company's own steam plant, and it is intended to use this as an auxiliary in case of failure of the hydro power.

Edmonton Radial Ry.—We are officially advised that the following new track is under construction in Edmonton, Alta.: To exhibition grounds, 3,000 ft.; to Calder suburb, 2,000 ft.

Grand River Ry.—We are officially advised in regard to the company's application to the Board of Railway Commissioners for approval of diversion of the line in Waterloo Tp. and the City of Kitchener, Ont., that the change in location has been brought about by the city advising the company, about a year ago, that on the expiration of the franchise on Oct. 8, 1919, the city intended exercising its rights by taking over the portion of the line on King St., between the city limits and Albert St., 4,700 ft., with a view to building a second track, and paving the street, for the purpose of extending the service on the Kitchener and Waterloo St. Ry. to the city limits. As the line in question serves the company's Kitchener freight terminal, and Waterloo, branching off between the city limits and Albert St., it became necessary for the company to seek a new location to carry on freight and express service properly, and it has been decided to do so on a private right of way. After preparing the plans and submitting them to the city for approval as to street crossings, the Hydro Electric Power Commission of Ontario appeared and opposed the application unless the G.T.R. agreed to grant the commission's proposed electric railway priority rights in the way of diamond crossing, signal plant and operation should the commission decide to cross this same land at some future date. This the G.T.R. refused to agree to, consequently its application for approval of plans was heard by the Board of Railway Commissioners at Hamilton, Oct. 29. The board's decision on the matter has not been announced. (Dec., 1919, pg. 670).

Nipissing Central Ry.—Residents of the part of Quebec lying round the

northern end of Lake Timiskaming, are reported to be desirous of securing connection with Liskeard, Cobalt, Haileybury and other Ontario towns. A suggestion has been made that the N.C.R., which has a Dominion charter, and authority to build lines in Quebec, might be extended from Liskeard through the area in question, as far as the Des Quinze River, where a large water power could be developed. The N.C.R. is owned by the Ontario Government. (July, 1918, pg. 308).

Nova Scotia Tramways and Power C.—We are officially advised that the company has in progress the building of a new line on Cogswell St., Halifax, N.S., about 3,000 ft.; double track, which will connect the existing track on Gottingen and Windsor St., the rebuilding of 1,800 ft. double track on the Spring Garden Road, and the rebuilding of 3,400 ft. double track on Agricola St. The company has in contemplation the rebuilding of other track as follows:—Cobourg Road, 2,600 ft. double track; Quinpool Road, 4,100 ft., double track; Windsor St., 1,500 ft., double track; Gottingen St., 4,000 ft., single track.

Ottawa Electric Ry.—A press report states that laying rails for the street rail on the new Chaudiere Bridge, Ottawa, is being gone on with, and that as soon as this work is completed the temporary bridge will be removed. The Ottawa City Council was asked by a citizens' deputation, Dec. 6, to favor the building of a loop on Creighton St., and decided to refer the matter to the company for consideration. (Dec., 1919, pg. 670).

Quebec Ry., Light and Power Co.—We are officially advised that the agreement between the company and the Quebec City Council, signed Nov. 25, under the provisions of the bylaw passed by the city council Nov. 15, contains the following provisions as to extensions of lines, etc., to be built in consideration of the increase of fares authorized to be charged: Extension on Dorchester St., about 0.5 mile; extension on Charlesbourg Rd., from Lamontagne St. to Commissioner St., 650 ft. Construction of subway under Canadian Northern Ry. tracks on Beauport Road instead of placing a railway diamond for level crossing, as previously provided, this extension is completed, leaving the subway only to be built. The company had undertaken previously to extend its line in Belvedere Ward, and by the new agreement the city has agreed to extend the time limit in connection with the building of this extension. The company is expected to commence the extension not later than July 1, and to complete it not later than Nov. 25.

The company has also agreed to pay the same amount as paid last year to proprietors and tenants in connection with the removal of snow thrown on their properties by its sweepers. (Dec., 1919, pg. 670).

Regina Municipal Ry.—A special committee of the Regina, Sask., City Council is reported to have recommended the council to authorize the building of a loop of the spur line now running to the Imperial Oil works plant, and to instal an interlocking plant at the intersection of the Fourth Ave. line with the C.P.R. Bulyea line. (Nov., 1919, pg. 612).

Regina Municipal Ry.—Superintendent Houston is reported to have recommended

that the following works be carried out on the Regina, Sask., Municipal Ry., during this year: Building a second track on Fifth Ave., west of Angus St.; building another three track unit to the car barns, east of the existing units, and extend the building south to a line flush with the offices. If a second story is added to the office building, it would then be possible to carry the roof across to the new unit, providing a good sized covered area, the width of the existing units and the length of the present office building, which would also provide partial protection for cars not parked in the storage barns. The existing barns comprise a three-track unit, and a one-track unit in the repair shops.

The Sherbrooke Ry. and Power Co., during 1919, laid 1,800 ft. of additional track from Short St. to Drummond St., and 1,700 ft. of second track on Wellington St. The company is building about 3,000 ft. of new track on Alexander, Galt and Belvedere Sts. (Dec., 1914, pg. 670).

Toronto Civic Ry.—A second track is being built on Bloor St. West, between Quebec Ave. and Runnymede Road; 60 lb. rails being laid on gravel ballast. Other material is being secured and the work will be proceeded with as soon as weather permits. D. W. Harvey is Superintendent and Engineer. (Dec., 1919, pg. 671).

Winnipeg Electric Ry.—The Manitoba Public Utilities Commissioner was asked Dec. 10, to direct the removal of the Winnipeg Electric Ry. tracks to the center of Portage Ave., from the Winnipeg city limits to the intersection of the line of the westerly limit of Douglas St., and for the building of a double track subway. (Oct., 1919, pg. 553).

London and Port Stanley Railway Betterments, Etc.

The London, Ont., Railway Commission asked the city council recently to have the ratepayers vote on Jan. 1, on a bylaw authorizing the issue of \$218,000 of debentures for London and Port Stanley Ry. purposes. A city council committee recommended that the amount be reduced to \$200,000, and this amount was inserted in the bylaw which will be voted on Jan. 1.

We are officially advised that the work proposed to be done includes the following:—An extension of car barns at London to provide additional space for repairs and storage, \$7,000. Double tracking of line through St. Thomas, which in addition to tracks already laid, will give the railway 2.5 miles of double track through that city, \$35,000. A new slip dock at Port Stanley, \$8,500. An extension of Port Stanley station, \$19,000. Extension of other buildings there \$11,000. Installation of track scales in London, \$9,500. Shelters and platforms at various concession stops along the line, \$9,300. Overhead railway bridge in St. Thomas, \$5,700. Electric locomotive and 5 or 6 passenger cars, \$95,000.

These expenditures are said to be necessary on account of the business done on the railway being about two and a half times as great as was estimated when the citizens were asked to vote on the electrification of the line in 1913. The commission has spent on various betterments and on additional equipment

the surplus which have accrued from operation during the past four years.

The additional double track work in St. Thomas is necessary to take care of the heavy freight and passenger business into and through that city. The work at Port Stanley includes some additions to the station, the erection of a freight shed, and the provision of a closed terminal at the beach station, to properly control and handle the crowds that are carried to and from that resort during the summer. It is proposed to extend the other buildings at Port Stanley in order to accommodate the patrons of the various concessions there.

A press report states that the new station near Talbot St., St. Thomas, is nearing completion. It is of brick, with tile roof, and is thoroughly modern in all its appointments.

Appraisal of Winnipeg Electric Railway's Properties.

It was reported in Winnipeg, Dec. 2, that a copy of the appraisal of the Winnipeg Electric Ry.'s property and made at the instance of the Manitoba Public Utilities Commissioner in connection with the company's application for an order for the fixing of passenger fare permanently at 6c, was delivered to the city officials Mar. 30. The reports as to the figures contained in the document are to the effect that the present value of the company's holdings is estimated as \$12,934,293.85, and that it would cost \$15,724,501.16 to replace the plant. This valuation, it is pointed out, represents a part only of the company's property, and does not include rolling stock, land, gas property, the Winnipeg River Power property, and intangible assets. Press comments on the figures further set out that the J. G. White Co.'s valuation of 1915 put the valuation of the company's holdings at \$23,995,860, and that it would then have cost \$27,182,322 to replace them. The company's rolling stock, which is not included in present valuation, was valued at \$1,500,000 in the J. G. White Co.'s report, while the Public Utilities Commissioner, about a year ago, valued the company's gas plant at \$2,200,000 for rate making purposes.

At a meeting of the city council, Dec. 9, it was resolved that the City Solicitor, after using the services of such city officials as may be found suitable, and after consultation with the chairman of the transportation committee, appoint such expert assistance as he may require in connection with the valuation of street railway properties, the finance committee to provide sufficient funds for such purpose. The mayor informed the council that the idea was to show the actual cash put into the concern. There was a great discrepancy between the company's appraisal and the appraisal made by the Public Utilities Commission's experts, and the city wanted its experts to check over the different valuations.

The Toronto Board of Police Commissioners decided, Dec. 16, to make an allowance of 25c a day to all members of the Toronto police force who, during the period between the issues of the new police badges, which the Toronto Ry. refused to recognize, and the date of the issue of the present T.R.C. badges, paid their own street car fares. The amount involved is estimated at \$600.

Increases in Electric Railway Freight and Passenger Rates.

British Columbia Electric Ry.—The freight and passenger tariffs filed with the Board of Railway Commissioners as given fully in Canadian Railway and Marine World for Dec., 1919, are, we are officially advised, the same as were in force under provincial jurisdiction, on city lines in Vancouver, New Westminster and Victoria and the interurban lines.

The Board of Railway Commissioners considered the question of its jurisdiction over the B.C.E.R. at a sitting in Vancouver in Nov., 1919, reserving judgment, which had not been delivered up to Dec. 26.

Burnaby Municipality's Solicitor was in Victoria, Dec. 16, to discuss the matter with the B.C. Government. He is reported to have said:—"The point to be urged against the Board of Railway Commissioners' jurisdiction is that while the Dominion Parliament has the right to declare any railway system to be for the general advantage of Canada, and as such under its control, those railways must be specifically named, and parliament has no power to insert an omnibus clause bringing lines under control without specifying them."

The British Columbia Premier is reported to have said in connection with the matter on Dec. 20:—"I am not, of course, in a position to judge of the legal side of that question, but the Attorney General is taking it up with the Board of Railway Commissioners, and the province's side of the case will be thoroughly investigated. It is not possible to state just now what the final outcome will be, but the Attorney General will not neglect any phase of this question."

Grand River Ry.—The Board of Railway Commissioners passed order 29,145, Dec. 12, 1919, as follows:—"Re Grand River Ry. application, for authority to file tariffs providing for a general advance in tolls for carriage of passengers for its lines, in the same manner and to the same extent as has been permitted by the board in the case of steam railways. It is ordered that the company be authorized to increase its standard maximum fare for the carriage of passengers to 2.875c a mile, such increased fare not to become effective until the company has complied with the requirements of the Railway Act, sec. 334."

London St. Ry.—London, Ont., rate-payers will vote Jan. 1 on a proposal to reduce the number of tickets sold for 25c by one. At present 7 tickets are available all day, and 9 limited tickets are sold for 25c.

Quebec Ry., Light and Power Co.—We are officially advised that the Quebec City Council passed a bylaw, Nov. 15, authorizing an increase in fares on the company's lines and a new contract was signed Nov. 25, the new rates becoming effective Nov. 20, remain in force for 5 years. The new tariff is as follows:—Cash fare, from 5 a.m. until midnight, 7c; cash fare after midnight, 10c; without privilege of transfer. Seventeen tickets to be sold for \$1, and 4 tickets for 25c. Six "limited employes" tickets, heretofore known as workmen's tickets, to be sold for 25c, good between 6 and 8 a.m., and 5 and 7 p.m., daily except Sundays; all employes in factories, offices, stores, etc., will be entitled to use

this style of ticket. School children 16 years and under, 10 tickets for 25c. Children, carried in arms with parents, and who do not occupy a seat, travel free; children under 7 years, 3c cash fare or 10 tickets for 25c. These rates replace those which had been in effect from June 22, 1918, as follows:—Cash fare, 5c; 21 tickets for \$1. Seven workmen's tickets for 25c, good between 6 and 8 a.m., and 5 and 7 p.m., daily except Sundays; school children's tickets, 10 for 25c, good for children attending school, 14 years of age and under. Children carried in arms with parents and who do not occupy a seat, travel free; children 7 years of age and under, 3c cash fare, or 10 tickets for 25c.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and subsidiary companies—

	Sept., 1919	Sept., 1918	3mons. to Sept. 30, 1919	3mons. to Sept. 30, 1918
Gross	\$684,946	\$575,476	\$1,994,206	\$1,533,783
Expenses.....	503,135	444,928	1,496,478	1,295,634
Net	181,811	130,548	497,728	238,149

The net for Sept., 1919 includes \$23,612, being 1c out of each 6c fare collected in Vancouver, and held in suspense under the terms of the Public Utilities Act, pending the commissioner's decision.

Calgary Municipal Ry.—Earnings, expenditure, etc., for Nov., 1919:

Fares	\$74,985
Advertising	1,256
Total revenue.....	\$74,231
Expenditures	\$64,908
Profit	\$11,328

Statement for the 11 months ended Nov. 30, 1919, is as follows:

Revenue	\$736,559
Expenditures	713,182
Profit	\$2,377

Edmonton Radial Railway—

	Oct., 1919	Nov., 1919
Total revenue	\$ 59,294.52	\$ 65,733.16
Passengers carried	1,006,012	1,121,492

Montreal Tramways Co.—At a meeting of directors, Dec. 22, to consider the question of dividends on the common stock, which were deferred in 1918, it was decided to pay a quarterly dividend of 2½% at the rate of 10% per annum, for the year ended June 30, 1918, on the paid up capital stock of the company to shareholders on record Dec. 29, 1919. Financial circles takes this as an indication that the company will continue to pay regular dividends, and that a meeting of the directors will be held early in the new year to consider paying arrears.

Regina Municipal Railway—

Passenger receipts Nov., 1919.....	\$29,503.75
Number of passengers carried.....	610,444

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

	Sept., 1919	Sept., 1918	9mons. to Sept. 30, 1919	9mons. to Sept. 30, 1918
Gross	\$1,124,159	\$1,119,925	\$9,318,458	\$9,596,597
Expenses	726,221	565,069	5,786,231	5,201,953
Net	397,938	554,856	3,532,227	4,394,644

Winnipeg Electric Ry., and allied companies—

	Sept., 1919	Sept., 1918	9mons. to Sept. 30, 1919	9mons. to Sept. 30, 1918
Gross	\$331,248	\$285,670	\$2,947,060	\$2,674,137
Expenses	316,037	207,477	2,346,188	2,028,450
Net	65,211	78,193	600,872	645,687

The surplus for October, after allowing for fixed charges, was \$44,661.57.

Electric Railway Notes.

The Hydro Electric Power Commission of Ontario has ordered 2 trucks for electric locomotives from Canadian Car and Foundry Co.

Sudbury-Copper Cliff Suburban Electric Ry. has received a combination snow plough and sweeper from Ottawa Car Manufacturing Co.

The British Columbia Electric Ry. office staff has its annual dinner at Vancouver, Dec. 6; George Kidd, General Manager in the chair.

Three Rivers Traction Co., Three Rivers, Que., has ordered 2 one man, near side cars, making 4 now on order, from Ottawa Car Manufacturing Co.

A. L. Farquharson, Manager, Fort William Electric Ry., left Fort William, Ont., Dec. 7 to secure options on new and second hand cars to replace those destroyed in the recent fire.

The Ottawa Electric Ry. will, it is said, in future be the plaintiff in actions due to collisions between automobiles and street cars, where they are due to careless automobile driving.

The Brantford, Ont., City Council will consider the regulation of the speed at which Brantford and Hamilton Ry., and Lake Erie and Northern Ry. cars shall be operated within the city limits.

The Regina, Sask., Municipal Ry., management has under consideration the purchase of some motors from Winnipeg, which it is proposed to instal on the 6 old cars, which were bought in England, to speed them up.

The Niagara, St. Catharines & Toronto Ry.'s car barn at Niagara Falls, Ont., was destroyed by fire Dec. 10, together with 2 of the latest type of cars and a snow plough; the damage being estimated at \$40,000.

The Winnipeg City Council on Dec. 8 authorized the preparation of a bylaw creating a standing committee on transportation to deal with all questions of transportation, and to consist of 5 members.

The Regina, Sask., Municipal Ry., is considering the question of the operation of cars on Sundays to a later hour at night than at present. Under the present schedule, all cars are in the barns a little after 10 p.m.

The Calgary, Alta., Municipal Ry., is reported to be buying 4 cars, and to be considering the buying of 2 additional cars. Superintendent T. H. McCauley, who was in the east recently, received telegraphic instructions as to the matter Dec. 5.

The Moncton Tramways, Electricity and Gas Co.'s car barn and machine shop, at Moncton, N.B., was burned Dec. 25; considerable machinery, one car, and a sweeper being destroyed. The watchman died from injuries received during the fire.

The Regina, Sask., Street Railway Department has begun the issue of a twice a month pamphlet, giving information and items of interest in connection with the street railway. It is entitled the Regina Municipal Railway Headlights, and is issued free to the public.

The Toronto Suburban Ry.'s bylaw authorizing W. J. Radford, Assistant Manager, to prepare and issue passenger tariffs, and F. Butcher, Freight Superintendent, to prepare and issue freight tariffs, was approved by the Board of

Railway Commissioners by order 29,124, Dec. 6.

The Imperial Privy Council on Dec. 5, reserved judgment on the Toronto Ry.'s appeal against the City of Toronto regarding the removal of snow. A second appeal case, in which the same parties were involved, having to do with penalties for alleged inadequate service, was also heard.

County Judge Gunn, Ottawa, is Chairman of a board of conciliation which commenced its sittings in Toronto, Dec. 8, to interpret certain parts of the award of Sept. 23, 1919, respecting the Toronto Electric Co. and its employees. W. H. Moore is the company's representative, and F. Bancroft represents the men.

The Nova Scotia Tramways & Power Co.'s 24 cars ordered for its Halifax, N.S., electric railway as mentioned in our last issue, are of the standard Birney safety type, arranged for double end operation. They were ordered from American Car Co., St. Louis, Mo., for delivery during Dec., 1919.

The Montreal Tramways Co. is applying to the Quebec Legislature for an act determining its rights and obligations with regard to its contribution to the building and maintenance of sewers in Montreal and other municipalities to which its lines extend; to amend laws, relating thereto, and for other purposes.

The Hamilton, Ont., City Council's street railway committee is reported to have abandoned its idea of appealing to the Ontario Railway and Municipal Board for an order to compel the Hamilton St. Ry. to give an improved service pending the outcome of the negotiations between the Hydro Electric Power Commission of Ontario and the Dominion Power and Transmission Co., for the purchase of the latter's interests.

The Commissioner of Public Safety of St. John, N.B., is reported to have called the attention of the New Brunswick Power Co. to the frequent overloading of street cars in contravention of the law. The company is stated to have recently put on 6 extra cars on two routes, in order to lessen the overcrowding. During the rush hours and on rainy days the company's conductors could not keep people from getting on cars, even when they were already well filled.

The Winnipeg Electric Ry. put in effect on Dec. 7, a general rerouting of cars on a number of its lines, aiming, in so doing, as the more even distribution of car service, and permitting a greater number of extra cars in sections of the city, where traffic is heaviest during rush hours. A protest against this rerouting was made at a meeting of the city council, Dec. 8, when it was intimated that the council would determine whether or not the company is obliged to consult the city when making changes in routing.

The Winnipeg City Council and the Winnipeg Electric Ry. are reported as having arrived at an understanding in reference to taxation matters. The city claims approximately \$500,000 for unpaid taxes from and including 1916. The company alleged overcharges, particularly in connection with street paving work. Representatives of the city finance department met A. W. McLimont, Vice President and General Manager, at the end of November and subsequently with

the result that it was reported, Dec. 9, that an arrangement had been made.

The hearing of the New Brunswick Power Co.'s appeal in connection with the fixing of the original cost of the company's investment in St. John, N.B., for street railway purposes, has been concluded before the New Brunswick Court of Appeal and judgment reserved. The special commission appointed by the N.B. Legislature in 1918, after an investigation, fixed the value of the investment at \$2,800,000 on which a return of 7% was to be secured. In the appeal, the St. John City Council asked for a reduction to below \$2,000,000, while the company argued that it should be increased to about \$5,000,000.

The Sandwich, Windsor & Amherstburg Ry.'s Superintendent suspended 4 conductors and motormen, in connection with their alleged refusal to handle a broken live trolley wire in Nov., 1919. The matter was referred to the Ontario Railway and Municipal Board, which sent the following telegram to the company's General Manager: "Ontario Railway and Municipal Board, on report of inspector, finds fault in car house foremen not acting promptly when telephoned, and finds motormen and conductors in fault in not telephoning between 9 and 11.30 o'clock, and orders reinstatement forthwith of 4 suspended employes and payment to them of half pay for period of suspension."

