

Canadian Railway and Marine World

April, 1917.

The Engineers' Work at the Front in the War.

[The following article, compiled from information obtained from Canadian Engineers' officers, who have been at the front in Belgium and France, some of them having gone over with the Canadian Expeditionary Force's first contingent, will undoubtedly prove of considerable interest to a large number of Canadian Railway and Marine World readers, as many of the Canadian Engineers—officers, non-commissioned officers and sappers—were engaged previously in railway construction, maintenance, and mechanical and electrical work.—Editor.]

One of the trench descriptions of an engineer is: "One who always does his best; always finds still more work for the infantry to do; and often thinks he can make water run up hill." This no doubt originated from the perspective of the infantry and other combatant units get of the engineers' work. They realize that most of the engineers' work is for their protection and their comfort, and they therefore have a kindly feeling towards him, and concede that he is one who always does his best. This kindly feeling is tempered somewhat, however, by a feeling of exasperation, because the infantry are so often called upon to supply working parties to carry on various forms of engineering work. As is well known, engineering work in France is carried on by working parties drawn from the infantry, the pioneers and other units, each sapper (a private in the engineers) laying out, supervising, and helping the work of a working party of from 50 to 150 men. It therefore appears to the infantry as if the engineers were always finding still more work for them to do.

Men in the trenches are always conscious of water, mud or slush, depending upon the season of the year. The engineers always try to sight the trenches so as to get natural drainage to the front or rear, that is through the parapet, or through the parados, but this is not always possible. Sometimes the enemy objects, and makes certain positions so unhealthy that the engineers are forced to compromise in the position for the trench. At other times the nature of the ground along the ideal sighting for the trench is such that it is impossible to dig. For instance, the Somme battle fields have been ploughed up repeatedly by shell fire, and the ground is a mixture of mud, remains of wire entanglements, corrugated iron, steel beams, shells and other materials destroyed by our own or the enemy shell fire. Therefore a trench is often sighted, by necessity, where drainage is very difficult, and no wonder the infantry sometimes think the engineer counts on the water running up hill.

As in other branches of the service, the methods of carrying on engineers' work in France have been materially altered since the opening months of the war, first by the settling down to trench warfare, and second by the immense amount of engineer work necessitated by the style of warfare. In the original British Expeditionary Force the Royal Engineers were divided into two classes: 1st, Divi-

sional engineers, under which was allotted for each division 2 field companies, and 1 signal company. 2nd, Engineer units on lines of communication, comprising fortress companies, works company, railway company, signal companies, and printing company.

The works company was split up into sections, one being at each base. Assisted by French civilian labor contractors and by working parties from any infantry available, they erected base camps and looked after all work in connection with them, such as water supply, drainage, lighting, sanitary arrangements, road making, etc. They had to provide store accommodation for the large quantity of supplies and ordnance stores as they arrived. At present the function of these works companies is the maintenance and upkeep of all the base camps, and the work is very similar to the works department of any large city, with all luxuries eliminated. The fortress companies did not come into active use until the operations on the Aisne, and from that time their work was essentially connected with that of the field companies. In the Royal Engineers, army troop companies have taken the place of these fortress companies and are at the disposal of the chief engineers of the different corps, and their work is to assist the field companies in the construction of defensive lines.

Late in Aug. 1914, in the retreat from Mons, the field companies of Royal Engineers played the prescribed role of engineers in battle. They assisted the infantry in the preparation of defensive positions, and put special positions into a state of defence. They were kept very busy, collecting tools, such as spades, shovels, etc., from the neighboring districts. One test of a good engineer is his ability to "rustle" engineer materials and tools. Eight sections of field companies, each consisting of one subaltern, 20 sappers and a tool cart, were ordered to demolish the bridges over the Mons canal. Some of these were successfully demolished, while the Germans had possession of the others before the engineer section arrived.