Electric Railway Track Laid in 1919.

Following is a preliminary statement showing new electric railway track laid during 1919:—

	Miles	Miles
Brantford Municipal Ry.—		
Colborne St. to St. Paul Ave.....	1.95	
T., H. & B. tracks to G.T.R. tracks	.40	2.35
Montreal Tramways Co.—		
Cote de Neiges Cemetery gate to Queen Mary Road.....	0.54	
Monk Boulevard, Church to Allard	1.05	
Iberville, Masson to Belanger.....	1.15	2.74
Ottawa Electric Ry.—		
Raymond St. to Powell Ave.....	0.20	
Three other extensions	0.20	0.40
Quebec Ry., Light and Power Co.—		
Beauport Road, C.N.R., to city limits, going west.....	1.15	
C.N.R. to 3rd Ave., along 10th St., going west	0.50	1.65
Sherbrooke Ry. and Power Co.—		
Short St. to Drummond St.....		0.34
Total		7.48

The Nova Scotia Tramways and Power Co. is rebuilding about 4 miles of double track, which is being relaid with concrete filler in pavement.

The Sherbrooke Ry. and Power Co. laid 1,700 ft. of second track on its Wellington St. line.

The Wellington-Waterloo Ry., laid a turning Y in Bridgeport, Ont., about 320 ft. of track.

London and Lake Erie Ry. and Transportation Co.'s Liquidation—St. Thomas, Ont., ratepayers decided, Dec. 1, by a vote of 475 to 37 to authorize the issue of \$25,000 of debentures to buy the company's car barns, power house and land in the vicinity of the Michigan Central Rd., and the overhead wiring on Talbot St. Negotiations are reported to be in progress for the sale of the company's property on Horton St., London, the buildings on which were used as a freight station and the ticket office by the railway before its abandonment.

Marine Department

Canadian Government Merchant Marine, Ltd., Shipbuilding, Operation, Etc.

Orders for Steamships—The table on page 39 of this issue containing particulars on orders for steel cargo steamships for Canadian Government Merchant Marine Ltd., gives full particulars of 53 ships ordered by the Marine Department, and partial particulars of 3 others, 56 in all. We were officially advised Dec. 17, that the contracts for the 3 ships of which only partial particulars are given, viz.: 1 from Midland Shipbuilding Co. of approximately 3,950 d.w. tons, and 2 from Wallace Shipyards, Ltd., of approximately 8,350 d.w. tons each, had not then been signed. If not signed at the time of writing this (Dec. 26), they doubtless will be in the near future. Although no official information was obtainable up to Dec. 19, Canadian Railway and Marine World is aware that further orders have been decided on which will bring up the fleet to at least 60 ships. These additional orders include 2 'tween deck ocean going steel cargo steamships of approximately 3,950 d.w. tons each, to be built by Collingwood Shipbuilding Co., one at Collingwood, Ont., and the other at Kingston, Ont. It is said that the Nova Scotia Steel & Coal Co., New Glasgow, N.S., has another order for a steamship of approximately 2,800 d.w. tons, similar to the first two orders placed with it, and that the Port Arthur Shipbuilding Co. has an order for another steamship of approximately 4,300 d.w. tons, in addition to the orders placed with it previously.

Oil Fuel—Referring to the question of equipping the 4 steel cargo steamships, of approximately 8,350 d.w. tons each, which were ordered by the Marine Department from Canadian Vickers Ltd., on Sept. 30, to use fuel oil instead of coal, Canadian Railway and Marine World was advised Dec. 9, that the department had not come to any decision on the question in regard to any of the ships being built under its orders.

Launchings of Steamships—Since Canadian Railway and Marine World for December was issued we have been advised of the following launchings:

S.s. Canadian Importer; Marine Department contract 34; builder's yard no. 11; approximately 8,100 d.w. tons; J. Coughlan & Sons, Vancouver, B.C.; Dec. 6, 1919.

S.s. Canadian Beaver; Marine Department contract 31; builder's yard no. 15; approximately 3,750 d.w. tons; Collingwood Shipbuilding Co., Kingston, Ont.; Dec. 10.

S.s. Canadian Farmer; Marine Department contract 46; builder's yard no. 65; approximately 3,950 d.w. tons; Collingwood Shipbuilding Co., Collingwood, Ont.; Dec. 27, 1919.

S.s. Canadian Raider; Marine Department contract 7; builder's yard no. 102; approximately 5,100 d.w. tons; Wallace Shipyards Ltd., North Vancouver, B.C.; Dec. 11.

Delivery of Steamships—In addition to the steamships mentioned in Canadian Railway and Marine World previously, the following have been delivered to the Marine Department by the builders, and were transferred to Canadian Government Merchant Marine Ltd., for operation on the dates mentioned.

Nov. 18, 1919, s.s. Canadian Sower; Marine Department contract 20a; builder's yard no. 42; approximately 3,400 d.w. tons; Port Arthur Shipbuilding Co., Port Arthur, Ont. She was loaded with general cargo at Montreal for St. John's, Nfld.

Nov. 22, 1919, s.s. Canadian Navigator; Marine Department contract 23; builder's yard no. 73; approximately 4,300 d.w. tons; Canadian Vickers Ltd., Montreal. She was loaded with general cargo at Montreal for London, Eng.

Dec. 2, 1919, s.s. Canadian Settler; Marine Department contract 13; builder's yard no. 5; approximately 5,100 d.w. tons; Tidewater Shipbuilders Ltd., Three Rivers, Que. She was loaded with general cargo at Montreal for St. John's, Nfld.

Dec. 6, 1919, s.s. Canadian Spinner; Marine Department contract 27; builder's yard no. 71; approximately 8,350 d.w. tons; Canadian Vickers Ltd., Montreal. She was loaded with general cargo at Quebec for South America.

Dec. 20, 1919, s.s. Canadian Sealer; Marine Department contract 40; builder's yard no. 5; approximately 2,800 d.w. tons; Nova Scotia Steel & Coal Co., New Glasgow, N.S. She has since been reported to be icebound at Pictou, N.S.

Three steamships are now at Quebec ready to be delivered to Canadian Government Merchant Marine Ltd., viz.: Canadian Planter, approximately 8,100 d.w. tons, built by Canadian Vickers Ltd.; Canadian Rancher, approximately 5,100 d.w. tons, built by Tidewater Shipbuilders Ltd.; and Canadian Trapper, approximately 5,100 d.w. tons, built Davie Shipbuilding & Repairing Co. In view of the unusual ice conditions in the St. Lawrence, they will not be put in service until next spring, and will be moored at Quebec for the winter.

Officers of Steamships—The following officers have been appointed by Canadian Government Merchant Marine Ltd. The first column contains the names of the ships, the second those of the captains and the third those of the chief engineers:

Canadian Importer	A. O. Cooper	.....
Canadian Planter	A. L. Starratt	J. Young
Canadian Rancher	W. Bradley	.....
Canadian Recruit	C. J. Murphy	W. Byers
Canadian Sower	.....	L. Cunningham
Canadian Volunteer	E. C. Sears	J. Campbell
Canadian Voyageur	J. D. MacKenzie	.....
Canadian Warrior	C. R. Bissett	.....

Steamship Services—The Vancouver Board of Trade is reported to have received word that as soon as possible, Canadian Government Merchant Marine Ltd., will establish a steamship service between Montreal, Halifax and British Columbia ports, via the Panama Canal.

The Canadian Merchant Service Guild has sent a petition to the Minister of Marine, asking that a government passenger steamship service be established between Vancouver, Victoria and San Francisco. It is pointed out that there was at one time an indifferent service given between these points by vessels under the U.S. flag, but that this was withdrawn some time ago.

The s.s. J. A. McKee has been chartered to the Newfoundland Government, for a short time, to carry coal from Cape

Breton to Newfoundland, where there is a serious shortage. She is screw driven by engine of 204 n.h.p., and is 2,158 tons gross, 1,375 tons register.

The s.s. Canadian Recruit, 3,964 d.w. tons, built by Collingwood Shipbuilding Co., and delivered to Canadian Government Merchant Marine Ltd., June 7, 1919, left Montreal, Dec. 8, with a general cargo for Kingston, Jamaica, and Havana, Cuba. She was to call at Sydney, N.S., to fill her bunkers, and was to take a return cargo of sugar to St. John, N.B. She passed Crane Island Dec. 16, encountered serious ice trouble, lost her rudder, and went ashore on Vache Reef, near the mouth of the Saguenay, Dec. 20. The officers and crew were landed ashore, and the owners have notified the underwriters that the ship has been abandoned.

The s.s. Canadian Spinner, approximately 8,350 d.w. tons, built by Canadian Vickers Ltd., and delivered to Canadian Government Merchant Marine Ltd., Dec. 6, left Quebec Dec. 16, with a general cargo, via Halifax, for Rio de Janeiro, Santos, and Buenos Aires. She passed Red Island Dec. 18, and at the time of writing, Dec. 27, was stuck in the ice about 8 miles off Metane, with her rudder post being reported as broken. The Dominion Government ice breaking s.s. Lady Grey made two attempts to go to her rescue, leaving Quebec Dec. 24 and 25, but put back each time; the captain declaring it impossible to proceed owing to ice conditions.

S.s. Canadian Trapper—An action has been entered at Quebec by Tidewater Shipbuilders Ltd., Three Rivers, Que., against the Davie Shipbuilding and Repairing Co., Lauzon, Que., for \$180,600, claimed to be due for installation of machinery by plaintiffs in the s.s. Canadian Trapper's hull, built by defendants.

The s.s. Volunteer, approximately 4,530 d.w. tons, built by Wallace Shipyards Ltd., and delivered to Canadian Government Merchant Marine Ltd., June 19, 1919, left Montreal Dec. 6, with a general cargo for London, Eng., and arrived at Quebec, Dec. 9, having struck three times near Cap la Roche, causing leaks in the bilges. Owing to the lateness of the season she will be kept at Quebec until the spring.

Canadian Vickers Ltd., Montreal, delivered the s.s. Canadian Navigator; Marine Department contract 23; builder's yard no. 73; approximately 4,300 d.w. tons; to the Marine Department, Dec. 2, 1919. She was immediately transferred to Canadian Government Merchant Marine Ltd., and was loaded at Montreal with general cargo for London, Eng.

The company also delivered the s.s. Canadian Spinner; Marine Department contract 27; builder's yard no. 71; approximately 8,350 d.w. tons; to the Marine Department, Dec. 6, 1919. She was immediately transferred to Canadian Government Merchant Marine Ltd., and loaded at Quebec with general cargo for South America.

Collingwood Shipbuilding Co., which has contracts from the Marine Department for 2 steel cargo steamships, of approximately 3,950 d.w. tons each, launched one of them, Canadian Farmer,

Marine Department contract 46; builder's yard no. 65; at its Collingwood, Ont., yard, Dec. 27, 1919.

The other ship, Canadian Observer, Marine Department contract 47; builder's yard no. 66; is expected to be launched at Collingwood in February.

The company launched at its Kingston, Ont., yard, Dec. 10, the s.s. Canadian Beaver; Marine Department contract 31; builder's yard no. 15; approximately 3,750 d.w. tons.

The company, during December, received orders from the Marine Department, for 2 more steel cargo steamships of approximately 3,950 d.w. tons each, one to be built at the Kingston plant and one at the Collingwood plant.

J. Coughlan and Sons, Vancouver, B.C., have, as stated previously in Canadian Railway and Marine World, contracts from the Marine Department for 4 steel cargo steamships of approximately 8,100 d.w. tons each. The first of these, Canadian Importer, Marine Department contract 34; builders yard no. 11; was launched Dec. 6, 1919, the christening ceremony being performed by Mrs. R. C. Cooper, wife of the Colonel of the 7th Battalion, who carried a bouquet showing the insignia, ^C₇ of the battalion. The steamship, when launched, carried the Canadian ensign, the Canadian Government Merchant Marine flag, and the Prince of Wales' honor flag, on the bow.

The second steamship, Canadian Exporter, was expected to be launched about Dec. 30, 1919. Approximate launching dates for the other two are, Canadian Inventor, Jan. 30; Canadian Prospector, Feb. 28.

Nova Scotia Steel and Coal Co., New Glasgow, N.S., delivered the s.s. Canadian Sealer; Marine Department contract 40; builder's yard no. 5; approximately 2,800 d.w. tons, to the Marine Department, Dec. 20, 1919.

The s.s. Canadian Miner, a sister ship to Canadian Sealer, is expected to be ready for launching by the end of January, but will probably be kept on the ways till the latter part of February, and should be delivered early in April if the river is free of ice.

Port Arthur Shipbuilding Co., Port Arthur, Ont., delivered the s.s. Canadian Sower, Marine Department contract 20a; builder's yard no. 42; approximately 3,400 d.w. tons; to the Marine Department, Nov. 18. She was immediately transferred to Canadian Government Merchant Marine Ltd., and was loaded at Montreal with general cargo for St. John's, Nfld. This was the fourth ship delivered to the Marine Department in 1919 by this company, the others being Canadian Trader, July 18; Canadian Sailor, Aug. 7, and Canadian Adventurer, Oct. 29; full particulars of which are given in the table on page 39.

The company is also building for the Marine Department, 2 steel cargo steamships of approximately 4,300 d.w. tons each, Canadian Runner and Canadian Carrier; the keels of which were laid Aug. 29, 1919. They will be launched early in the spring and should be ready to sail in June or July for Buffalo, N.Y., where they will be cut in two, so as to go through the canals to Montreal. After they are rejoined at Montreal their trial trips will be run and delivery made to the Marine Department.

Tidewater Shipbuilders Ltd, Three Rivers, Que., delivered the s.s. Canadian

Settler; Marine Department contract 13; builder's yard no. 5; approximately 5,100 d.w. tons; to the Marine Department, Dec. 2, 1919. She was immediately transferred to Canadian Government

Merchant Marine Ltd., and loaded at Montreal with general cargo for St. John's, Nfld.

The second ship, Canadian Rancher, Marine Department contract 14; builder's yard no. 6; left Three Rivers in the second week of December for Quebec to have some final work done and to be delivered to the Marine Department. The keels for the two other ships this company is building, Canadian Fisher and Canadian Forester, were laid Sept. 20 and Nov. 1, 1919, respectively.

Details of the Different Types of Steamships for Canadian Government Merchant Marine Ltd.

The following are comparative details of the seven different types of steamships 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. 1 in.	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.....	17½ ft.	20 ft.	26 ft.	25 ft.	25½ ft.	31 ft.	38 ft.
Draft, loaded.....	17½ ft.	23 ft.	22 ft. 2 in.	21 ft. 2 in.	21 ft. 8 ins.	25 ft. 1 in.	29 ft.
Type.....	S.d., p.b. & f'e's'le	S.d., p.b. & f'e's'le	Lake, s.d., p.b. & f'e's'le	S.d., p.b. & f'e's'le	S.d., p.b. & f'e's'le	2d., p.b. & f'e's'le	3d., p. & f'e's'le
Engine—Type.....	Tri-compound	Triple expansion	Triple expansion	Triple expansion	Triple expansion	Triple expansion	Triple expansion
Cylinders, diam.....	17½ x 23½ 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 73 ins.	29½ x 50 x 80 ins.
Stroke.....	33 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.....	12½ x 10½ ft.	15 x 11 ft.	14 x 10¾ ft.	15½ x 11½ ft.	14 x 11½ ft.	15½ x 11½ ft.	15½ x 11¾ ft.
Working pressure.....	185 lbs.	190 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.	180 lbs.
Furnaces—No.....	6	6	6	6	9	9	12
Grate surface.....	80 sq. ft.	135 sq. ft.	100 sq. ft.	132 sq. ft.	156 sq. ft.	198 sq. ft.	270 sq. ft.
Heating surface.....	3,000 sq. ft.	4,670 sq. ft.	3,900 sq. ft.	5,162 sq. ft.	7,275 sq. ft.	7,743 sq. ft.	10,500 sq. ft.
Speed.....	8½ 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

Canada Steamship Lines Ltd. Dividends—At the monthly meeting of directors of Canada Steamship Lines Ltd., at Montreal, Dec. 2, it was announced that the common stock had been placed on a 7% dividend basis, effective Jan. 1. The dividend of 1% for the then current quarter, payable to shareholders of record, Dec. 15, was declared. An increase in the dividend was expected, but it was anticipated that it would be made 6%, with a bonus of 2%; the directors, however, decided that a straight increase in the dividend was the better plan, as being of a more permanent character. Some confusion took place on the Montreal Stock Exchange, on account of the company not having notified the exchange of the change, but the company explained that as it was merely a decision to place the stock on a 7% basis for 1920, it was not considered necessary to notify.

The Sinking of the Empress of Ireland—The appeal of the C.P.R. against the Supreme Court of Canada's judgment in connection with the collision between the Norwegian s.s. Storstad and the C.P.R.'s s.s. Empress of Ireland, in the St. Lawrence River, May 29, 1914, came before the Judicial Committee of the Imperial Privy Council, Dec. 5. The Supreme Court decided that in the distribution of the proceeds of the sale of the Storstad, preference would be given to the claims of the passengers, but the Privy Council, has now decided that the C.P.R. shall share equally with the other claimants. The chief point dealt with was whether the disaster occurred in Canadian territorial waters or on the high seas.

The Marine Navigation Co. of Canada Ltd., which is operating several vessels between Canada and France, was incorporated at the end of 1916, and early in 1917 operated the steamships Nigaristan and North Cambria between Halifax and St. Nazaire. In addition to these steamships, several schooners, some with auxiliary power, were operated, chiefly in the lumber trade. The company is practically a subsidiary of the Marine Navigation Co., Ltd., of England, controlled by Sir William Garthwaite, Paris, France. Murray Kennedy, is President of the Canadian company, which is managed by McLean, Kennedy and Co., Montreal.

Hudson's Bay Co.'s Steamships—During 1919 the company's steamships, Athabasca River, Peace River and Port Simpson, and the motor boat Fort Churchill, were not in operation, and we are advised that the s.s. Athabasca River, and the motor boat, Taltahn, are being dismantled, the former at Peace River Crossing, Alta., and the latter at Port Simpson, B.C. The company has registered the steamboat Liard River, which was built at Fort Smith, Alta., in 1919. She is paddle wheel driven by engine of 3 n.h.p., and her dimensions are: length, 81.8 ft.; breadth, 16.8 ft.; depth, 3 ft.; tonnage, 113 gross, 77 registered.

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, forecstle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	\$207	\$ 947,025	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	"	67	*8,408	180.	1,513,440	2.d., p., b. and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbuilding Co.	61	*8,995	205.	818,975	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipyards Ltd.	100	4,530	207.	937,710	S.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	"	106	4,300	217.	933,100	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	"	101	5,100	210.	1,071,000	S.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	"	102	5,100	210.	1,071,000	S.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	.....
10	July 5, 1918	Canadian Recruit	Collingwood Shipbuilding Co.	62	*3,964	205.	812,620	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	June 3, 1918	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	"	63	3,750	205.	768,750	Lake, s.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 23, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	"	64	3,750	205.	768,750	Lake, s.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	"	6	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	.....
15	Jan. 24, 1919	Canadian Fisher	"	7	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	.....	.....
16	Jan. 24, 1919	Canadian Forrester	"	8	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	.....	.....
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Mar. 11, 1919	Oct. 9, 1919	.....
18	Sept. 4, 1918	Canadian Hunter	"	460	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Mar. 28, 1919	.....	.....
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	684,905	Lake, s.d., p., b. and f'c's'le	"	9	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	"	41	3,400	210.	714,000	Lake, s.d., p., b. and f'c's'le	"	9	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	"	40	*3,357	205.	688,185	Lake, s.d., p., b. and f'c's'le	"	9	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	"	42	3,400	210.	714,000	Lake, s.d., p., b. and f'c's'le	"	9	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards, Ltd.	1	8,100	195.	1,579,500	2.d., p., b. and f'c's'le	"	10	Feb. 24, 1919	.....	.....
22	Sept. 13, 1918	Canadian Explorer	"	2	8,100	195.	1,579,500	2.d., p., b. and f'c's'le	"	10	Mar. 15, 1919	.....	.....
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	4,800	215.	924,500	S.d., p., b. and f'c's'le	"	11	Jan. 22, 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	"	68	*3,382	188.	1,575,816	2.d., p., b. and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	"	69	*3,391	188.	1,577,508	2.d., p., b. and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	"	70	8,100	188.	1,522,800	2.d., p., b. and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	"	71	8,350	188.	1,569,800	2.d., p., b. and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	"	72	8,100	188.	1,522,800	2.d., p., b. and f'c's'le	"	11	May 10, 1919	.....	.....
29	Jan. 24, 1919	Canadian Armourer	Harbour Marine Co.	1	8,100	198.	1,603,800	2.d., p., b. and f'c's'le	"	11	July 14, 1919	.....	.....
30	Jan. 24, 1919	Canadian Composer	"	2	8,100	198.	1,603,800	2.d., p., b. and f'c's'le	"	11	Aug. 9, 1919	.....	.....
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	3,750	205.	768,750	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	.....
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,800	215.	935,250	S.d., p., b. and f'c's'le	Lloyd's	10 1/2	Aug. 29, 1919	.....	.....
33	Mar. 1, 1919	Canadian Carrier	"	44	4,800	215.	935,250	S.d., p., b. and f'c's'le	"	10 1/2	Aug. 29, 1919	.....	.....
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	8,100	198.	1,603,800	2.d., p., b. and f'c's'le	"	11	Apr. 26, 1919	Dec. 6, 1919	.....
35	Nov. 22, 1918	Canadian Exporter	"	12	8,100	198.	1,603,800	2.d., p., b. and f'c's'le	"	11	May 3, 1919	.....	.....
36	Nov. 22, 1918	Canadian Inventor	"	13	8,100	198.	1,603,800	2.d., p., b. and f'c's'le	"	11	July 24, 1919	.....	.....
37	Nov. 22, 1918	Canadian Prospector	"	14	8,100	198.	1,603,800	2.d., p., b. and f'c's'le	"	11	Sept. 26, 1919	.....	.....
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197 1/2	2,073,750	3.d. p., and f'c's'le	"	12	Oct. 2, 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	"	4	10,500	197 1/2	2,073,750	3.d. p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	2,800	210.	588,000	S.d., p., b. and f'c's'le	"	8 1/2	Mar. 27, 1919	Oct. 8, 1919	.....
41	Mar. 31, 1919	Canadian Miner	"	6	2,800	210.	588,000	S.d., p., b. and f'c's'le	"	8 1/2	Mar. 31, 1919	.....	.....
42	Feb. 21, 1919	Canadian Reaper	Prince Rupert Dry Dock and Engineering Co.	1	8,100	198.	1,603,800	2.d., p., b. and f'c's'le	"	11	Sept. 27, 1919	.....	.....
43	Feb. 21, 1919	Canadian Thrasher	"	2	8,100	198.	1,603,800	2.d., p., b. and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,350	215.	935,250	S.d., p., b. and f'c's'le	Bri. Corp.	10	Mar. 29, 1919	.....	.....
45	Jan. 23, 1919	Canadian Squatter	"	5	4,350	215.	935,250	S.d., p., b. and f'c's'le	"	10	July 14, 1919	.....	.....
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbuilding Co.	65	3,950	180.	711,000	Lake, s.d., p., b., and f'c's'le	Lloyd's	11	Sept. 3, 1919	Dec. 27, 1919	.....
47	Sept. 11, 1919	Canadian Observer	"	66	3,950	180.	711,000	Lake, s.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	.....	.....
48	Sept. 2, 1919	Canadian Artificer	Dominion Shipbuilding Co.	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
49	Sept. 2, 1919	Canadian Engineer	"	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,350	170.	1,419,500	2.d. p., b. and f'c's'le	Lloyd's	11	.....	.....	.....
51	Sept. 18, 1919	Canadian Conqueror	"	78	8,350	170.	1,419,500	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
52	Sept. 18, 1919	Canadian Commander	"	79	8,350	170.	1,419,500	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
53	Sept. 18, 1919	Canadian Leader	"	80	8,350	170.	1,419,500	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
—	.....	.....	Midland Shipbuilding Co.	10	3,950	180.	711,000	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	.....	.....	.....
—	.....	.....	Wallace Shipyards Ltd.	103	8,350	167.50	1,398,625	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
—	.....	.....	"	104	8,350	167.50	1,398,625	2.d. p., b. and f'c's'le	"	11	.....	.....	.....

334,793 \$64,944,584

St. Lawrence River Winter Navigation Possibilities.

By Hon. D. O. L'Esperance, Chairman Quebec Harbor Commission.

The possibilities of navigating the St. Lawrence in winter and making Quebec an all year open port, may at first glance look to many as a local subject affecting Canada alone, and, therefore, of little concern to the United States. However, if we throw a look at the map of the North American continent, we find that the routes of transportation by rail and water are so intimately connected and interlocked in all the territory along the St. Lawrence and the Great Lakes, that anything which is apt to affect or prolong the navigation on any portion of this great waterway is of vital concern, not only to Canada, but also to our great enterprising neighbor to the south. Any one who, in recent years, has followed closely the construction of railways in Canada, and the rapid improvement and development of our trade routes, may well ask himself why the port of Quebec from which flows clear and open water during 12 months of the year right through to the Atlantic, is closed during 4 months to ocean traffic, and this at a time when the use of that great waterway would be of immense advantage for the transportation of the ever growing products of the west. What is the chief reason for this unfortunate state of affairs? 1. Is it the lack of facilities in the port of Quebec? 2. Are the railways serving Quebec inadequate to handle the traffic which a more extended use of the port would develop? 3. Is the cause to be found in the fact that winter navigation as far as Quebec is a physical impossibility? To the first two questions I will reply briefly.

Quebec Port Facilities—Quebec, located on the St. Lawrence River, 181 miles above the entrance to the Gulf of St. Lawrence, at Father Point, and 166 miles below Montreal by the river, is in a commanding position at the widening of that great natural waterway. The facilities afforded in Quebec harbor for the accommodation of large vessels were demonstrated in a decisive manner when, during the embarkation of the first Canadian overseas contingent, in Sept., 1914, thirty-one steamships, ranging from 4,000 to 19,000 tons, were accommodated at the deep water docks and wharves, for taking on board men, horses, ammunition, and supplies for the contingent. In 1918, the last year of the war, there were on several occasions 14 large steamships lying at the berths at the same time, aggregating over 150,000 gross tons.

The harbor facilities are such that steamships of any size, or class, can be berthed at any time, day or night. The present shed space for ocean steamships has a capacity of 523,000 sq. ft. Eleven of these sheds have railway tracks serving them. The site selected for the development of wharves is unusually favored, from the standpoint of desirable requirements for water terminals. In addition to the large natural basin, with its many shelters, from a point several miles below Quebec, in fact, as far as Murray Bay, a distance of 85 miles, to 5 miles above the City of Quebec, the port affords the most ideal shelters for ships awaiting loads of wharf assignment, and provides ample sea room to guarantee at all times a full reserve of vessels to occupy dockage. This is a

favorable feature in that, by providing the proper car storage room, the transportation companies can be always assured of constant employment of the yard and dock labor, which is necessary to maintain a permanent organization as well as an efficient one. The port of Quebec, in recent years has been properly and adequately equipped for handling of passengers, grain and other freight traffic. Unlimited space exists for further improvements in sheds, grain elevators, docks, etc., as the development of trade justifies. (For further information, see Quebec Harbor Commission's annual reports).

Railways Serving Quebec—From the standpoint of railways converging into Quebec the port offers unrivaled facilities. It is served by three through transcontinental railways, under unique management. The Canadian Pacific Ry., with its numerous branches and connections by rail and water all over the world; the National Transcontinental and the Canadian Northern Ry., now owned and operated by the Canadian Government. Besides, it is served by the Grand Trunk Ry., the Quebec Central Ry., the Quebec and Saguenay Ry. and the Intercolonial Ry.; the two latter roads owned and operated as part of the Canadian National Rys. These railways form a vast net all over Canada and tap all the great trade routes of the North American continent. Through the building of the National Transcontinental, Quebec has been made nearer to Winnipeg by some 214 miles, and owing to the low gradients of that railway, the grain of the west can be hauled at a much reduced rate. All these railways have direct access to the Quebec Harbor Commission's docks.

Winter Navigation—The approach by water to the City of Quebec via the Gulf of St. Lawrence and the St. Lawrence River, affords a most desirable entrance to the port of Quebec for the largest of ocean vessels, but in the past, this approach has not been navigated during the winter, usually closing early in December and remaining so until the latter part of the following April. Without seriously going into the problem, this condition has been accepted, and still, by some authorities, it is argued that navigation on the St. Lawrence River from the Gulf to the port of Quebec is impossible during winter. The principle obstacles that have been accepted in the past as making the navigation of the river impossible are, by order of importance: 1. Ice. 2. Snow storms. 3. Absence of navigation guides.

As early as the middle of November, in some years, the ice forming on the river above Montreal and to a point at Cap Rouge above Quebec, gradually flows with the current to the narrows of the river at Cap Rouge and at this point forms an ice bridge, effectually backing up the ice as far as the port of Montreal. Below this point the ice forms in the small bays and the gulf along the river to the port of Quebec and in the Straits of Belle Isle in the same manner, and with the rising of the tides, it is severed from its shores anchorage and forced by northeasterly winds into the channel. This ice obstacle never forms to any great extent in flocs of sufficient size to impede navigation and with the

outgoing tide usually disappears or remains in such small cakes as to be almost negligible as an obstacle. I give here in support of this contention the names of vessels and trips made in winter, from Quebec, after the official close of navigation:

December—

Montmagny left for Halifax Dec. 9, 1910.
Carleton left for Anticosti, Dec. 13, 1911, returning Dec. 22.
Montmagny left for Halifax, Dec. 13, 1913.
J. D. Hazen left for Archangel, Russia, Dec. 21, 1916.
Sicoa left for Halifax, Dec. 21, 1917.
Castalia left for sea, Dec. 30, 1916.

January—

Montcalm left for north shore ports, Jan. 14, 1913.
Favorite left for Boston, Jan. 11, 1918.
Montcalm left for Gaspé ports, Jan. 16, 1918, returning Jan. 23.
Canadian Voyageur left for Halifax, Jan. 21, 1919.

February—

Lady Grey left for north shore and Gulf ports, Feb. 29, 1908.
Montcalm left for Gulf ports, Feb. 5, 1911.
Montcalm left for Gulf ports, Feb. 9, 1912.

March—

Savoy left for Gulf ports, Mar. 26, 1903.
Montcalm left for Gulf ports, Mar. 23, 1910.
Montcalm left for Gulf ports, Mar. 16, 1912.
Montcalm left for Gulf ports, Mar. 31, 1913.
General Wolfe left for Gulf ports, Mar. 24, 1910.
Aranmore and Natashquan left for north coast, Mar. 28, 1912, returning April 6.

April—

St. Olaf left Quebec for Gulf ports, April 7, 1900.
King Edward left for Gulf ports, April 9, 1904 and April 12, 1905.
Polino left for Newfoundland, April 12, 1905.
Aranmore left for north shore ports, April 4, 1909.
Aranmore left for Gulf ports, April 9, 1911, returning April 19.
Savoy left for Anticosti, April 15, 1911, returning April 22.
Laurentian left for north shore ports, April 15, 1916.
Druid left for Gulf ports, April 4, 1917.

These sailings have been made in winter, during all kinds of weather, with signal stations all closed up, and without any of the improvements which are suggested hereafter to make winter navigation safe. This fact alone should suffice to convince the unprejudiced mind that, with the inventions and means that modern science has placed at our disposal, winter navigation on the St. Lawrence as far as Quebec can easily become an accomplished fact.

Ice—Another obstacle to navigation in the form of ice affecting the operation of the Gulf is caused in the spring from the middle of April to the middle of May by the rush of ice out of the Gulf, causing a block between the St. Paul Islands, northwest of Cape Breton Island, and Cape Ray, the southwest point of Newfoundland. This block, which sometimes lasts for two weeks and completely prevents the passage of ships, is known as the bridge and it is a matter of record that at one time 300 ships have been detained by this obstacle and many wrecks have occurred in consequence on the Newfoundland coast. Ice from the Gulf is generally met with in Cabot Strait early in January, and at this time it is thin, but increases gradually to as much as 5 ft. thick. Occasionally small bergs, some 18 ft. high, are seen, although a large berg is seldom visible, and the ice has been known to float in this manner as late as the beginning of June. The prevalence of northwesterly and northerly winds drive the ice towards the strait and along the north coast of Cape Breton, while incoming vessels meet no ice except southward of St. Paul Island. Southwest gales occasionally take ice be-

tween Magdalen Island and Cape Breton Island. When this ice meets the main body flowing past Bird Rock, and closes the strait between St. Paul Island and the Newfoundland coast, northwesterly winds open the Newfoundland coast, and the strait clears quickly, so that in about 36 to 46 hours very little ice in visible quantities passes through for some period after navigation is open, particularly with north winds. Vessels not strongly built to encounter this ice are seriously impeded by encountering it, but it has been found that vessels specially strengthened for ice conditions have no difficulty in navigating.

This last condition appears to be the most serious obstacle in the operation of the St. Lawrence River during winter, but when it is considered that this condition at its worst, exists for but a short period of two weeks, at most, it is concluded that vessels encountering this obstacle can be diverted to Halifax, N.S., and St. John, N.B., and as the time that this occurs is not at a period when rail traffic is most seriously congested, the operation for the handling of traffic diverted to those ports could adequately be carried on by the present facilities afforded at those ports and lines serving same.

As an extra precaution and guard to navigation, information as to ice, wind, temperature, and weather conditions can be obtained by communication between vessels and any of the marine or signal stations in the Gulf and River St. Lawrence at Cape Ray, St. Paul Island, Magdalen Island, Anticosti, New Brunswick coast points, Gaspe coast and as far north as the Labrador coast. It is only necessary that the small additional expense of operating these stations during the winter and early spring be added to that of the summer season, and the short distances between those points of warning are an additional safeguard in that they afford sufficient time for ships

to seek shelters that are numerous, enabling them to be protected against any unusual conditions.

Investigations have shown that strandings in the Gulf and River St. Lawrence, and the approaches, including the Newfoundland coast, are not, owing to the danger of the route, but to the want of care and attention to navigation. There is a wide variation in the magnetic bearing between Belle Isle and Montreal, particularly between the first named point and Anticosti, and the frequent wrecks which occurred formerly on the eastern part of Anticosti, in foggy weather, were doubtless due to non allowance for change in variation, but such obstacles to a route should not be considered a hindrance when modern day care and navigation instruments are considered.

Snow Storms are at times severe, lasting from 24 to 48 hours. They constitute the most serious menace to navigation on the St. Lawrence River during their duration, owing to the impossibility of sight. From observation during one of these storms it was found that objects at a distance of 50 ft. were entirely obliterated. This condition can be adequately met, so as to entirely eliminate any chance of collision or groundings, by careful warning of vessels, as suggested in the meeting of the ice condition, and anchorage can be had in shelters. The most serious wrecks occurring during those snow storms have resulted from vessels anchoring in the stream, and drifting to shore, after having anchor chains cut by the floe ice. To meet this condition, two breakwaters, providing adequate shelters could be established along the river, behind which ships would be sheltered from the floe during the storms. Other recommendations have been suggested, such as guards carried by vessels for anchor chains. It is estimated that if it was found necessary to establish the breakwaters mentioned, a total investment of

\$1,000,000 would be adequate.

It would also be necessary to fit every ship coming up the river with an iron or wooden apron over the bow, and vessels so equipped become in themselves icebreakers of no mean ability. Such outfits are in use on all ships running to Russian ports, and adequately protect ships from harm.

During the past the keepers of some lighthouses have been withdrawn from service during the winter, and other river markings have been removed during the flow of ice. This practice can be discontinued and the markings made sufficiently permanent to place them above the danger resulting from the ice flow, and the expense of such works and their operation would be almost negligible when compared with the great economy effected by the handling of freight by water transportation.

It appears that in short there are no serious obstacles for the entire winter navigation of the St. Lawrence River. In all northern countries, when the average winter temperature is below the freezing point, the water becomes frozen, and attempts to continue navigation are made with great difficulty. As population increases, and demands for cheaper and more effective communication grow, the question will arise as to the feasibility of operating the waterways and harbors in Canada during the winter. This matter has been found to be of no very serious moment, except in one or two instances. Winter navigation has been maintained for many years between Prince Edward Island and the New Brunswick mainland and similar communication has been carried on with Newfoundland, but when the volume of trade grows there can be no question as to the needs of cheaper methods of transit as afforded by water. In Russia winter navigation has been found to prove feasible and many ports require icebreakers in summer to reach northern

Vessels Registered in Canada During October, 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
103690	Luckport (1)	Midland, Ont.	Midland, Ont. 1898	126.0	21.6	12.0	231	134	57	Se. Midland Transportation Co., Midland, Ont.
141484	Vaudreuil (2)	Montreal	Cleveland, Ohio 1889 Lauzon, Que. 1919	278.0	40.0	20.3	2514	1436	136	Se. C. A. Barnard, Montreal, Que.

(1) Formerly, Magnolia, a recovered wreck. (2) Formerly, Frontenac.

SAILING.

No.	Name	Port of Registry	Rig	Where and when built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Owner or Managing Owner.
141383	Audrey P. Brown	LaHave, N.S.	Schr.	Liverpool, N.S. 1919	123.4	28.9	10.8	252	218	C. H. Ritey, M.O., La Have, N.S.
141151	C.P.R. No.6	Victoria, B.C.	Barge	Nelson, B.C. 1919	225.5	42.0	8.0	652	652	C.P.R. Co., Montreal.
141228	Charlotte Comeau	Weymouth, N.S.	Schr.	Little Brook, N.S. 1919	172.0	37.4	13.4	779	728	I. M. Comeau Shipping Co., Little Brook, N.S.
141448	Dollar VIII	Vancouver, B.C.	Scow	Dollarton, B.C. 1919	107.0	36.0	8.4	235	235	Canadian Robert Dollar Co., Vancouver, B.C.
141447	E. C. E. S.	"	"	Vancouver, B.C. 1899	97.3	28.5	6.8	161	161	Evans, Coleman & Evans, Ltd., Vancouver, B.C.
141485	F. L. Heidritter	Montreal	Barge	Whitehall, N.Y. 1901	96.5	17.8	7.3	123	108	Richelieu Transportation Co., Montreal.
141409	Freda M. Himmelman	Lunenburg, N.S.	Schr.	Lunenburg, N.S. 1919	125.4	26.9	10.6	174	114	A. Himmelman, M.O., Lunenburg.
141095	Holmes A. Frank	Chatham, N.B.	"	Nordin, N.B. 1919	174.0	38.5	13.0	690	637	J. Robinson, Millerton, N.B.
141449	J. C. No. 14	Vancouver, B.C.	Scow	New Westminster, B.C. 1911	84.0	28.1	7.0	139	139	J. McL. Macmillan, Vancouver, B.C.
141450	K. 50	"	"	" 1919	87.9	33.7	8.9	227	227	S. S. McKeen, Vancouver, B.C.
141410	Marjorie Hennigar	Lunenburg, N.S.	Schr.	Chester Basin, N.S. 1919	116.1	27.0	10.6	161	108	C. H. Ritey, Riverport, N.S.
141411	Mary H. Hirtle	"	"	Lunenburg, N.S. 1919	124.2	26.8	10.6	169	111	J. Hirtle, M.O., Lunenburg, N.S.
141227	Nettie C.	Weymouth, N.S.	"	Saulnierville, N.S. 1919	150.0	33.3	13.1	495	449	Acadia Shipping Co., Meteghan River, N.S.
138438	Peaceland	Annapolis Royal, N.S.	"	Annapolis Royal, N.S. 1919	114.0	30.0	10.6	287	262	Annapolis Shipping Co., Annapolis Royal, N.S.
141230	Rose Anne Belliveau	Weymouth, N.S.	"	Belliveau's Cove, N.S. 1919	130.5	30.8	10.5	311	282	B. Belliveau, Belliveau's Cove, N.S.
141517	Seaman, A. O.	Parrsboro, N.S.	"	Cape d'Or, N.S. 1919	152.0	34.5	12.7	470	435	S. M. Field, Cape d'Or, N.S.
141516	Whiteson	"	Bkn	Alma, N.B. 1919	175.0	37.6	18.1	812	762	C. T. White & Son, Sussex, N.B.

Siberia. Winter navigation has been maintained for many years on the Great Lakes, and at some points on Lake Ontario, icebreaking ferries are operated through 3 or 4 ft. of solid ice for a distance of 50 or 60 miles.

The whole cost of making the St. Lawrence River navigable in winter as far as Quebec, including the construction of two icebreakers, the dredging of the channel to a minimum of 40 ft. and pro-

per equipment of lights and buoys, has been estimated at \$10,000,000, in round figures. The advantages to be derived by keeping the port of Quebec open the year round are so great that the cost of equipment to meet these conditions appears insignificant.

The foregoing paper was read before the American Association of Port Authorities at its annual meeting in Galveston, Texas, recently.

Wreck Commissioner's Enquiries and Judgments.

Stranding of s.s. Germanicus

Held at Montreal, Nov. 21, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and Commander C. J. Stuart, R.N.R., into the cause of the stranding of the s.s. Germanicus on the northwest reef of Bicquette Island in the River St. Lawrence, Nov. 7, while bound to Montreal from Rotterdam. The s.s. Germanicus was formerly a German steamship and is being operated by Ropener & Co., on behalf of the British Ministry of Shipping.

The court found that the master's evidence showed a marked indifference as to the manner in which the vessel was navigated. At Cape Magdalen the vessel had apparently deviated from her course, and the evidence showed that either the courses by compass were faulty, or were badly steered, or other agencies were at work which were not explained. There were no unusual currents and, though strong winds were experienced, it was said that they did not tend to take the ship from her course. At the time of the stranding, the mate was in charge, it being alleged that the master was intoxicated, and that it was impossible to arouse him. The vessel struck while going at half speed and immediately the order full speed astern, was given, and at that time the master appeared on the bridge. Subsequent effort to release the vessel proved unavailing and further attempts will be made if possible, in the spring.