Later on in the British advance, after the German defeat almost at the gates of Paris, the Royal Engineer field companies work changed, and they were engaged on engineer reconnaissance of roads, river crossings, demolished bridges, etc.; and at the River Aisne, five permanent bridges which had been demolished were at once made passable for infantry in single file and later repaired to take mechanical transport. Some idea of the work and material involved can be gathered from the fact that to make a satisfactory approach to one of the bridges over the Aisne, a road, about 200 yards long, had to be made. This necessitated collecting brushwood for the construction of over 2,000 fascines, their transport to the site of the bridge, and the collection of all available road metal in the neighborhood.

In his book, *The British Campaign in France and Flanders*, Sir Arthur Conan

Doyle pays a marked tribute to the Royal Engineers as follows:—"The more one considers the operations of the line of the Aisne, with the battle which followed it, the more one is impressed by the extraordinary difficulty of the task, the swift debonair way in which it was tackled, and the pushful audacity of the various commanders in gaining a foothold upon the farther side. Consider that upon Sept. 12, 1914, the army was faced by a deep, broad, unfordable river, with only one practicable bridge in 15 miles opposite them. They had a formidable enemy, armed with powerful artillery, standing on the defensive upon a line of uplands commanding every crossing and approach, while the valley was so broad that ordinary guns upon the corresponding uplands could have no effect, and good positions lower down were hard to find. There was the problem. And yet upon Sept. 14 the bulk of the army was across and had established itself in positions from which it could never afterwards be driven. All arms must have worked well to bring about such a result, but what can be said of the Royal Engineers, who built under heavy fire, in that brief space, nine bridges, some of them capable of taking heavy traffic, while they restored five of the bridges which the enemy had destroyed! Sept. 13 should be recorded in their annals as a marvelous example of personal self sacrifice and technical efficiency."

After this the campaign settled down to trench warfare, which the Canadian army had to handle when it arrived on the scene, and the Canadian Engineers have had experience only with trench warfare. There are now four Canadian divisions in France. The Canadian Engineer organization for this army is made up as follows: The Chief Engineer, Canadian corps, is a Brigadier-General. He has under him the four colonels in command of the four units of divisional engineers, each consisting of one divisional engineer headquarters, and three field companies. He also has directly under him all corps troop companies, and independent engineer officers attached to his staff, who do the miscellaneous engineer work required behind the general headquarters lines. Corps troop companies and the engineer officers attached to the Chief Engineer's staff, look after the installation of water supplies for all units billeted behind general headquarters lines; look after the construction of g. h. q. lines, construction of strong points between g.h.q. lines and subsidiary lines; special railway construction immediately behind g.h.q. lines for the use of the artillery; construction of all roads in the corps area up to the g.h.q. lines, and all main roads from there forward to the most advanced point of motor transport; also construction of artillery route roads, both highway and railway, for supplying the heavy artillery with ammunition.

The C. R. E., or colonel of divisional engineers, has at his command divisional engineer headquarters, three field companies, the ordering of the work of one pioneer battalion and one tunnel com-

pany. He usually attaches one field company to each infantry brigade to aid them in carrying out the work in their area. The work in their area consists of the maintenance of the front line; communications to the support line; the support line; communications to the subsidiary line; and all strong points between the subsidiary line and the support line. In some instances they are given the maintenance of the subsidiary line to look after. The working parties for this work are supplied by the brigade in the line and are directed by the field company attached to the brigade, and in addition, this field company looks after the construction of all new lines in front of the subsidiary line, which may or may not be built by working parties supplied by the brigade; the construction of the subsidiary line, which is usually constructed by the troops supplied by the division; the construction of strong points immediately behind the subsidiary line by working parties supplied by the division; the digging of wells in the brigade's billeting area; the construction of roads in the brigade area which are not main roads looked after by corps, and the construction of huts for billeting reserve battalions of brigade; construction of routes for the use of working parties in dry weather; and all the innumerable drainage schemes required in the rear brigade area, also the construction of light railways in the brigade area. At the same time, a considerable portion of the personnel of this company may be working under the C. R. E. for construction of such things as divisional bath houses, Y. M. C. A. recreation huts, etc.