With regard to the pilot boat, the court expressed the opinion that there was nothing in the weather conditions to prevent her being, if not at the pilotage grounds, at least at her station, which is Father Point and not Bic. It may happen in rough weather that the pilot boat would be forced to take refuge at Bic Island, but the moment the weather moderated her place would be Father Point, and the court was assured that at the time of the stranding, the pilot boat was west of the reef on which the vessel stranded and in a position not justified by the weather existing.

The court found that the master, Capt. John Olive, was incapable of administering or exercising the vigilance and care for property with which he was entrusted, through having indulged freely in intoxicating liquors. It cancelled his certificate as master, but recommended that a mate's certificate be granted to him. On account of the extenuating circumstances, the court exercised leniency towards the mate, Thomas Pinkney, and did not deal with his certificate, but severely reprimanded him for not taking into account the state of the tides. The second officer was exonerated from all blame and his certificate returned to him. With regard to the pilot boat being away from her station, the court expressed the opinion that it is a matter which should

be investigated by the Marine Department, and recommended that that course be adopted at the earliest moment possible.

Stranding of s.s. Rio Negro.

Held at Quebec, Que., Dec. 3, 1919, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and Commander C. J. Stuart, R.N.R., into the stranding of the s.s. Rio Negro near Point des Monts, on the north shore of the Gulf of St. Lawrence, Nov. 17. The master's evidence, which was given in a very straightforward manner, indicated that the ship's courses and distances had been made good up to Martin River, and a safe distance was allowed off the land in order to reach Father Point. On leaving the bridge, he left written instructions in the night order book, as well as verbal instructions, that he should be called when Cape Chat was visible, or the distance run. When the distance had been run, the second officer did not carry out the instructions to call the master, and the ship proceeded on the course. He was succeeded by the first officer, who stated that the weather was clear, though his log book shows that a heavy snow storm had come on. Seeing what he considered to be the Matane light ahead of him, he immediately put the ship full speed astern and hard aport, and called the master. The first officer then ordered half speed ahead, and then full speed, with the intention of leaving the light, thought to be the Matane light, astern of him, and getting an offing. This speed was maintained for about four minutes after the master came on deck, and then full speed astern was ordered, when land became visible, the ship striking at that time.

The court was of opinion that the cause of the casualty was the disobeying of instructions by the second officer, as to calling the master, and he was declared in default for not carrying out implicitly the instructions he had received. The first officer erred in judgment, by being led astray as to the light he saw being the Matane light, and considered that he should have made sure of the nature of the light before acting on his assumption, or to have taken soundings and stopped the ship until his position was verified. He was, therefore, found in default for lack of judgment. The court considered that there was nothing in the master's conduct to give rise to criticism, but, on the contrary, the fact that he released the ship from her precarious position, with such slight damage under the circumstances, is much to his credit. The certificate of the second officer, David Davies, was suspended for three months, and the first officer, Alfred Hodder, had his master's certificate suspended for two months, dating from Dec. 3, 1919. The master and third officer were exonerated from all blame.

Repair of German Ships Interned in South America.

The Montreal Gazette's London, Eng., correspondent sent the following copyrighted cable dispatch, Dec. 4:—The award of the contract to repair enemy ships interned in South American waters to a German instead of a Canadian firm, has been explained in the House of Commons at the instance of Percy Hurd, M. P. Col. Leslie Wilson, Parliamentary Secretary to the Minister of Shipping, under took to defend the contract, but to anyone with inside knowledge of the negotiations, his statement appears very curious. He said: "The ships which could not be properly repaired on the spot, are being towed to German yards to be repaired, the expenses being met by Germany." There would not be a year's delay, as suggested would be occasioned, but on the contrary, the work should be expedited, as the majority of the ships were built in Germany, and German shipbuilders are in possession of the drawings, patterns, etc., of the damaged parts. Even if it had been possible for any British or colonial firm to have undertaken the repairs, it would have cost a large sum, which would have to be financed in cash by the British Government.

Col. Wilson appears to have been badly misinformed. Had the Canadian contract been accepted, the ships would have been accepted, the ships would have been ready six months ago, and their operation would have paid the whole cost of repairs by now. As it is, it will be another six months before they are ready. As for Germany bearing the expense of the repair, the Secretary admitted to your correspondent, provision had to be made for this under the treaty obligation. Meanwhile Canada has been deprived of the use of the ships.

Proposed Drydocks at Vancouver—In addition to the applications for subsidies for the construction of drydocks at Vancouver, made by J. Coughlan & Sons, Davidson & Cameron, and Wallace Shipyards, Ltd., details of which were given in Canadian Railway & Marine World for Nov., 1919, page 621, we are officially advised that the Raymond Concrete Pile Co. Ltd., Montreal, has applied for a subsidy in connection with its project to build a masonry graving dock of the first class at Burrard Inlet, Vancouver. The Drydock Subsidy Act provides that a drydock of the first class shall cost not more than \$5,500,000, and shall be of the following dimensions, clear length of bottom from caisson groove or hollow-quoin to head, 1,150 ft.; clear width of entrance, 125 ft.; depth of water over sill at high water ordinary spring tides, 38 ft. The subsidy to be paid for such dock is at the rate of 4½% per annum of the cost of the work, payable half yearly for not exceeding 35 years from the completion of the work.

The s.s. *Frontenac*, which, as stated in Canadian Railway and Marine World for Nov., 1919, was bought from U.S. owners by the Davie Shipbuilding and Repairing Co., Lauzon, Que., has been thoroughly overhauled at the company's yard and has been placed on the Canadian register under the name of *Vaudreuil*, in the name of C. A. Barnard, Montreal. She is screw driven, by engine of 136 n.h.p., and her dimensions are: length, 278 ft.; breadth, 40 ft.; depth, 20.3 ft.; tonnage, 2,514 gross, 1,436 registered.

General Shipbuilding Matters Throughout Canada.

Steamships for French Government— In reference to the Ottawa press report, to the effect that the French Government was prepared to order 121 steel cargo steamships, to be built in Canada, at \$170 a ton, which was referred to in Canadian Railway and Marine World for December, we are informed by the head of the Technical Department of the Merchant Marine, French High Commissioner's office, New York, that nothing is known there of such an intention, but that M. Falcoz, a representative of the Messageries Maritimes, has been in the United States for the purpose of pricing the construction of several cargo steamships for themselves.

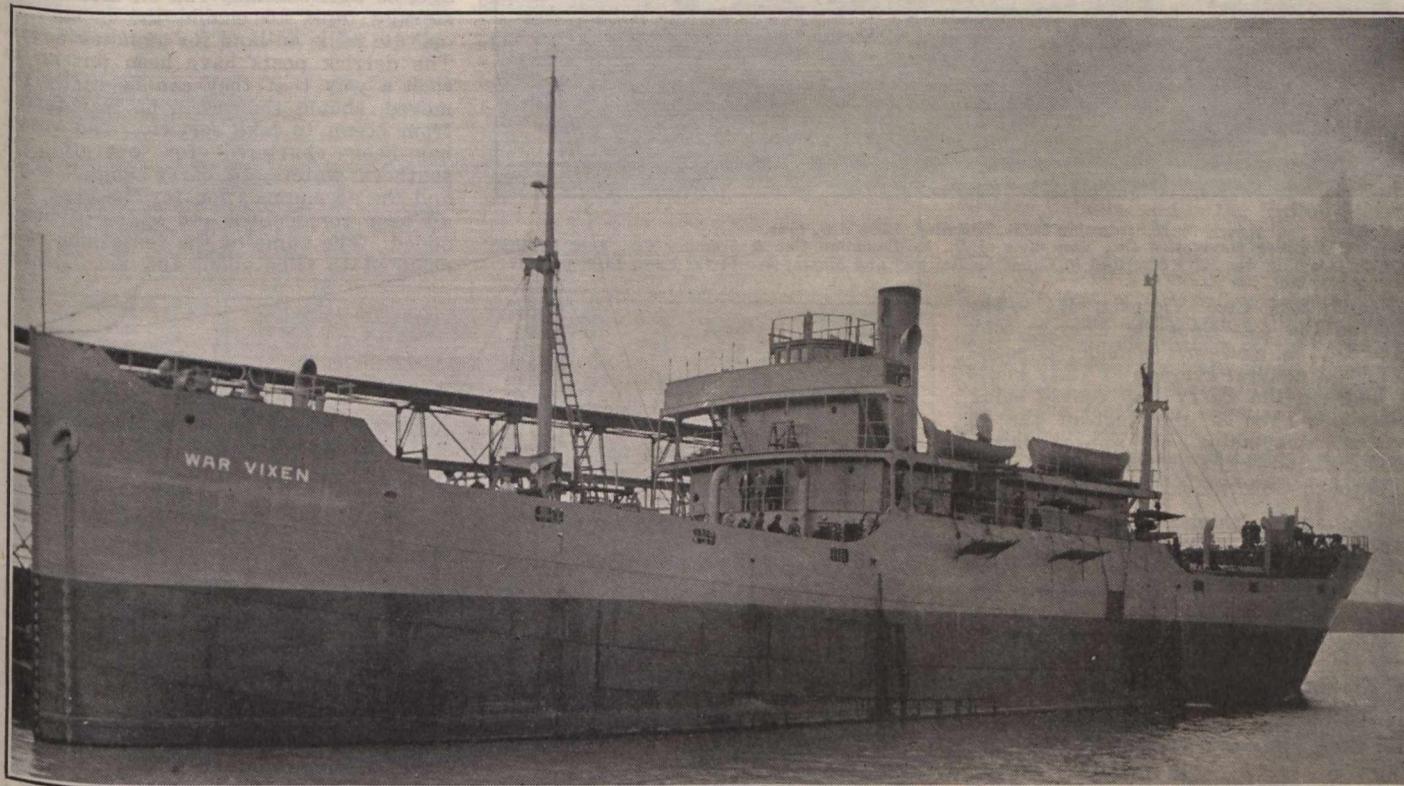
Virtually all of the vessels contracted for in the U.S. are completed, although a few remain to be finished. A question that is still pending between the U.S. and French Governments is said to be preventing a large number of contracts for tank steamships being given to U.S. shipyards.

Omar Blinn, Grosses Coques, N.B., launched a barquentine of 692 net tons for C. E. K. Warren, Halifax, N.S., early in December. She is equipped with gasoline engines for hoisting, and full electric light installation.

Canadian Vickers Ltd., Montreal—In addition to the 4 steel steamships which this company is building for Canadian

Dominion Shipbuilding Co., Toronto— Of the 8 steel steamships delivered during 1919, by this company, as mentioned in our last issue, the first was sold to the Marine Trading Co., New York; 4 have been sold to the Aalesund Steamship Co., of Norway, and the other 3 are being operated by Christoffer Hannevig Inc., New York.

The company launched the steamship T. L. Church, Dec. 20, the christening ceremony being performed by Mrs. L. H. Clarke, wife of the Lieut.-Governor of Ontario. The ship has been designed for ocean service and was built on yard account. Her dimensions are: length, 261 ft.; breadth, moulded, 43½ ft.; depth,



Steamship War Vixen, 3,500 d.w. tons, for British Government.

The s.s. War Vixen, and sister ship, War Magic, were both built by Canadian Allis-Chalmers Ltd., Bridgeburg, Ont., for the British Government, under orders from the Imperial Munitions Board, and went into service in Nov., 1918. Canadian Allis-Chalmers Ltd., are building two precisely similar ships for private account.

A New York press dispatch of Dec. 20 said:—An executive officer of French High Commission states that France has definitely decided not to build ships in United States or Canadian yards. It is stated that the decline in the exchange rates is responsible for the decision. Should the rate of exchange become much more favorable, it is possible that the French Government will change its attitude. Until recently it was anticipated that France would order about 150,000 tons of ships from American yards. An unverified report was current this week to the effect that a French syndicate had placed a contract in U.S. yards for the construction of 11 tank steamers; 9 of large dimensions and 2 of small register. Enquiry at the French High Commission revealed that the tankers had not been ordered by the government, and an executive stated that he knew nothing of private interests having placed this contract. In Canadian yards, the French Government has had a number of oil barges of about 1,500 d.w. tons register built, but these have been completed and are now on their way to French ports.

Government Merchant Marine, Ltd., for delivery during 1920, it has orders for 2 steel steamships, each of approximately 8,350 d.w. tons, for Norwegian interests.

Collingwood Shipbuilding Co., Collingwood, Ont.—The Northern Navigation Co., s.s. Hamonic will be docked by this company during the winter, for wheel repairs.

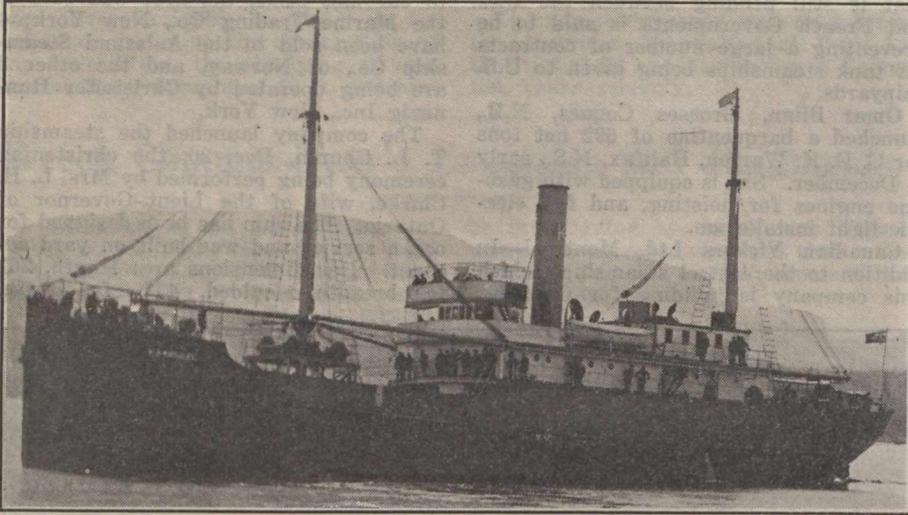
J. Coughlan & Sons, Vancouver, B.C.— The trial trip of the s.s. War Chariot, the last of the ships built by this firm for the British Government, under orders from the Imperial Munitions Board, made her trial trips in November, completed her cargo at Burrard Inlet and sailed for Great Britain at the end of November. This firm has built 10 steamships of 8,800 d.w. tons each, for the British Government, viz.: War Camp, War Charger, War Chariot, War Chief, War Noble, War Cavalry, War Convoy, War Column, War Company, and one other which was christened Alaska, and was on the stocks at the time the Imperial Munitions Board placed its original order, and was taken over by it on behalf of the British Government.

moulded, 23 ft.; deadweight carrying capacity, 3,350 tons. She is equipped with triple expansion engines of approximately 1,200 h.p.

Grant & Horne, St. John, N.B., launched the 4-masted schooner Cutty Sark, Dec. 8.

Halifax Shipyards Ltd., Halifax, N.S.—The s.s. Troja, which was built by the Dominion Shipbuilding Co., Toronto, and which stranded on the Old Proprietor Ledge, early in 1919, and became almost a total loss, has been practically rebuilt by Halifax Shipyards Ltd. After docking and examination, it was found that all the bottom plating to the bilge strake, floors, intercostals, and 85% of the double bottom, with 11 tank top plates in the fore hold and a large number of frames and hold supports, had to be renewed. The interior fittings were destroyed by fire, while the vessel was on the ledge, and considerable damage was done to the steel plating in connection with the officers' quarters. The engines and boilers had to be completely overhauled and all missing parts replaced. The contract was awarded the Halifax

company, after competition with several large U.S. yards, Aug. 29, 1919. The accompanying illustrations show the Troja undergoing repairs in Halifax drydock, and afloat after the repairs had been completed.



Steamship E. D. Kingsley, 1,500 d.w. tons.

Built for Kingsley Navigation Co., Vancouver, B.C., by Canadian Car & Foundry Co., Fort William, Ont. This ship was fully described in Canadian Railway and Marine World for Nov., 1919, pg. 617.

Foundation Co., Victoria, B.C.—The trial of the s.s. Nouvelle Ecosse, took place Dec. 3, and was considered satisfactory, a general average of 12.42 knots an hour on the Parry Bay course being obtained. This is the last of the 20 wooden steamships of approximately 3,000 d.w. tons built by this company for the French Government.

Wm. Lyall Shipbuilding Co., North Vancouver, B.C. This yard, at which a number of wooden steamship hulls were built for the British Government, under orders from the Imperial Munitions Board, and also for the French Government, and which was closed on the completion of its contracts, will, it is reported locally, be reopened for resumption of business in the near future. The plant was offered for sale recently.

W. N. MacDonald, Sydney, N.S., is building a concrete motor ship, Permanencia, which was launched at Sydney, N.S., Dec. She was built under Lloyd's special survey for classification at the highest rating. She is 128 ft. long over all, 27½ ft. beam, and with a depth of 12½ ft. There are two hatches, each 12 by 14 ft., with the deck house and bridge placed amidships, between the hatches. The vessel will have deadweight carrying capacity of from 450 to 500 tons, and sleeping accommodation for 10 passengers, in addition to the crew. She will be equipped with a Bolinder crude oil engine of 240 b.h.p., for a speed of from 9 to 10 knots an hour when loaded, supplied by the Swedish Steel and Importing Co. Ltd., Montreal. When completed she will be operated between Cape Breton, Prince Edward Island, and Newfoundland ports.

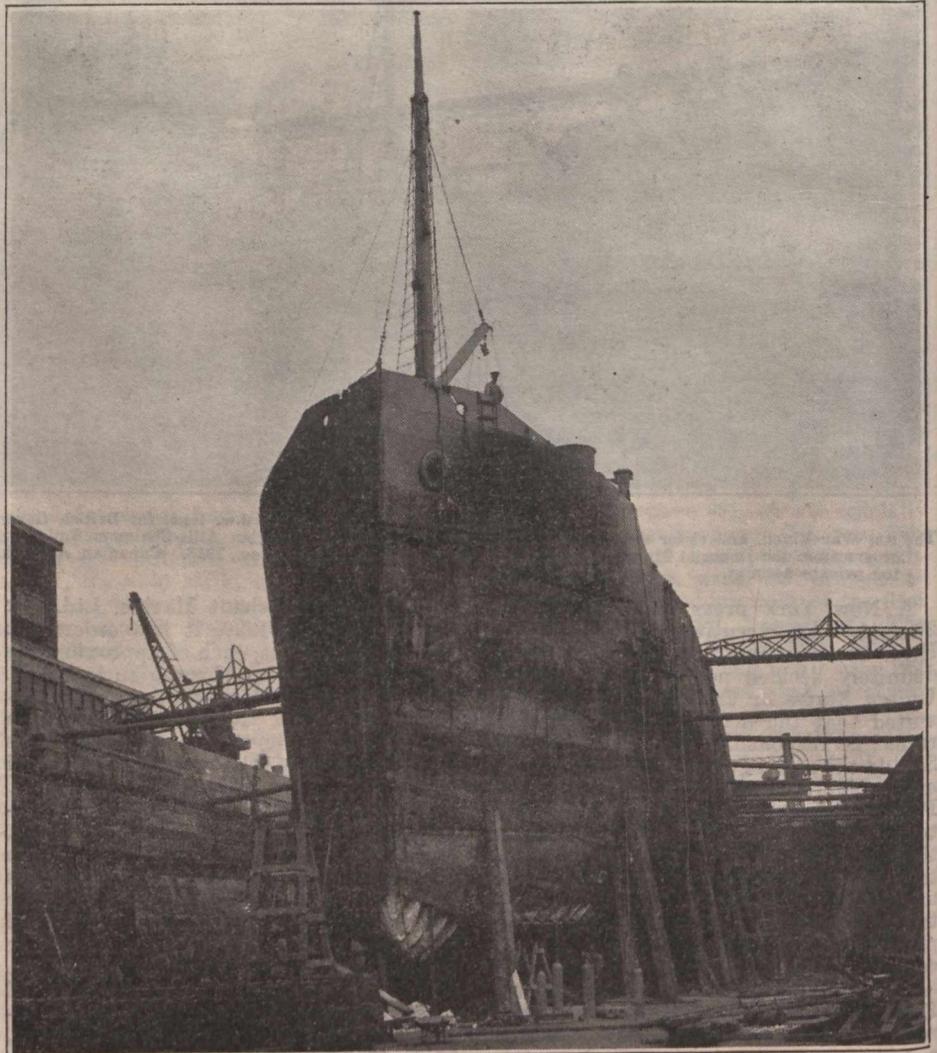
McKay and McLean, Economy, N.S., launched the tern schooner Hiram D. McLean, 450 tons register, at midnight, Dec. 6. She is fitted with all the latest improvements, including gasoline power for hoisting the sails and anchor, and is classed in Bureau Veritas for 12 years. She subsequently went to Walton to load plaster for New York. She was named after Hiram D. McLean, one of the partners, who died recently, and it is stated

that, on account of his death, the yard will be closed.

Midland Shipbuilding Co., Ltd., Midland, Ont., is building a full canal size steel steamship under its yard no. 9, of approximately 2,500 d.w. tons, for the

installation and all modern appliances. The boilers will be 11½ ft. diam. by 11 ft. long, for a working pressure of 180 lb., but the engines will probably be transferred from another vessel.

The s.s. F. P. Jones, which, as stated in our last issue, was purchased recently from the United States Shipping Board by the Great Lakes Transportation Co., has been thoroughly overhauled by the Midland Shipbuilding Co., and a complete derrick arrangement, with 8 deck winches, has been installed. All steam pipes have been placed on deck, as for a regular ocean type vessel, and the boilers have been equipped for burning fuel oil, instead of coal as heretofore. Arrangements have also been made so that enough oil for various voyages can be carried in no. 3 tank, and also for storage, so that she may run oil into a land storage tank, to enable the owners to operate mills on land for grinding sugar. The derrick posts have been put on in such a way that they can be easily removed, should the vessel be transferred from ocean to lake service. The vessel has been chartered for operation in southern waters, to carry sugar cane, and the accommodation for the crew has all been remodelled, and spare lifeboats added. The name of the vessel has been changed to Glencaden, and not Glencia-



Steamship Troja, undergoing repairs in Halifax Shipyards Ltd., drydock at Halifax, N.S.

Great Lakes Transportation Co. It is being built so that it can operate on either the lakes or the ocean, which ever it may be called upon to do. It will be equipped with complete electric lighting

dam, as stated in our last issue.

New Westminster Engineering & Construction Co., New Westminster, B.C.—It is reported that the shipbuilding yard at Poplar Island, New Westminster, B.C.,

operated recently by this company for building wooden steamship hulls, for the British Government, under orders from the Imperial Munitions Board, has been sold, and that it will be remodelled and equipped to build steel steamships under the management of Haley and Christian.

The Port Arthur Shipbuilding Co., Port Arthur, Ont., in addition to building the steel cargo steamships for the Marine Department, which are referred to under "Canadian Government Merchant Marine Ltd.," on another page, completed early in 1919, four trawlers for the Naval Service Department, which were commenced late in the autumn of 1918. The company, during 1919, repaired over 30 ships, over 20 of which had to be docked. Although in 1918 the company turned out six 3,400 d.w. ton steel cargo steamships and 6 trawlers, and a tug, 13 ships in all, as against 8 in 1919, a lot of the

to build a number of wooden sailing vessels, provided some government assistance was given. The proposal was made by J. O. Cameron, President of the company, that it would build 2 such vessels, and that H. C. Hansen would build 2, and he is reported to have stated that plans were in course of preparation, and that it was expected orders would be received to proceed within a few weeks. D. O. Cameron, of the same company, is reported to have stated that the matter was merely a proposal laid before the minister, with the object of trying to get some government assistance for the revival of wooden shipbuilding, and that it would be impossible to build vessels without such assistance.

Wallace Shipyards Ltd., North Vancouver, B.C., laid the keel recently for a steel steamship for the Union Steamship Co. of British Columbia, and it was

Projected Harbor Improvements at Vancouver, B.C.

In connection with the recommendations placed before the Vancouver Harbor Commission, for a number of improvements in the harbor, as outlined in our last issue, we are officially advised that the Vancouver Harbor Commissioners have submitted to the Marine Department, a proposal to purchase the necessary site and to build thereon a modern pier 1,200 ft. long, with double deck sheds and the latest loading and unloading devices. Among other matters submitted for approval, are, the operation of a car ferry service between Vancouver and North Vancouver, and a proposal for terminal railway construction.

A Montreal press dispatch of Dec. 11, stated that the Vancouver Harbor Commissioners and the Dominion Government had approved of the general scheme of harbor development for Vancouver as prepared by A. D. Swan, M. Inst. C.E., Montreal, and that the commissioners, after an extended tour of harbors in eastern Canada, and in the United States, had authorized Mr. Swan to prepare plans and specifications, so that tenders may be asked as early as possible, for the first unit, which will consist of deep water accommodation, by the provision of 4 modern steamship berths with 2-story reinforced concrete sheds, equipped with mechanical devices for handling cargo, the estimated cost of the work being about \$5,000,000.

The Marine Department at Ottawa, advised Canadian Railway and Marine World, Dec. 18, that up to that date none of the harbor commissioners' proposals, as outlined above, had been approved.

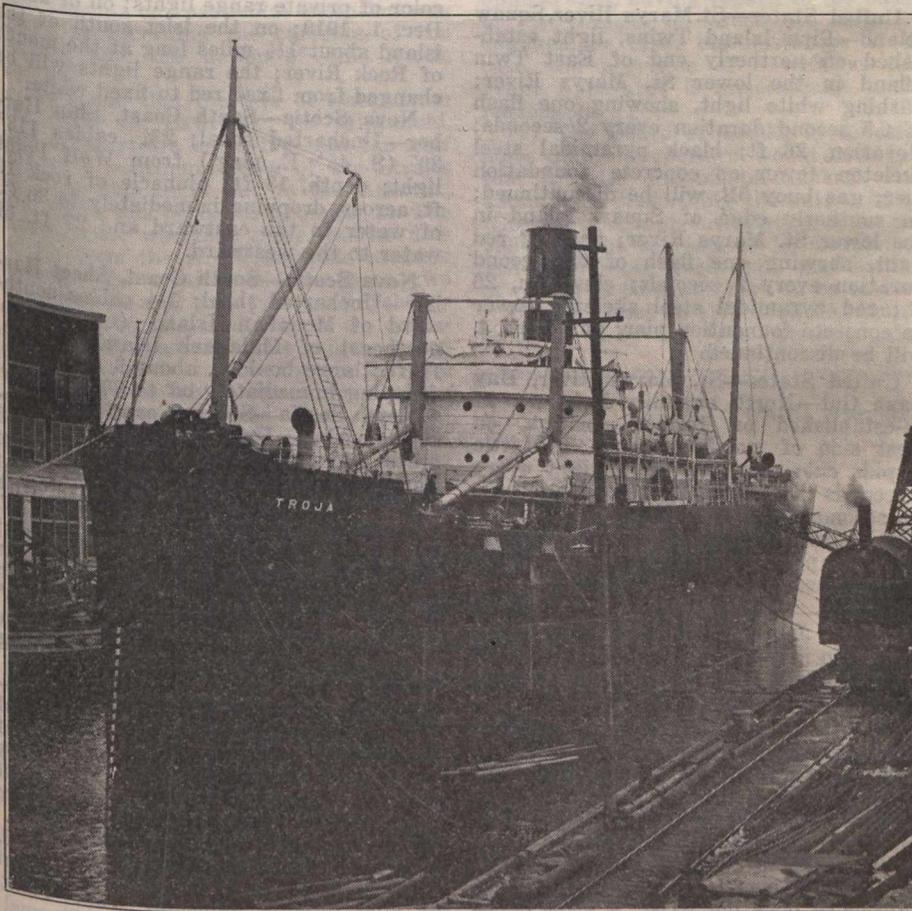
A Novelty in Ship Repair—The British Government has completed, at its Chatham dockyards, the joining together of the bow of the destroyer Zulu and the stern of the destroyer Nubian, thus making a new vessel out of the wrecks of two. Both vessels were damaged by mines, during the war. The new vessel has been named Zubian.

The Convoy Steamship Co. Ltd., has been incorporated at Halifax, N.S., to own and operate the s.s. War Convoy, one of the steel steamships of 8,800 d.w. tons, built by J. Coughlan & Sons, Vancouver, B.C., for the British Government, under orders from the Imperial Munitions Board. The name of the vessel has been changed to Willdomino.

The Canadian National Rys. Train Ferry Steamship Scotia running between Mulgrave and Point Tupper, N.S., ran aground Dec. 5 at 5 a.m. while transferring the night express passenger train for Sydney across the Strait of Canso. The ferry was released on the following day without damage and the service was resumed.

Tide Tables for Eastern Coast, including the St. Lawrence River and Gulf, Bay of Fundy, Northumberland and Cabot Straits, have been prepared by the Tidal and Current Survey, Naval Service Department, under the superintendence of W. Bell Dawson.

The St. Lawrence Navigation Season of 1919 was officially closed Dec. 10, so far as ocean shipping was concerned, with the departure of the Elder Dempster and Co.'s s.s. Bassa. The Canadian Government Merchant Marine Ltd., s.s. Canadian Planter, just completed by Canadian Vickers Ltd., left for Quebec, to take on cargo, Dec. 12.



Steamship Troja, after having been repaired by Halifax Shipyards Ltd.

1918 work was done under war rush conditions and entailed a lot of overtime work. During 1919 the plant was steadily busy and the increased amount of repair work done over 1918 was large, so that the number of employes throughout 1919 was within about 200 of the number employed in 1918.

Prince Rupert Dry Dock and Engineering Co., Prince Rupert, B.C.—The Grand Trunk Pacific Coast Steamship Co.'s steamships, Prince Rupert, Prince George, Prince Albert and Prince John, will, each in turn, be overhauled at this yard, during the winter. The s.s. Prince Rupert was withdrawn from service, for that purpose, towards the end of December.

Victoria, B.C.—When the Minister of Finance was in British Columbia recently, a plan was outlined by the Cameron Lumber Co., by which it would undertake

announced that the builders hoped to launch the ship by the end of January. All the material, including the engines, is on the ground, and no delays are anticipated. The steamship will be 173 ft. long, and approximately 800 d.w. tons.

Vancouver Steamship Co. Ltd., has been incorporated under the British Columbia Companies Act with \$2,000,000 authorized capital and office at Vancouver, B.C., to own and operate steam and sailing ships, and to carry on a general navigation and transportation business.

The British Government is reported to have allotted the German steamship Kronprinz Friedrich Wilhelm, one of the vessels taken over from the enemy, to Canadian Pacific Ocean Services Ltd., to replace the s.s. Melita, which has been requisitioned to return troops from Great Britain to India.

Canadian Notices to Mariners.

Ontario—Light to be established on southern extremity of Pointe aux Pins, about 2.5 miles east of Rondeau harbor. Occulting white acetylene light shown from a lens lantern on a pole. The light is unwatched.

Ontario—St. Marys River, Pointe aux Pins, main light, on outer end of low sand point, the 6th order dioptric apparatus will be replaced by a 4th order dioptric apparatus. The light will be fixed white as at present.

Ontario—Lake Superior, Port Arthur Harbor—During the past season the slip at the Thunder Bay elevator wharf, 1,200 ft. long by 150 ft. wide, was dredged by the Public Works Department to 21 ft. below the zero of the harbor gauge.

United States—St. Marys River, Vidal Shoals—Gas buoy established, on north side of channel; occulting red light every 10 seconds, thus: light 5 seconds, eclipse 5 seconds; steel cylindrical; red; depth, 25 ft.

British Columbia—Vancouver Island, West Coast, Quatsino Sound—J. H. Bingham of the tugboat Canpack reports the existence of a rock, with 1 ft. of water on it, in the channel south of Limestone Island, between Single Island and Foul Islets, where the charts shows 20 fathoms.

British Columbia—Chatham Sound, Malacca Passage—Light established, on southwest side of Genn Island; occulting white acetylene light, automatically occulted at short intervals; elevation, 30 ft.; visibility, 7 miles from all points of approach; steel cylindrical tank, surmounted by pyramidal steel frame supporting lantern; color, white; the light is unwatched.

British Columbia—Chatham Sound, Entrance to Prince Rupert Harbor—Light established on northwest side of East Kinahan Island; occulting white acetylene light, automatically occulted at short intervals; elevation, 30 ft.; visibility, 7 miles from all points of approach; white steel cylindrical tank surmounted by a pyramidal steel frame supporting lantern; the light is unwatched.

Ontario—Lake St. Clair, Thames River—During the summer of 1919, the Public Works Department dredged a channel 2,500 ft. long by 25 ft. wide with a least depth of 5 ft, from about 1½ miles above the mouth of the Thames River through the marsh, on a bearing of 134° 30' (S. 43° E. mag.) to Jeannettes Creek station.

Ontario—Lake Superior, Port Arthur Harbor, Dredging—Additional dredging

has been performed by the Public Works Department in the approach to the Richardson and Saskatchewan Co-operative elevators and in the Richardson slip, as follows; the middle ground immediately in front of the elevators has been dredged to 25 ft. deep to within 200 ft. from the front face of the wharves; on the south side of the entrance basin a strip 120 ft. wide and 800 ft. long was dredged to 25 ft. deep from the 25 ft. contour shoreward; on the north side of the entrance basin a strip 120 ft. wide and 850 ft. long was dredged to 25 ft. deep from the 25 ft. contour shoreward; the Richardson slip was completed to a length of 1,300 ft. and a width of 150 ft. to 25 ft. deep for the outer 600 ft. and 22 ft. deep for the inside 700 ft.

United States—St. Marys River, Squaw Island—Pipe Island Twins, light established on northerly end of East Twin Island in the lower St. Marys River; flashing white light, showing one flash of 0.5 second duration every 2 seconds; elevation, 26 ft.; black pyramidal steel skeleton tower on concrete foundation pier; gas buoy 5B, will be discontinued; on southerly edge of Squaw Island in the lower St. Marys River; flashing red light, showing one flash of 0.5 second duration every 2 seconds; elevation, 26 ft.; red pyramidal steel skeleton tower on concrete foundation pier; gas buoy, 4, will be discontinued.

United States—St. Marys River, Hay Lake Cut—North entrance light no. 27 re-established on former position, on west side of north entrance to Little Rapids cut; occulting white light every 5 seconds thus; light, 2.5 seconds; eclipse, 2.5 seconds; elevation, 35 ft.; black pyramidal steel skeleton tower on concrete pier; temporary fixed red light will be discontinued.

Ontario—Georgian Bay, Parry Sound approach, Jones Island back range light, change in illuminant—The fixed white oil light has been replaced by an unwatched fixed white acetylene gas light.

Ontario—Lake Superior, Whitefish Bay, Corbeil Point, non-existence of shoal—During a recent examination of the vicinity of Corbeil Point, by the Hydrographic Survey, Naval Service Department, it was found that the shoal reported about 2.16 miles 287° 30' (N. 69° 30' W. mag.) from Corbeil Point lighthouse does not exist, a least depth of 14 fathoms having been found on this spot.

Nova Scotia—West Coast, Yarmouth harbor corner beacon temporarily dis-

continued—Position, ½ mile southwestward of the long wharf, Yarmouth; during dredging operations in Yarmouth harbor the corner beacon will be discontinued.

Prince Edward Island—South Coast, Bedeque Bay, Dunk River, Hurds Point pier, dredging—A channel 2,130 ft. long and 60 ft. wide with a least depth of 9 ft. has been dredged by the Public Works Department from deep water to Hurds Point pier, about 2½ miles south of Summerside, on the Dunk River; from a point 600 ft. north of the pier head the dredged channel gradually widens to 130 ft. in front of the pier, where there is a turning basin 130 ft. square.

Quebec—Gulf of St. Lawrence, Mouth of Rock River, Shelter Bay—Change in color of private range lights; on or about Dec. 1, 1919; on the islet south of the island about 1½ miles long at the mouth of Rock River; the range lights will be changed from fixed red to fixed white.

Nova Scotia—South Coast, Ship Harbor—Uncharted shoal; 2¼ cables 113° 30' (S. 45° E. mag.) from Wolf Point light; depth, 13 ft; pinnacle of rock 10 ft. across, dropping immediately to 36 ft. of water to the eastward and 27 ft. of water to the westward.

Nova Scotia—South Coast, Sheet Harbor—Uncharted shoal; 1½ cables southward of Monahan Island (marked L. northeast of Malagash Island); depth, 11 ft.; large boulder, about 9 ft. square, dropping immediately off to 30 ft. water.

Nova Scotia—South Coast, Mary-Joseph harbor—Uncharted shoals; 11-3 miles 91° (S. 67° 30' E. mag.) from Thrumcap lighthouse; depth, 17 ft.; boulders over rock, 10 yds. across, with a depth of 5 fathoms; 3 cables 271° (N. 67° 30' W. mag.) from Lang shoals; depth, 9 ft.; large stones covered with kelp over solid rock, 50 yds. across with a depth of 3½ fathoms; 1¼ miles 68° 30' (E. mag.) from Gull Ledge; depth, 5 fathoms; pinnacle of rock, 8 fathoms of water 30 ft. off.

British Columbia—Vancouver Island—The car ferry slip on the south side of the Canadian Western Fuel Co.'s wharf in Nanaimo harbor has been dredged by the Public Works Department to a least depth of 17 ft. and a width of 60 ft. from the shore end of the slip to deep water.

British Columbia—Grenville Channel, Camp Point—Light established on point of land directly opposite Yolk Point, southern entrance to Grenville Channel; white acetylene light, automatically occulted at short intervals; elevation, 22 ft.; visibility, 10 miles from all points of approach; structure, concrete base, surmounted by a staff carrying a wooden structure, concrete base, surmounted by a staff carrying a wooden slatwork ball, with lantern on top; color, white; the light is unwatched.

Job Shipyard Corporation, controlled by Job Bros. and Co., St. John's, Nfld., has opened a yard at Machias, Me., to build sailing and auxiliary powered vessels between 100 and 2,000 tons.

The Canada Atlantic Transit Co.'s directors for the current year, as elected at the recent annual meeting, are as follows: H. G. Kelley, President; W. D. Robb, Vice President; Frank Scott, Secretary and Treasurer; W. H. Biggar, K.C., and J. E. Dalrymple. They are all G.T.R. officials.

Vessels Added to and Deducted From the Canadian Register During October, 1919.

Added.	No.	Steam.		Sailing.	
		Gross.	Registered.	No.	Tonnage—Gross. Registered
Built in Canada.....	2	193	118	24	6,440 5,922
Purchased from foreigners.....	1	2,514	1,436	.....	.....
Transferred from British possessions.....	1	.....	.....	.....	.....
New registers	1	281	184	1	87 79
Totals	4	2,938	1,688	25	6,527 6,001
Deducted.					
Wrecked or otherwise lost.....	1	149	75	5	956 881
Broken up or unfit for use.....	2	41	28	2	26 26
Sold to foreigners	1	41	28	2	26 26
Transferred to United Kingdom.....	.....	.....	.....	.....	.....
Transferred to British possessions.....	.....	.....	.....	3	670 566
New registers .....	.....	.....	.....	4	121 114
Tonnage alterations, without re-registry.....	.....	.....	.....	.....	.....
Totals	4	257	149	17	3,088 2,762

The Proposal to Close the Straits of Belle Isle.

F. W. Hyndman, Charlottetown, P.E.I., has written the local press as follows:— I am satisfied that no sane man having a person knowledge of the conditions existing in the Gulf of St. Lawrence and Straits of Belle Isle would for one moment give favorable support to the proposal to close the Straits of Belle Isle, and thereby to cause a great change in climatic conditions in the Maritime Provinces.

Some years ago, when I was an assistant in the hydrographic survey of the Gulf of St. Lawrence and Newfoundland, working under the British Hydrographic Department, I spent two summers in the Straits of Belle Isle surveying those straits and the adjacent coasts of Labrador and Newfoundland. During those two seasons our particular attention was given to recording the currents of the straits and the action of this Arctic current.

We found that the flow of water from the River St. Lawrence, the Miramichi, and other rivers emptying into the gulf caused a continuous flow of the Straits of Belle Isle to be out to the Atlantic, and there was no current coming in. The consequence was that there was no flow of ice from the Arctic currents inwards through the straits, and in those two summers we only saw two small icebergs enter the straits, and they were driven by a heavy easterly gale which lasted three or four days. The fact is that the Arctic current which comes down along the Labrador coast, and east coast of Newfoundland is so wide, deep, and swift that it pays no attention to the Straits of Belle Isle; besides the constant outflow of water from the gulf to the Atlantic prevents it having any effect.

To close the Straits of Belle Isle, would, in my opinion, have a disastrous effect upon the climate and inhabitants of the gulf coasts and Prince Edward Island. The ice of the northern part of the gulf is now carried out with the outgoing current of the straits, which, if closed, would remain in the gulf until late in the summer, and have an exceedingly bad influence upon the farming portions of those coasts. The Gulf stream which passes eastbound some 120 miles south of Nova Scotia and Newfoundland would not be affected in the slightest degree by the closing of the Straits of Belle Isle.

I sincerely trust that before the Canadian Government take any steps, such as have been recommended, it will consult the British Hydrographic Office in London, where I am satisfied my contentions will be fully upheld.

Tugs for Fisheries Protection Service—The Naval Service Department, Ottawa, will receive tenders to Jan. 23, for the construction of 3 first class, single screw tugs, of approximately the following leading dimensions, viz.: length between perpendiculars, 75 ft.; breadth, moulded, 17½ ft.; depth, moulded, 9 ft.; mean draft, loaded, 7½ ft.; deadweight on that draft, approximately 30 tons; speed on measured mile, 10 knots; complement, officers and men, 6; to be delivered at Port Stanley or Kingsville, Ont., for use on Lake Erie. Contractors must submit with their tenders, an outline of the general arrangement plan and midship section, and detail specifications of hull and machinery.

Wireless Telegraphy Requirements for British Ships.

An act to make further provision with respect to wireless telegraphy on ships (chap. 38), was passed by the British Parliament, Aug. 18, as follows:—

1.—(1) Every seagoing British ship registered in the United Kingdom being a passenger steamer or a ship of 1,600 tons gross tonnage or upwards shall be provided with a wireless telegraph installation, and shall maintain a wireless telegraph service which shall be at least sufficient to comply with the rules made for the purpose under this act, and shall be provided with one or more certified operators and watchers, at least, in accordance with these rules: Provided that the Board of Trade may exempt from the obligations imposed by this act any ships or classes of ships if they are of opinion that, having regard to the nature of the voyages on which the ships are engaged, or other circumstances of the case, the provision of a wireless telegraph apparatus is unnecessary or unreasonable.

(2) The Board of Trade, in consultation with the Postmaster-General, shall make rules prescribing the nature of the wireless telegraph installation to be provided, of the services to be maintained, and the number, grade, and qualifications of operators and watchers to be carried: Provided that no ship shall be required to carry more than one operator unless

required under the provisions of the Merchant Shipping (Convention) Act, 1914.

(3) If this section is not complied with in the case of any ship, the master or owner of the ship shall be liable in respect of each offence to a fine not exceeding £500, and any such offence may be prosecuted summarily, but, if the offence is prosecuted summarily, the fine shall not exceed £100.

(4) A surveyor of ships or a wireless telegraph inspector may inspect any ship for the purpose of seeing that she is properly provided with a wireless telegraph installation and certified operators and watchers in conformity with this act, and for the purpose of that inspection shall have all the powers of a Board of Trade inspector under the Merchant Shipping Acts, 1894 to 1916. If the said surveyor or inspector finds that the ship is not so provided, he shall give to the master or owner notice in writing pointing out the deficiency, and also pointing out what in his opinion is requisite to remedy the same. Every notice so given shall be communicated in the manner directed by the Board of Trade to the chief officer of customs of any port at which the ship may seek to obtain a clearance or transire, and the ship shall be detained until a certificate under the hand of any such surveyor or inspector is produced to the effect that the ship is pro-

Sault Ste. Marie Canals Traffic.

Summary for 1919.

Articles	Eastbound	M. ft. B.M.	Canadian Canal	U.S. Canal	Total
Lumber	11,089	233,337		244,426
Flour	3,197,770	4,889,784		8,087,554
Wheat	25,299,090	88,435,758		113,734,848
Grain, other than wheat	23,400,905	29,333,440		52,734,345
Copper	10,801	47,608		58,409
Pig Iron	1,897,688	44,887,789		46,785,477
Iron Ore	899	2,958		3,857
Stone	26,057	25,955		52,012
General Merchandise	20,763	43,274		64,037
Passengers	20,003	8,390		28,393
Coal, soft	275,323	11,186,639		11,461,962
Coal, hard	7,900	2,405,089		2,412,989
Iron Ore	67,985		113,856
Manufactured Iron and Steel	45,871	67,985		113,856
Salt	14,651	79,242		93,893
Oil	2,600	384,423		387,023
Stone	663	318,495		319,158
General Merchandise	232,022	246,119		478,141
Passengers	21,153	7,446		28,599
Summary					
Vessel Passages	Number	4,070	13,517	17,587
Registered Tonnage	Net	6,485,099	43,603,991	50,089,090
Freight—Eastbound	Short tons	3,558,929	49,272,276	52,831,205
Westbound	Short tons	579,030	14,825,307	15,404,337
Total Freight	Short tons	4,137,959	64,097,583	68,235,542

The Canadian canal was opened Apr. 12 and closed Dec. 15, 1919; season, 248 days.
The U.S. canal was opened Apr. 10 and closed Dec. 15, 1919; season, 250 days.

COMPARATIVE STATISTICS FOR 1918 AND 1919.

Items	1918	1919
Vessels: Steamers	Number 17,067	14,866
Sailing	Number 1,634	1,218
Unregistered	Number 1,909	1,503
Total	Number 20,610	17,587
Lockages	Number 14,903	12,302
Tonnage: Registered	Net 61,100,244	50,089,090
Freight	Short tons 85,680,327	68,235,542
Passengers	Number 34,990	56,992
Lumber	M. ft. B.M. 296,919	244,426
Flour	Barrels 82,28,844	8,087,554
Wheat	Bushels 122,718,146	113,734,848
Grain	Bushels 30,800,621	52,734,345
Copper	Short tons 86,078	58,409
Iron Ore	Short tons 60,551,296	46,922,792
Manufactured and Pig Iron	Short tons 38,767	117,713
Coal: Soft	Short tons 15,770,560	11,461,962
Hard	Short tons 2,211,050	2,412,989
Salt	Short tons 81,007	93,893
Oil	Short tons 334,134	387,023
Stone	Short tons 402,009	371,170
General Merchandise	Short tons 494,437	542,178

perly provided with wireless telegraph installation and certified operators and watchers in conformity with this act.

(5) The obligations imposed by this act shall not come into operation while the obligations with respect to wireless telegraphy on ships imposed by the Defence of the Realm Regulations remain in force, but shall be in addition to, and not in substitution for, the obligations as to wireless telegraphy imposed by the Wireless Telegraphy Act, 1904, or any order in council, or regulations made thereunder, or by the Merchant Shipping (Convention) Act, 1914.

2. The foregoing provisions of this act shall, as from a date three months after the coming into operation of the obligations imposed by this act on British ships registered in the United Kingdom, ap-

ply to ships other than British ships registered in the United Kingdom, while they are within any port in the United Kingdom in like manner as they apply to British ships so registered.

3.—(1) This act may be cited as the Merchant Shipping (Wireless Telegraphy) Act, 1919, and the Merchant Shipping Acts, 1894 to 1916, and this act may be cited together as the Merchant Shipping Acts, 1894 to 1919.

(2) This act shall be construed as one with the Merchant Shipping Act, 1894, and "passenger steamer" shall mean a steamer which carries more than 12 passengers, and "wireless telegraphy inspector" means an officer appointed under sec. 20 of the Merchant Shipping (Convention) Act, 1914, for the purpose therein mentioned.

Re-organization of British Columbia Pilotage Authorities.

The pilotage districts and pilotage commissions of Vancouver, Nanaimo and Victoria-Esquamalt, have been abolished and the Pilotage District of British Columbia has been established in charge of Commander B. L. Johnston, D.S.O., as Superintendent, British Columbia Pilotage Authority. The Pilotage District of New Westminster has not been changed, and is still in charge of a commission.

Order in Council—The following order no. 1,876, was passed at Ottawa Sept. 10, 1919:—The Deputy Governor General in council, on the recommendation of the acting Minister of Marine, and under the provisions of the Canada Shipping Act, chap. 113, Revised Statutes of Canada, 1906, sec. 416, is pleased to order as follows:

The orders in council of Feb. 6, 1904; April 15, 1879, and Feb. 20, 1880; fixing the limits of the pilotage districts of Vancouver, Nanaimo, and Victoria-Esquamalt, are hereby cancelled.

A pilotage district, to be called Pilotage District of British Columbia, is hereby established, with limits from the International Boundary, between Canada and the United States on the south, to the International Boundary between Alaska and Canada on the north, excepting thereout and therefrom the waters of the Pilotage District of New Westminster, as established by order in council of Feb. 6, 1904.

The Deputy Governor General in council, under the provisions of sec. 430 of the said act, is hereby further pleased to order that the payment of pilotage dues in the said Pilotage District of British Columbia shall be compulsory.

The Deputy Governor General in council, under the provisions of sec. 432 of the said act, as amended by the Statutes of 1919, chap. 41, hereby appoints the Minister of Marine, the pilotage authority for the said Pilotage District of British Columbia.

The above provisions shall become and be effective on and after Jan. 1, 1920.

Notice to Mariners—The Marine Department issued the following notice, Dec. 2, 1919:—Pilotage stations at Vancouver and Nanaimo will be discontinued as from midnight, Dec. 31, 1919. A pilot may join a ship before it reaches British Columbia waters, on request, and by the ship paying in addition to the regular pilotage dues, the pilot's transportation and living expenses.

PILOTAGE DUES shall be the same for vessels propelled by sails, steam or in tow, other than scows.

To or from Quarantine, Royal Roads or Brothie Ledge, into Victoria, or vice versa—50c a ft. draft, and ½c a ton net registered tonnage to a maximum of 3,000 tons net registered tonnage. Esquamalt and the inner harbor of Victoria shall be deemed to be part of the port of Victoria.

To or from Quarantine, Royal Roads or Brothie Ledge, into any ports or ports (other than Victoria and ports on the Fraser River, including New Westminster) as far as Union Bay or Comox, or vice versa—\$2 a ft. draft, and 1c a ton net registered tonnage.

On entering or leaving any port in the Pilotage District of British Columbia shall be \$2 a ft. draft, and 1c a ton net registered tonnage, but vessels calling at more than one port on the same voyage shall pay only \$1 a ft. draft and 1c a ton net registered tonnage on entering the second or subsequent ports, provided such port is not Victoria. Chemainus and Boat Harbor shall be deemed to be part of the port of Ladysmith.

In case of ships registered elsewhere than in Canada, engaged exclusively in the coastal trade between any port or ports in British Columbia and any Pacific port in the U.S., including Alaska, the following pilotage charges shall be paid:—

Victoria:—½c a ton net registered tonnage, if over 1,000 tons, to a maximum of 2,000 tons net registered tonnage; movages free, if pilots are not used.

In all other ports—½c a ton net registered tonnage, if not exceeding 1,000 tons net registered tonnage; 1½c a ton net registered tonnage, if over 1,000 tons net registered tonnage; 1½c a ton net

registered tonnage, on every scow; movages shall be paid both in and out of each and any port.

MOVAGES—(a) In the port of Vancouver: (1) in Burrard Inlet, between first and second narrows, \$10 a move; (2) in Burrard Inlet from any place below second narrows to any place above second narrows or vice versa; \$15 a move; (4) from False Creek to any place in Burrard Inlet above second narrows, or vice versa, \$30 a move.

(b) In the port of Ladysmith \$15 a move.

(c) In all other ports not already specified, \$10 a move.

The charges for the services of a pilot shall be \$10 while compasses are being adjusted, \$15 for trial trips, and \$20 for trial trips if compasses are being adjusted at the same time.

While a pilot is on board, a special rate of \$30 a day or fraction of a day, shall be payable, in addition to any other pilotage dues, on any vessel proceeding to ports north of Comox to the Alaska boundary, or to ports on the west coast of Vancouver Island or Queen Charlotte Islands.

For determining the pilotage dues payable under the preceding sections, it shall be understood that they are to be calculated on the draft, or on the net registered tonnage, of the vessel, or on both, as provided; any portion of a foot not exceeding 6 ins. shall be paid for as half a foot and any portion of a foot exceeding 6 ins. shall be paid for as 1 ft.

Appointment of Superintendent—The Dominion Civil Service Commission, in August, 1919, invited applications as follows:—A Superintendent for the British Columbia Pilotage Authority, with headquarters at Victoria, B.C., Marine Department, at an initial salary of \$3,060 a year. Candidates must hold a master mariner's certificate, and must have been actually in charge of a seagoing or coasting passenger ship for at least one year. They must be thoroughly familiar with the work of the masters, seamen, and pilotage branch, and must have administrative ability. Preference will be given to residents of British Columbia.

We are officially advised that Commander B. L. Johnston, D.S.O., has been appointed to the position. He was at one time captain of the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, and was a pilot at Vancouver, for a number of years, except from Aug. 14 to June, 1919, when he was on war service.

C. W. Morse, President, United States Steamship Co., suggests a federal ship loan act to provide capital to enable the U. S. merchant marine to maintain the advantage given it by the war and to keep the U. S. flag on the seas as a powerful competitor for a fair share of the world's trade.

Grain Shipped From Port Arthur and Fort William, Ont.

The following table shows the bushels of each kind of grain shipped from Fort William and Port Arthur, Ont., in Can-

adian and U.S. ships to Canadian and U.S. ports, from Sept. 1 to Dec. 12, 1919:

	Canadian ships			U.S. ships			Total		
	Canadian ships	U.S. ships	Total	Canadian ports	U.S. ports	Total	Same period 1918		
Wheat	52,257,608-30	645,275-20	52,902,883-50	51,585,497-20	1,317,386-30	52,902,883-50	50,571,281-30		
Oats	7,706,052-21	1,439,123-14	9,145,176-01	7,041,010-03	2,104,165-32	9,145,176-01	373,202-31		
Barley	3,273,702-13	403,285-52	3,676,987-45	3,273,702-13	403,285-32	3,676,987-45	546,140-45		
Flax	223,158-42	96,011-48	319,170-34	122,760-50	196,409-40	319,170-34	106,474-54		
Rye	500,327-30	.....	500,327-30	500,327-30	.....	500,327-30	.....	
Mixed	4,011,661-00	.....	4,011,661-00	4,011,661-00	.....	4,011,661-00	.....	
Screenings	8,957-00	13,197-00	22,154-00	.....	22,154-00	22,154-00	8,152-18	

Canadian Merchant Shipping Losses During the War.

The following particulars have been compiled from a return "Merchant Shipping Losses," prepared by the British Admiralty, and presented to the British House of Commons recently. They show the names and tonnages of Canadian registered merchant ships which were destroyed or captured by the enemy during the war, together with the approximate places of capture, the means of destruction, when destroyed, and the number of lives lost. Where the name of the ship is followed by the letter "(s)," it was a sailing ship:

1914

Dec. 2.—Drummuir (s), 1,800 gross tons, owned by Ship Drummuir Co., Victoria, B.C., captured and sunk by bombs by the s.s. Leipzig, near Cape Horn.

1915

May 26.—S.s. Morwenna, 1,414 gross tons, owned by Ardeola Steamship Co., Liverpool, Eng., and chartered to Dominion Coal Co., Sydney, N.S., captured and sunk by torpedo by a submarine near Fastnet; one life lost.

July 1.—L. C. Tower (s), 518 gross tons, captured by submarine and set on fire near Fastnet.

Aug. 13.—Royal Edward, 11,117 gross tons, owned by Cunard Steamship Co., and owned formerly by Canadian Northern Steamships Ltd., torpedoed and sunk without warning by submarine near Kandeliusa; 132 lives lost.

Aug. 4.—S.s. Midland Queen, 1,993 gross tons, owned by Midland Navigation Co., Midland, Ont., captured and sunk by submarine gun fire near Fastnet.

Sept. 28.—S.s. H. C. Henry, 4,219 gross tons, owned by Steamer H. C. Henry, Vancouver, B.C., captured and sunk by submarine gun fire near Cape Matapan, Mediterranean Sea.

1916

Feb. 27.—S.s. Empress of Fort William, 2,181 gross tons, owned by Canada Steamship Lines, sunk by mine near Dover.

Mar. 27.—S.s. Empress of Midland, 2,224 gross tons, owned by Canada Steamship Lines, sunk by mine near Kentish Knock.

May 13.—S.s. Eretria, 63,464 gross tons, owned by Steamship Eretria Co. Ltd. (Battle Line), St. John, N.B., sunk by mine near Ile d'Yeu.

Dec. 2.—S.s. Palatine, 3,268 gross tons, captured by submarine and sunk by bombs near Ushant.

Dec. 6.—Duchess of Cornwall (s), 152 gross tons, owned by R. Moulton Ltd., St. John's, Nfld., captured by s.s. Mowe, and crew made prisoners; fate of vessel unknown.

Dec. 24.—Harry W. Adams (s), 127 gross tons, owned by H. W. Adams, Lunenburg, N.S., captured and sunk by submarine gun fire near Cape Villana.

Dec. 30.—Jean (s), 215 gross tons, owned by T. DesBrisay, Bathurst, N.B., captured and converted into a raiding vessel by s.s. Mowe, near St. Paul Rocks; fate of vessel unknown.

1917

Jan. 19.—Lillian H. (s), 467 gross tons, owned by Lillian H. Ship Co., Fox River, N.S., captured by submarine and sunk by bombs near Old Head of Kinsale.

Jan. 28.—Perce (s), 364 gross tons, owned by Robin Jones & Whitman Ltd., Halifax, N.S., captured by s.s. Seadler and sunk by gun fire near St. Paul Rocks.

Jan. 31.—S.s. Dundee, 2,278 gross tons, owned by Canada Steamship Lines, sunk by submarine torpedo, without warning, near St. Ives Head; one life lost.

Feb. 16.—Mayola (s), 146 gross tons, owned by T. DesBrisay, Bathurst, N.B., captured by submarine and sunk by bomb near Cape St. Vincent.

Feb. 26.—British Yeoman, 1,953 gross tons, owned by Ship British Yeoman Ltd., Victoria, B.C., captured by s.s. Seadler near St. Paul Rocks.

Mar. 10.—James Burton Cook (s), 133 gross tons, captured by submarine and sunk by gun fire near Malaga.

Mar. 11.—Kwasind, formerly Turret Belle, 2,211 gross tons, owned by the Arctic Steamship Co., Quebec, Que. sunk by mine near Southwold.

Apr. 13.—S.s. Strathcona, 1,881 gross tons, owned by Canada Steamship Lines Ltd., captured by submarine and sunk by bomb near Ronaldshay, nine lives lost and master, chief and third engineers made prisoners.

Apr. 16.—Victoria (s), 165 gross tons, captured by submarine and sunk by bombs near Beachy Head.

Apr. 19.—Thomas (s), 132 gross tons, captured by submarine and sunk by bombs near Cape St. Vincent.

Apr. 22.—S.s. Neepawah, 1,799 gross tons, owned by Canada Steamship Lines, captured by submarine and sunk by bombs near Bishop Rock.

Apr. 25.—Invermay (s), 1,471 gross tons, captured by submarine and sunk by bombs near Eagle Island.

May 1.—S.s. C. A. Jaques, 2,105 gross tons, owned by Canada Steamship Lines, sunk by submarine torpedo, without warning, near Boulogne; three lives lost.

May 14.—Carnmoney (s), 1,299 gross tons, captured by submarine and sunk by bombs near Fastnet.

May 16.—Dorothy Duff (s), 186 gross tons, captured by submarine and sunk by bomb near Cape Culena.

May 24.—McClure (s), 220 gross tons, captured by submarine and sunk by bombs near Cape Carbonara.

June 10.—S.s. Scottish Hero, 2,205 gross tons, owned by Hero Steamship Co., Halifax, N.S., sunk by submarine gun fire, one life lost.

July 21.—Willena Gertrude (s), 317 gross tons, captured by submarine and sunk by bombs near Azores.

Sept. 29.—Percy B. (s), 330 gross tons, sunk by submarine gun fire near Cape Villana.

Nov. 5.—Hilda R. (s), 100 gross tons, captured by submarine and sunk by bombs near Cape St. Mary.

Dec. 11.—S.s. D. A. Gordon, 2,301 gross tons, owned by Canada Steamship Lines sunk by submarine torpedo, without warning, near Cape de la Huertas, one life lost.

1918

Jan. 10.—W. C. McKay (s), 145 gross tons, attacked by submarine off the Azores; fate unknown; 6 lives lost.

Mar. 15.—S.s. Armonia, 5,226 gross tons, owned by Canada Steamship Lines, sunk by torpedo, without warning, near Porquerolles Island, 7 lives lost.

May 16.—S.s. Tagona, 2,004 gross tons, owned by Canada Steamship Lines, sunk by torpedo, without warning, near Trevoze Head, 8 lives lost.

May 24.—Ruth Hickman (s), 417 gross tons, captured by submarine and sunk by bombs near Azores.

Aug. 2.—Motor ship Dornfontein, 766

gross tons, captured by submarine and burnt near Brier Island, N.S.

Aug. 5.—S.s. Freshfield, 3,445 gross tons, owned by R. L. Smith, Montreal, sunk by torpedo, without warning, near Cape Colonne, Italy, 3 lives lost.

Aug. 5.—Luz Blanca, 4,868 gross tons, owned by Imperial Oil Ltd., sunk by torpedo, without warning, near Halifax, N. S., 2 lives lost.

Sept. 16.—S.s. Acadian, 2,305 gross tons, owned by Canada Steamship Lines Ltd., sunk by torpedo without warning near Trevoze Head, 25 lives lost.

Oct. 4.—Industrial (s), captured by submarine and sunk by bombs near Nantucket Island, N.Y.

The above particulars show a total of 43 vessels, of 74,323 gross tons, and 199 lives lost. The list does not include a number of Canadian vessels, and vessels engaged almost solely in the Canadian trade, the majority of which were on the British register, and which were destroyed by the enemy.

In addition to the foregoing, the following fishing boats were captured by the enemy during a sporadic raid on the Canadian Atlantic coast in Aug., 1918. All were sailing boats, except the Triumph, which was captured and converted into a raider. The following were captured and destroyed by bombs:—C. M. Walters, 107 gross tons; E. B. Walters, 107 gross tons; E. B. Walters, 98 tons; Elsie Porter, 136 tons; Gloaming, 100 tons; Lucille M. Schnare, 121 tons; Nelson A, 72 tons; Pasadena, 91 tons; Potentate, 136 tons; Uda A. Saunders, 125 tons; Verna D. Adams, 132 tons. The following were captured but not sunk:—Clayton W. Walters, 80 tons; Marion Adams, 99 tons. The s.s. Triumph, 239 gross tons, was, as mentioned, captured and converted into a raider.

These figures show a total of 13 boats and 1,536 gross tons; no lives were lost.

United States Shipbuilding and Shipping Notes.

Chairman Payne estimates that marine and shipyard strikes during 1919 cost the U. S. Shipping Board \$37,000,000.

The U. S. Shipping Board's chairman is reported to have stated Dec. 12, that its construction division had delivered 5,818,500 d.w. tons of ships up to Dec. 1 and that this would be increased to 6,000,000 tons by Dec. 31, 1919.

The U. S. National Marine League states that the U. S. merchant marine has expanded from 4 ships in deep seas commerce before the war, to a fleet of 9,733,000 tons in ocean service. The league also states that in addition U. S. Great Lakes shipping measures 2,000,000 tons, giving a total of 11,773,000 tons against Great Britain's 18,000,000 tons.

The U. S. Shipping Board has announced that, in order to coordinate its labor policy and bring about a more consistent method of dealing with labor problems, all questions of labor policy affecting the construction, repair, operation, loading and unloading of ships and marine equipment, will hereafter be handled, subject to the board's direction, through the Division of Industrial Relations of the Shipping Board at Washington, D.C. Darragh de Lancey, heretofore Director of Marine and Dock Industrial Relations Division, has been appointed Director of Division of Industrial Relations.

Winter Moorings of Canadian Steamships.

Following is a list of Canadian steamships, and the ports at which they have been berthed for the winter, of which Canadian Railway and Marine World has been advised.

Algoma Central Steamships Line, Sault Ste. Marie, Ont.—Steamships Agawa, Goderich, Ont.; J. Frater Taylor, Port McNicoll, Ont.; Home Smith, Valcartier, Midland, Ont.; W. C. Franz, Collingwood, Ont.

Canada Atlantic Transit Co., Montreal—Steamships Arthur Orr, Buffalo, N.Y.; Kearsarge, Chicago, Ill.

Canada Steamship Lines Ltd.—Freight s.s. Toiler, Montreal; T. P. Phelan, Seguin and Brookdale, Kingston, Ont.; Fairfax, Wyoming, Omaha, Nipigon, City of Hamilton, City of Ottawa, Belleville, and Home Rule, Toronto; Bickerdike, Hamilton, Ont.; J. H. G. Hagarty, E. B. Osler, W. D. Matthews, Midland King and Martian, Goderich, Ont.; Maplegrove, Port Dalhousie, Ont.; B. L. Pennington, Rickarton, J. R. Binning, and Isabel Reed, Port Colborne, Ont.; W. Grant Morden, Midland Prince and Collingwood, Port McNicoll, Ont.; Stadacona, Port Huron, Mich.; Emperor, Haddington and Cadillac, Fort William, Ont.; Sarnian and Sir Trevor Dawson, Buffalo, N.Y.

Passenger Steamships — Longueuil, Louis Phillippe, Montreal, Murray Bay, Pierrepont, Quebec, Rapids King, Rapids Prince, Rapids Queen, Rochester, Saguenay, Syracuse, Ste. Irene, Tadousac, Three Rivers, Sorel, Que.; America, Brockville, Ramona, St. Lawrence, Varuna, Kingston, Ont.; Cayuga, Chippewa, Corona, Kingston, Macassa, Modjeska, Toronto, White Star, Toronto, Ont.

Canadian Pacific Car and Passenger Transfer Co., Prescott, Ont.—S.s. Charles Lyon, Prescott, Ont.

Canadian Pacific Ry., British Columbia Lake and River Service—Steamships, Kokanee and Ymir, Nelson, B.C.; Bonnington, Kootenay, and tug Columbia, Nakusp, B.C.; s.s. Okanagan, and tugs Castlegar and York, Okanagan Landing, B.C.

Canadian Pacific Ry., Great Lakes Service—Steamships, Alberta, Assiniboia, Athabasca, Keewatin and Manitoba, Port McNicoll, Ont.

Canadian Towing and Wrecking Co., Port Arthur, Ont.—S.s. Vinmount, Collingwood, Ont.; steam tugs, A. B. Conmee, A. F. Bowman and James Whalen, Sarnia, Ont.; derrick barge Empire, and barge Coteau, Port Arthur, Ont.

Crystal Stream Steamship Co., St. John, N.B.—Steamships D. J. Purdy and Majestic, Indiantown, N.B., for general repairs.

Davidson and Smith Elevator Co., Port Arthur, Ont.—S.s. Robert L. Fryer, Port Arthur, Ont.

Donnelly Salvage and Wrecking Co., Kingston, Ont.—Steamships Cornwall, Frontenac, Harriet D., and William Johnston, Kingston, Ont.

George Hall Coal Co. of Canada—Montreal—Steamships, Fred Mercur, John Rugee, Senator Derbyshire; barges, A.D., Katie and Zapotec; steam tug, Margaret A. Hackett, Montreal; steam tug, J. H. Hackett, Quebec; steamships, Compton, James W. Follette, John B. Ketchum, Robert R. Rhodes, and Rockferry; barges, Cuba, F. D. Ewen, Gladys; steam tug, Florence, Ogdensburg, N.Y.

Gulf of St. Lawrence Shipping and

Trading Co., Quebec, Que.—S.s. Guide, Louise Basin, Quebec; s.s. Labrador, Murray Bay, Que.; s.s. Lady Evelyn, Pictou, N.S.

Hudson's Bay Co., Winnipeg—S.s. Fort York, Port Nelson, Man.; s.s. Inenew and motor ship Fort Churchill, Moose Factory, Man.; motor ship Nannuk, Lake Harbor; s.s. Mackenzie River, Fort Smith, Alta.; motor ship Fort McMurray, near McMurray, Alta.; s.s. Athabasca River, Peace River Crossing, Alta.; s.s. Peace River, Fort Vermilion, Alta.; s.s. Port Simpson and motor ship Taltahn, Port Simpson, B.C.; motor ship Fort McPherson, Herschel Island.

Huntsville, Lake of Bays and Lake Simcoe Navigation Co., Huntsville, Ont.—Steamships, Algonquin, Phoenix and Ramona, Huntsville, Ont.; Iroquois, Minota, Mohawk Belle, Portage, Ont.

Imperial Oil Ltd., Toronto—Steamships, Iocolite, Iocoma and Imperial and barge 41, Sarnia, Ont.

Lake Erie Navigation Co., Walkerville, Ont.—S.s. Marquette and Bessemer No. 1, Conneaut Harbor, Ohio.

Marquette and Bessemer Dockand Navigation Co., Walkerville, Ont.—S.s. Marquette and Bessemer No. 2, Conneaut Harbor, Ohio.

Newcastle Steamboat Co., Newcastle, N.B.—S.s. Max Aitken, Chatham, N.B.

Niagara, St. Catharines and Toronto Navigation Co., St. Catharines, Ont.—Steamships Dalhousie City, and Garden City, Port Dalhousie, Ont.

North Bay and French River Navigation Co., North Bay, Ont.—S.s. Northern Belle, North Bay, Ont.

Northern Navigation Co., Sarnia, Ont.—Steamships, Huronic, Noronic, Thousand Islander and Waubic, Sarnia, Ont.; Hamonic, Collingwood, Ont., for wheel repairs.

Ontario Car Ferry Co., Montreal—S.s. Ontario No. 2, Cobourg, Ont. The car ferry steamship Ontario No. 1 operates throughout the winter.

Ottawa Transportation Co., Ottawa, Ont.—Steamships, Dolphin, Florence, Hall, Harris, Ottawa, Scotsman and Sir Hector, Hull, Que.

Pembroke Transportation Co., Pembroke, Ont.—S.s. Oiseau, Pembroke, Ont.

Prescott and Ogdensburg Ferry Co., Prescott, Ont.—Steamships, Ferdinand and Miss Vandenburg, Prescott, Ont.

J. F. Sowards, Kingston, Ont.—Steamships, H. N. Jex, Jeska and Shanly, Kingston, Ont.

Sparrow Lake Steamer Line, Sparrow Lake, Ont.—S.s. Glympse, Port Stanton, Ont.

Toronto, Hamilton and Buffalo Navigation Co., Hamilton, Ont.—S.s. Maitland No. 1, Ashtabula, Ohio.

Webster Steamship Co., Montreal—Steamships, Colin W., Eric W. and Richard W., Montreal; Howard W., Marian W., and Stuart W., Quebec, Que.

U. S. Vessels Passed Through the Welland Canal—During 1919, 234 steamships built at U.S. shipyards on the Great Lakes, as well as 46 steam tugs, passed through the Welland Canal on their way to the sea. Of these, 10 took on cargo at Montreal for the United Kingdom, 10 took cargo for Mediterranean ports, and the balance took coastwise cargoes. In their passage from the Great Lakes to Montreal, 70,000 tons of coal were taken down.

Steamship Inspectors for Quebec and Vancouver.

The Civil Service Commission at Ottawa gave notice early in December that applications would be received for the appointments of two steamship inspectors, one for the port of Vancouver and the other for the port of Quebec, to act in the dual capacity of inspector of boilers and machinery and of hulls and equipment, at an initial salary of \$2,700 a year, which will be increased on recommendation for efficient service at the rate of \$180 a year until a maximum of \$3,240 has been reached. Candidates must have education equivalent to graduation in engineering from a technical school of recognized standing; at least 12 years of experience in the design, construction, maintenance or operation of ships, marine engines and boilers; thorough knowledge of the theory and the practice of marine engineering and ship construction; ability to make clear and concise reports on inspections and to make working drawings, specifications, and estimates for proposed work; tact and good judgment.

The successful candidate will be required to perform the following duties: To inspect the boilers and machinery and hulls and equipment of steamships during construction, and, as required by law, to determine whether they are sufficient for the service intended and in good condition; to examine plans of ships and their equipment, marine machinery and boilers, submitted for the purpose of determining by calculations of the strength of the various parts whether they can receive approval; to advise builders, owners, and others concerned in the matter of construction of ships and their machinery and the repairs required to keep the same in efficient condition; when satisfied as regards the sufficiency of ships, their boilers and machinery, and the law as regards certificated officers, etc., has been complied with, to issue a statutory certificate of inspection, to examine candidates for marine engineer certificates; to act as a member of a board of steamship inspection occasionally as required; to investigate and report on accidents and breakdowns happening to ships, their boilers and machinery; to supervise and report on repairs to government ships, their boilers and machinery, and to perform other related work as required. Candidates should be not more than 40 years of age.

An examination will be held in connection with the filling of this position, and candidates will be notified later of the date and place of examination. Preference will be given to residents of the provinces of British Columbia and Quebec respectively.

The Gulf of St. Lawrence Shipping and Trading Co.'s steamship services, some details of which were given in our last issue, will probably be extended considerably during this year. It is hoped to operate 7 or 8 steamships, 2 of which will be in service between Montreal, Prince Edward Island and St. John's, Nfld.; 2, or possibly 3, on the north shore of the Gulf of St. Lawrence; one on the south shore between Montreal and Passapebiac; one between Pictou, N.S., and the Magdalen Islands, and probably 2 between Pictou, N.S., Prince Edward Island and Cape Breton ports.

Atlantic and Pacific Ocean Marine.

The Leyland Line s.s. Mercian, which sailed from Boston, Mass., Dec. 5, for Manchester, Eng., put into St. John's, Nfld., Dec. 12, with a fire in one of her holds.

The Red Line s.s. Lancastrian arrived at Halifax, N.S., Dec. 18, from Antwerp, Belgium, with fire in her no. 1 hold, among chemicals. The crew had been fighting the fire for four days.

The British s.s. Manxman, which left Portland, Me., Nov. 30, is reported to have foundered in mid ocean, with a loss of 43 of her crew, the balance of 16, being picked up by the British s.s. British Isles, and taken to New York.

Canadian Pacific Ocean Services' s.s. Empress of Asia was docked at Wallace Shipyards, North Vancouver, B.C., recently, for boiler repairs and other work. The s.s. Empress of Japan has had her boilers overhauled at the same yard.

The Cunard Line s.s. Carmania, which collided with another steamship, Dec. 14, when approaching Halifax, N.S., underwent temporary repairs by Halifax Shipyards Ltd. It is said that she will be thoroughly examined and overhauled in Great Britain.

Canadian Pacific Ocean Services' s.s. Empress of Russia, was docked at the B.C. Marine Railway Co.'s yards, Vancouver, B.C., recently, for the fitting up of coolie accommodation for the transportation of coolie labor back to China, and also underwent extensive repairs.

Elder Dempster and Co.'s s.s. Bassa, which stranded on a shoal in the St. Lawrence River, near Montreal, Nov. 28, through the failure of the steering gear, was released Dec. 7, and taken to Canadian Vickers' dry dock for examination and repair. She sailed again from Montreal, Dec. 10.

The Union Steamship Co. of New Zealand, which operates a steamship service between Canada and Australasia, is reported to be adding another passenger steamship to its fleet for the Canadian service. During the war some of the company's vessels were lost and the cargo steamships Waihemu, Waikawa and Wairuna, of approximately 9,000 tons each, were bought to take their places.

The Greek s.s. Platea, which ran ashore on Sable Island, early in November, and which was believed to be a total loss, will probably be salvaged. The ocean going tug Cruiser was working on the vessel early in December, and succeeded in moving her about 100 ft. nearer to deep water. It is anticipated that provided the weather abates somewhat she may be towed into deep water and repaired sufficiently to enable her to be docked for complete examination.

Furness Withy and Co.'s s.s. Messina, which sailed from St. John, N.B., Dec. 5, for Antwerp, Belgium, was reported by wireless, Dec. 12, to have been abandoned in a sinking condition about 430 miles from Newfoundland. She was a first class cargo steamship, of about 6,000 d.w. tons, and it is presumed that she encountered heavy weather, which was prevalent in the neighborhood during December. It is reported that the crew were saved by another steamship which had been standing by.

The Canadian Transatlantic Co.'s s.s. Bilbster, which was scheduled to sail from St. John, N.B., under Canada Steamship Lines' schedule, as general

agents for the owners, Dec. 6, was requisitioned by the British Ministry of Shipping, to carry lumber to the United Kingdom. It is said that a protest was made, on the ground that so much lumber is being shipped that the docks are already badly congested. The ship was to have been utilized in shipping Canadian live stock to France, it being barred from England.

The wooden s.s. Colmar, which was built by Three Rivers Shipyards, Ltd., Three Rivers, Que., for the French Government, and which sailed from Quebec, Nov. 26, for Europe, sprang a leak about 60 miles from Halifax, N.S., Dec. 1, and after experiencing heavy weather, was abandoned by the crew, Dec. 12, and eventually sank. The crew took to the boats and set out for Halifax, in two sections, the first lot arriving there after considerable hardship, the second being rescued by the s.s. Mississippi and landed at St. John, N.B.

Maritime Provinces and Newfoundland.

The Red Cross Line's s.s. Rosalind has been practically rebuilt at New York, subsequent to running aground in Sept., 1919, while en route from Halifax to New York. In addition to the rearrangement of her interior, she has been changed to a fuel oil burner.

The three-masted schooner Barbara Macdonald, which was built by J. A. Macdonald and Co., Charlottetown, P.E.I., in October, was wrecked and became a total loss, off Cape Vine, Nfld., Dec. 16, the master, T. Whitla, being washed overboard and drowned.

The Reid Newfoundland Co.'s s.s. Ethie, running between Curling, Nfld., and Labrador, went ashore during a storm, Dec. 10. The passengers and crew, numbering 92 persons, were taken ashore by a line which was landed from the vessel by a dog.

A press dispatch from Sydney, N.S., states that preliminary work has been commenced there in connection with the proposed government harbor terminal work. Soundings are said to have been taken, but it is stated that no work of a definite nature will be undertaken until the spring.

The Valley Steamship Co.'s s.s. Granville III, which was built recently at Meteghan River, N.S., underwent her trial trips Dec. 8, where she developed 12 knots an hour over a measured mile. Her dimensions are: length, overall, 100 ft.; beam, 22.6 ft.; depth of hold, 9 ft. She is to be operated on the St. John River.

The construction of a canal through the Chignecto Isthmus, between Nova Scotia and New Brunswick, is again being agitated. For several years a short cut to the ocean at this point has been under consideration, either by means of a canal or a ship railway. An attempt to carry out the latter plan was made some years ago, but ended in failure.

The United States Shipping Board's steamships Lake Elmsdale and Lake Gatewood, were driven ashore on the Cape Breton, N.S., coast, during a snow storm, Dec. 10, the former at Cape Blue, and the latter at Port Hood Island. The Lake Elmsdale was bound for Halifax to load cargo for Santiago, Cuba. Both ships were built recently at Cleveland, Ohio.

The s.s. David C., which was built by Burns and Kelleher, Bayside, N.S., early

in 1919, has been chartered by Job Bros., of Newfoundland, and has had her name changed to Edmund Donald. She loaded cargo recently at Sydney, N.S., for Wabano, Nfld. She is in charge of Capt. A. E. Seaman, formerly of the s.s. Stella Maris, with L. S. Freeman as chief engineer.

The steam tug Alert, owned by W. N. McDonald, Sydney, N.S., was reported to be ashore near Canso, N.S., early in December, after having collided with the U.S. Shipping Board's s.s. Lake Elmsdale, in connection with the salving of which she had been working for some time. The Alert's stern was badly battered and temporary alterations were carried out on this spot.

The s.s. E. D. Kingsley, owned by the Kingsley Navigation Co., Vancouver, B.C., and built recently at Fort William, Ont., by Canadian Car and Foundry Co., ran ashore at Whitehead Harbor, Dec. 11, whilst en route from Montreal to Halifax, N.S., in ballast. She was refloated the following day, and proceeded under her own steam. She is on her way to British Columbia via Panama Canal.

The s.s. Dream, which was purchased by Capt. C. Taylor, St. John, N.B., recently, has been remodelled and a new boiler installed, with the intention of operating her on the St. John River in the suburban passenger trade next summer. She was built at Newark, N.J., in 1881, and is screw driven by engine of 12 n.h.p. Her dimensions are: length, 63.9 ft.; breadth, 14.1 ft.; depth, 5 ft.; tonnage, 45 gross, 30 registered.

A deputation from St. John, N.B., interviewed members of the Dominion Government, Dec. 7, and urged the desirability of at once proceeding with a comprehensive scheme of harbor improvements at the port. The work which the deputation dealt with, is apart from the developments and improvements now under way in Courtenay Bay. It is stated that the dock accommodation at St. John is utterly inadequate, and that ships going to the port are inordinately delayed.

The Dominion Government s.s. Arranmore ran ashore at Cape Whipple, Labrador, Dec. 3. The Dominion Government's s.s. Montcalm, which was sent to her assistance, reported by wireless that she was unable to get within 2 miles of her on account of the heavy sea. She had been abandoned by the crew and was reported to be pounding heavily. The Arranmore was carrying winter supplies for lighthouses and wireless telegraph stations along the shores of the Strait of Belle Isle.

The Louisburg Drydock & Shipbuilding Co. Ltd., the incorporation of which was announced in a recent issue, has applied to the Dominion Public Works Department for a subsidy for a second class drydock at the mouth of Garrets Brook, in Louisburg harbor, N.S., between the Dominion Coal Co.'s shipping piers and the old town. The dock is estimated to cost \$3,060,000. The dimensions proposed are: length, 650 ft.; width, 85 ft.; depth of water over sill at high water, ordinary spring tides, 30 ft.

Enemy Vessels Handed to the Allies—It was announced in the British House of Commons, Dec. 11, that up to Dec. 7, there had been delivered to the allied powers, 355 enemy ships with a gross tonnage of 1,788,913 tons, of which 203 ships of 1,200,000 tons were in British hands.

Ontario and the Great Lakes.

The Welland canal was officially closed for the winter, Dec. 14.

It having been decided that Bear Point, Lake Erie, is in Canadian, and not U.S. waters, a lightship has been placed there by the Dominion Government.

Canada Steamship Lines s.s. Chicora, which sank at her moorings at Toronto, about the end of October, was raised Dec. 6 by the J. E. Russell Wrecking Co., on behalf of the underwriters.

Canada Steamship Lines' s.s. Sir Trevor Dawson, left the head of the lakes Dec. 7, with 622,000 bush. of oats for Buffalo, N.Y. This, it is stated, is the largest cargo of oats ever shipped to Buffalo.

The Public Works Department is reported to have awarded a contract to N. B. Horton, Owen Sound, Ont., for the construction of a concrete dock there, on the east side of the C.P.R. property at the foot of 11th Street East.

Owing to the regulations requiring all persons entering the United States from Ontario to be vaccinated, it is reported that the ferry service between Sault Ste. Marie, Ont., and Sault Ste. Marie, Mich., has been suspended for the winter, and that no attempt will be made to keep the water route clear of ice.

The U.S. Lake survey reports the stages of the Great Lakes in feet above mean sea level for November as follows: Superior, 602.51; Michigan and Huron, 580.43; Erie, 572.24; Ontario, 346.11. Compared with the average November stages for the last 10 years, Superior was 0.01 ft. above; Michigan and Huron, 0.17 ft. above; Erie, 0.43 ft. above; Ontario, 0.56 ft. above.

The Midland Transportation Co. has registered the s.s. Luckport, which was formerly the s.s. Magnolia, owned by Canada Steamship Lines, Ltd., and which was wrecked some time ago. She was originally built at Midland, Ont., in 1898 and is screw driven by engine of 57 n.h.p. Her dimensions are length, 126 ft.; breadth, 21.6 ft.; depth, 12 ft.; tonnage, 231 gross, 134 registered.

The Great Lakes Transportation Co.'s s.s. Glenlyon arrived at Port Arthur, Dec. 17, with general cargo, from the east. She had a rough passage, and was well encrusted with ice, the temperature during the entire trip from Sault Ste. Marie, which took five days, having varied from 35 below zero to zero. This is said to be the latest arrival at Port Arthur from the east, in any year.

The Niagara Ferry & Transportation Co. is reported to have bought the ferry steamship, Newton, in New York, where it has been used in harbor work, for operation between Fort Erie, Ont., and Buffalo, N.Y. Her dimensions are: length, 152 ft.; beam, 52 ft. She is of the side wheel driven type, with rudder at each end and two pilot houses. The hull is of steel, with upper decks and cabins.

The Ontario and Quebec Navigation Co., one of the constituent companies of Canada Steamship Lines Ltd., was given judgment with costs and interest, at a sitting of the Supreme Court, at Belleville, recently, on a claim for \$65,000, against J. E. Rathbun, M. J. McFaul, F. Brennan, D. B. Christie, M. Palmatier, A. Leslie, M. Leslie, H. Dempsey, and the estate of the late J. F. Chapman. The amount was claimed on shares issued to them in connection with the absorption of the Quinte Navigation Co.

The U.S. steam tug Bison, which was built at Cleveland, Ohio, and passed through the Welland Canal and the St. Lawrence, sailed from Quebec, early in December for Halifax, N.S., in company with four other tugs, was reported at Halifax, Dec. 11, to have been lost in the Gulf of St. Lawrence, with her crew. She, however, arrived safely at Port Hastings, N.S., Dec. 12, having been out of touch with the remainder of the fleet and the shore, as she was not equipped with wireless telegraph.

British Columbia and Pacific Coast.

The Quadra Steamship Co.'s s.s. Quadra, had her engines and boilers overhauled by Yarrows Ltd., Victoria, recently.

The Union Steamship Co.'s steamships Chemainus and Chilliwack underwent extensive overhaul by the B.C. Marine Railway Co., Vancouver, recently.

The C.P.R. s.s. Princess Alice was docked recently at Yarrows Ltd yards, Victoria, for cleaning and painting, and general overhaul, including the drawing of the tail shaft.

The Coastwise Steamship & Barge Co., Vancouver, B.C., has bought the barge Granco, from U.S. owners, and has transferred it to the Canadian register under the name of Barracouta.

The Canadian Fish & Cold Storage Co., Prince Rupert, B.C., has bought the s.s. Louisiana from U.S. owners, and has transferred it to the Canadian register with the name of Chief Legaie.

The Grand Trunk Pacific Coast Steamship Co. was reported recently to be negotiating for the purchase of the s.s. Roosevelt, owned in Seattle, Wash. After an inspection it was found that extensive alterations would be necessary, and it is improbable that the ship will be acquired.

Canadian National Rys. car ferry steamship Canora was thoroughly overhauled by Yarrows, Ltd., Victoria, B.C., recently, and resumed her trips between Port Mann and Patricia Bay, early in December. It is reported that she is to be used for the transfer of cars to and from the Ogden Point piers, Victoria.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert was laid up at Prince Rupert, Dec. 28, for her annual overhaul, and the steamship service on the route between Seattle, Vancouver, Prince Rupert and Anyox, was reduced to a weekly one, with the s.s. Prince George. The company's Queen Charlotte Islands and Stewart service is being performed by the s.s. Prince Albert, the s.s. Prince John having been taken off the route until further notice.

Passenger Fares on Atlantic Steamships—War time rates for passengers crossing the Atlantic remain in force, and are likely to do so for some time. The passenger business across the ocean is comparatively heavy, and the prospects for next year are rather for an increase than a decrease in the number of passages, both east and west. First class fares vary, according to the type of vessel, from \$202.50 to \$150; second class fares from \$110 to \$92.50; cabin fares on single class vessels from \$100 to \$90; third class fares from \$67.50 to \$61.25. In addition to these rates there is a war tax of \$5 on those above \$65; \$3 on those between \$40 and \$65, and \$1 on those from \$10 to \$40.

Mainly About Marine People.

Lionel H. Clarke, grain merchant, Toronto, who has been Chairman, Toronto Harbor Commission, since its inception, tendered his resignation early in December, on being appointed Lieutenant-Governor of Ontario. The other commissioners passed a resolution placing on record their high appreciation of his invaluable service as chairman during the past seven years, and requested him to withdraw his resignation, and to continue to act as chairman, which he consented to do.

John Watson Corbett, whose appointment as Purchasing Agent, Canadian Government Merchant Marine, Ltd., Montreal, was announced in our last issue, was born there, Oct. 4, 1887, and entered transportation service in July, 1905, since when he has been, to Mar., 1908, in Superintendent's office, Canadian Northern Ry., Montreal; Apr., 1908 to Nov., 1909, in Purchasing Department, same road, Quebec, Que.; Feb., 1917 to Dec., 1918, in Purchasing Department, Imperial Munitions Board, Toronto; Jan. 1 to Oct. 31, 1919, in Purchasing Department, Canadian National Rys., Winnipeg.

John P. Doherty, whose appointment as Port Agent, Canadian Government Merchant Marine, Ltd., St. John, N.B., was announced in our last issue, was born at Portland, Me., Apr. 8, 1889, and entered transportation service in May, 1904, since when he has been, to Feb., 1915, chief clerk, Allan Line Steamship Co., at Quebec in the summers, and at St. John, N.B., in the winters; Feb., 1915 to May, 1918, chief clerk, Canadian Pacific Ocean Services Ltd., same places; Sept., 1918 to Nov., 1919, Travelling Freight Agent, C.P.R., St. John, N.B.

J. W. Norcross, President, Canada Steamship Lines, Montreal, and Mrs. Norcross, announce the engagement of their eldest daughter, Jessie Eileen, to D. H. Mapes, Jr., of New York, son of D. H. Mapes, Engineer of Buildings, C.P.R., Montreal, the marriage to take place in January.

Hon. C. C. Ballantyne, Minister of Marine and of Naval Service, entertained Admiral Viscount Jellicoe, and a large number of other guests, at dinner at the Country Club, near Ottawa, Dec. 4. Mrs. Ballantyne gave a dinner in Montreal for Lady Jellicoe, Dec. 9.

J. F. Paige, who was appointed Operating Manager, Halifax Shipyards, Ltd. recently, took over his new duties there early in December. He was formerly General Manager, Port Arthur Shipbuilding Co., Port Arthur, Ont.

St. Lawrence River Pilotage—A petition has been addressed to the Minister of Marine urging the abolition of compulsory payment of pilotage dues, and against the continued discrimination against ships from Ontario, which are not included in the exemptions extended by the Canada Shipping Act, sec. 477. This matter has been brought before the government several times during past years, by the Dominion Marine Association, but nothing has been done to relieve the vessels trading to St. Lawrence ports from Ontario. The Shipping Federation of Canada, which has always opposed any change in the restrictions against Ontario shipping, is now stated to favor the proposal, and it is reasonable to expect that the desired amendments will be made shortly.

Regulations for Bunkering Ships on Atlantic and Pacific Coasts.

The Canadian Trade Commission's Fuel Section and License Department at Ottawa issued the following circulars to steamship owners recently over the signature of M. J. Cullen:—

Nov. 29, 1919. In order to facilitate the issuance of licenses for the bunkering of your boats, we would prefer, when possible, to receive your application by mail, furnishing the information required on the enclosed forms, which should be transmitted in duplicate. In addition to the information asked for on the blanks we also require to know the nature of the cargo being carried by the vessel under consideration, together with the country of origin of the same. When time will not permit of application being made by mail, telegraphic applications should contain all the information requested on the bunkering form, together with the nature of the cargo and the country of its origin.

I may inform you that it is the commission's policy to grant bunkers to boats of foreign registry sufficient only to carry them to their destinations, while Canadian owned boats may be bunkered for the round trip.

We are desirous that as much bunkering as possible should be undertaken at Sydney, N.S., on account of its proximity to the mines, and would appreciate your co-operation in having as many of your craft as possible diverted to that point for this purpose.

In order to expedite the coaling of vessels on the Eastern Maritime coast, A. L. Woods has been appointed by this commission to issue licenses for bunkering of vessels at Sydney, North Sydney, and Louisburg. Mr. Wood's headquarters are at Sydney and any request for licenses covering coaling of vessels at points under his jurisdiction should be directed to him.

Dec. 6, 1919. In further reference to our circular letter of Nov. 29, I beg to advise you of the policy now decided upon by this commission for the bunkering of vessels which becomes effective Dec. 8, at 1 a.m. Bunkers may be given boats for the following movements:

1. Vessels sailing from foreign destinations to United States ports may receive bunkers at Canadian ports, to take them to U.S. destination and return, or they may be bunkered at Canadian ports to take them to their U.S. destination and thence back direct to their foreign port.

2. Boats sailing from the U.S. to foreign destinations may be given bunkers at Canadian ports sufficient only to take them to their destination.

3. Boats sailing from Canadian ports may be bunkered with sufficient coal only to take them to destination.

4. Bunkering of boats will be governed by the available coal supply, and preference given in the following order, (a) Canadian owned boats; (b) boats flying British flag; (c) boats flying U.S. flag; (d) boats flying allied flag; (e) boats flying neutral flags; (f) boats flying other flags.

In order to preclude delay in coaling at Halifax and St. John, we are pleased to advise you of the appointments of the following officers who are authorized to grant licenses at these ports: Lieut. Alfred J. May, Customs House, Halifax,

N.S.; Lieut. C. J. Mulcahey, Naval Dock Yards, St. John, N.B. When requiring permits to coal at these ports, please direct your requests to the above mentioned officers.

Canadian Railway and Marine World is officially advised that in addition to the officers appointed to issue bunkering licenses on the Atlantic coast, W. G. Gounce has been authorized to grant licenses covering the bunkering of ships on the Pacific coast.

In reference to the foregoing we are advised that it was necessary to control the export of coal, under an agreement reached between the Canadian Fuel Controller and the U.S. Fuel Administration, whereby the latter arranged to let Canada have a supply of emergency coal for the urgent needs of Ontario and Quebec, provided the use of coal at the Canadian Atlantic and Pacific seaports was curtailed in certain ways. The control of exports was enforced formerly by the War Trade Board, and after its discontinuance the control was transferred by order in council to the Canadian Trade Commission. It is hoped that all restrictions on the bunkering of vessels will be removed early in 1920.

Roger Miller & Sons Ltd. Toronto Harbor Contract.

S. W. Jacobs, M.P. for Montreal, asked several questions in the House of Commons recently, which were answered by the Minister of Public Works, the questions and replies being as follows:

Q. Has an order in council been passed giving Roger Miller & Sons, Ltd., additional work on a cost plus basis over and above that originally provided? A. Yes.

Q. What was the amount provided originally to be done by Roger Miller & Sons, Ltd., on a cost plus basis, and what were the terms under which this work was to be done? A. Approximately \$848,000, on basis of cost plus 7½%.

Q. What was the amount of the work under such order in council, and what were its terms? A. Approximately \$2,478,250, on same basis of cost, plus 7½%.

Q. Has an appropriation yet been made covering the additional work authorized by such order in council? A. No.

Canadian Western Steamships Ltd., has been incorporated under the British Columbia Companies Act with \$2,000,000 authorized capital and office at Vancouver, B.C., to own and operate steam and sailing ships, and to carry on a general navigation and transportation business.

The Ross Navigation Co. Ltd., Pas, Man., has made application to the Interior Department for a lease of lots 25 and 29, at Sturgeon River Landing, Man., for the erection of docks, wharves, warehouses, etc. These lots have a frontage on the Sturgeon River, of 100 ft. each, with a depth of 25 and 60 ft., respectively, and were surveyed in 1917 at the mouth of the Sturgeon River, on Namen Lake, to meet requirements in connection with navigation at that point, which is the head of navigation from Pas to the northern part of Manitoba. The rental to the company will be at \$10 a year for 5 years.

Customs Requirements re Coastwise Entries and Clearances.

Canadian Railway and Marine World for Oct., 1919 contained a reference to the desires of British Columbia steamship owners for some relief from alleged unnecessarily onerous customs requirements in connection with the operation of steamships in the coasting trade. Under the present rules, it is necessary for all steamships engaged in the coasting trade to make entry and clearance at each port of call, whether carrying dutiable cargo or not, and regardless of the number of calls they may make at the same port on the same day or trip. An example of this is shown in the case of the C.P.R. s.s. Princess Patricia, a passenger steamship running the short distance between Vancouver and Nanaimo, making two round trips daily, and having to make two entries and two clearances at each port, even when not carrying any bonded or dutiable cargo. The whole question was taken up by C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., Vancouver, some months ago, and in a communication to the Dominion Marine Association, he asked that association's aid in the attempt to obtain some relief. The association has expressed itself as approving of the movement, believing the requirements are enforced for purely statistical purposes and throw a heavier burden on ship owners than is justified by the benefits received.

Information regarding the practice adopted by other countries in this regard has been collected by Frank Waterhouse and Co. of Canada Ltd., Vancouver, and from this it is gathered that in the United Kingdom there is a system of transires, which permits vessels to arrive and depart at the various ports, when not going to a foreign port and not carrying bonded cargo, without reporting at the customs house. A record is kept and reports are made from time to time as required by the Customs Department, and it is said that a similar practice obtains in the various British dominions, with the exception of Canada. In Norway, Sweden, Japan and several other countries, coastwise traders are not required to enter and clear each trip. In the United States special arrangements are made for coastwise traders, the whole area being divided into five districts, and so long as a coastwise vessel is trading within one of these customs districts, it is not required to enter or clear unless carrying bonded or dutiable cargo. When, however, it is trading between a port in one district, and a port in another district, it is necessary to enter and clear.

It is desired that the Dominion Government adopt a system of transires for the British Columbia coasting trade, to obviate the difficulty complained of.

Australian Shipbuilding Costs—It has been officially stated that H.M.A.S. Brisbane, which was built at Cockatoo Island dockyard, Sydney, during the war, cost £776,000, against £385,000 for H.M.A.S. Sydney, and £405,000 for H.M.A.S. Melbourne, which were built in Great Britain just prior to the war. All are practically sister ships, there being very little difference in tonnage, armaments and rating. Most of the material for the Brisbane was imported, and difficult to obtain; the mechanics employed were inexperienced, and the cost of building was therefore necessarily high.

Marine Casualties During 1918.

The report of L. A. Demers, Dominion Wreck Commissioner for the calendar year 1918, which was not printed and distributed until Dec., 1919, states that during the year 31 formal investigations and one departmental investigation were held.

During 1918 there were 226 casualties reported to the Marine Department, the tonnage of the same being 312,928, and the stated damage \$1,818,895, while 402 lives were lost.

Of the casualties 180 were to coasting and sea going ships, the tonnage being 280,528, the stated damage \$1,713,795, and 402 lives were lost; 46 of the casualties were to inland ships, the tonnage being 32,400, and the stated damage \$105,100.

In 129 cases of casualties to coasting and sea going ships, and 24 cases of casualties to inland ships, the amount of damage is not stated; 70 of the casualties to coasting and sea going ships, made up of 27 steam and 43 sailing ships, resulted in total losses, and of this number 60 were Canadian, 2 British and 8 foreign ships.

Seven of the casualties to inland ships resulted in total losses; all were Canadian vessels.

The casualties were as follows:

Coasting and Sea Going Vessels.	
Collisions	30
Foundering	28
Missing vessels	3
Miscellaneous accidents: fire, loss of sails, etc.	20
Strandings	79
Vessels sunk by submarines	20
Inland Vessels.	
Collisions	17
Foundering	4
Miscellaneous accidents	8
Strandings	17

Nova Scotia Workmen's Compensation Act Made Applicable to Seamen.

An amendment of sec. 8 of the Nova Scotia Workmen's Compensation Act comes into force Jan. 1, and provides as follows:—Owners and employers of vessels registered in Nova Scotia, or operated by an employer residing or having a place of business in Nova Scotia, shall be liable to any member of the crew who is injured by an accident arising out of and in the course of his employment.

The amount payable to an injured workman shall be an amount equal to the compensation that would be payable under the Workmen's Compensation Act if the industry were within the scope of part 1 of the act.

The employer may escape such personal liability by having the operations of the vessel brought under part 1 of that act. To do so an application to the

Workmen's Compensation Board, and the payment of an assessment based upon the amount of the payroll, are necessary.

The amendment applies only to vessels operating between places in Nova Scotia and places in New Brunswick, or Prince Edward Island, or Newfoundland, or to vessels making fishing trips or voyages from ports or places in Nova Scotia.

Courtenay Bay Development, St. John, N.B.

The St. John Dry Dock and Shipbuilding Co. made very satisfactory progress during 1919 on its two contracts for harbor works and dry dock respectively. The work consisted principally of rock excavation for the drydock and it is expected that this work will be finished by the middle of February. The excavation is being done by the ordinary methods of drilling and blasting and removal by steam shovels. The rock is loaded into 6 yd. dump cars and hauled by locomotives to the breakwater, where it is dumped over a trestle.

The 2,500 ft. breakwater extension is nearly completed, with the exception of laying the cornerstone. A cofferdam is being built to unwater an area sufficiently large to excavate about 140,000 yd. of rock in the immediate entrance channel to the breakwater. This cofferdam will enclose an area of about 650 x 400 ft. The channel inside the cofferdam will be 250 ft. wide and about 500 ft. long. The excavation grade for this channel will be 32 ft. below low water which, with the 28 ft. tide, will make the extreme depth of 60 ft. at highest water.

The whole work is of very considerable magnitude and will undoubtedly prove of very great interest to engineers generally. In consideration of the extreme lead of water and the length of the cofferdam, it is probably one of the largest ever undertaken.

Among the Express Companies.

The Canadian National Ex. Co. has opened an office at Birch River, Man., and has closed its office at Ragged Rapids, Ont.

The Dominion Ex. Co. has been relieved by the Board of Railway Commissioners, from providing a cartage service at Courtright, Ont.

The Canadian National Ex. Co. has opened an office at Entrance, Alta., and has closed its offices at Perthuis, Que., Burwash, Ont., and Ardill, Sask.

New regulations respecting the packing express shipments, went into effect during the early days of December. Under these regulations, shipments over 25

lbs. in weight must be forwarded in wooden containers or cartons bearing the box makers' certificate as to the strength and size required by the express company.

The Canadian Ex. Co. was fined \$202 at Ottawa, Dec. 17, for transporting a quantity of intoxicating liquor from Montreal to Ottawa in contravention of an order in council, passed Feb. 24. On the application by counsel for the defence, a stated case was granted for the Court of Appeal. A quantity of wine was shipped from Montreal to the Ottawa Country Club, which is also in Quebec, and in the course of transit, it crossed the boundary between Quebec and Ontario.

Telegraph, Telephone and Cable Matters.

The American Railroad Association's Telegraph and Telephone Division held its annual meetings at Chicago, Dec. 3 to 5, 1919.

G. D. Perry, General Manager, Great North Western Telegraph Co. and Mrs. Perry, returned to Toronto early in December, from a trip to the Pacific coast.

The Great North Western Telegraph Co. has opened offices at Kabina, Mattice and Ragged Rapids, and has closed its offices at Barsing, Glenorchy and Watcomb, all in Ontario.

The Marconi Wireless Telegraph Co. of Canada Ltd., has bought the office building occupied by the Montreal Stock Exchange, where it is opening a school for training wireless operators. The price paid was \$17 a sq. ft.

The Marconi Wireless Telegraph Co. of Canada, will, it is reported, build a large wireless telegraph station near Vancouver, B.C., at an approximate cost of \$2,000,000, to handle commercial business between Canada and the Orient, and a similar station will, of course, be built on the other side of the Pacific, most likely in Japan.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:

- American Association of Port Authorities. M. P. Fennell, Jr., 57 Common St., Montreal.
- Belleville Railway Men's Educational Club. Meets each Tuesday, 7.30 p.m. F. A. Pinkston, 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, 909 Shaughnessy Building, Montreal.
- Canadian Freight Association (Western lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.

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 Meetings, 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.