The C. R. E. usually splits up his pioneer battalion by keeping one company to work directly under his own orders, and attaching each of the other three companies to a brigade, to work under the orders of the respective field companies. The tunnelling company works directly under the C. R. E.'s orders, and is supplied with material and working parties by the field company in whose brigade area the tunnelling company may be operating. The C. R. E., for the construction and maintenance of the works looked after by him, also gets working parties from corps troops, such as battalions in corps reserve, dismounted cavalry, and any other units that may be at the disposal of corps and lent to division.

Some of the best engineers in Canada prior to the war are now in France with the Canadian Engineers. It is claimed that at least 40% of the men in the ranks of the Canadian Engineer companies attached to the first Canadian contingent were graduates of engineering colleges; and practically all were high class men. The result was that the Canadian Engineers made a name for themselves in France; and they obtained a status in the army worthy of the corps.

As was the Royal Engineers, the working party idea was developed in the Canadian army, because of the immense amount of engineering work necessary; and the sapper in the Canadian Engineer field companies became in reality a foreman of working parties, carrying on the various forms of engineering work at the front, of which trench construction and trench consolidation constituted a very important part. Some of the Canadian Engineer officers have developed the "task" idea, in connection with working parties, to the decided advantage of the work to be done, and the men in the working party. Returned sappers have told of the effectiveness of having a specified amount of work to be done by each member of a working party, with instruc-

tions that the working party goes "home" when work is completed. Usually a working party with a "task," will finish an equal or greater amount of work, and be in billets and asleep, while a working party without set tasks for each would still be on the job.

As has been before stated, the obtaining of engineering equipment and materials has always been one of the big problems of the engineers. When an army is on the march, the engineer field companies are dependent upon the districts through which they pass for materials, with the exception of course of certain materials, equipment and tools carried by each field company. In trench warfare there is nothing left but mud, and all materials for trench construction, splinter proof construction, bomb proofs, etc., is brought up from the rear, first by motor or horse transport, and then by carrying parties to the point where the work is being done. This has led to the establishment of engineer parks in the rear, where all forms of standard engineering material are made up, including frames for splinter proofs, bomb proofs, trench revetting, etc., and forms of wire entanglement, etc. All kinds of tradesmen and mechanics are needed in these parks for the manufacture of these standard forms and materials, and the work is carried on by working parties of sappers' mates, the work being supervised by sappers from engineer companies. There are also hutting parties, consisting of carpenters, drawn from other units, attached to engineer companies, who construct, under sappers' direction, the huts which form the infantry's reserve billets. Brigade wiring parties, consisting of volunteers from the infantry, attached to engineer companies, are taken back and live at the engineer billets, and are trained to do wire entanglement work; and when proficient put out the wire under their own officers, but directed by the engineers.

An idea of the status of the Canadian Engineers in France can be had from the fact that no one in the Canadian army can get one stick of material unless it is sanctioned by the engineers, that is the Canadian Engineers are called upon to pass judgment upon any and all construction work, and this absolute control of material by the engineers gives them a status with all troops in France. The general staff does not make a move without efficient engineer advice. This is true all the way down. The captain of an engineer company is continually consulting with the brigadier-general of the brigade as to the work that it is possible to carry out with the men and material available. The engineer subaltern is present at the conferences, composed of the brigadier-general, the engineer major or captain, and the four colonels of the brigade, at which decisions are made as to the programme of work for the next relief. The engineer subaltern, with his section of sappers, usually looks after all construction work in one battalion front; so that he, after having been present at the brigade conference, settles all minor details about the work in that sector, with the colonel of the battalion in charge of the sector. He then has the working parties turned over to his sappers. An engineer n.c.o. will have charge of four or five working parties, and each party will be in charge of a sapper.

When the Canadians moved into the Ypres salient in April, 1915, they took over trenches from the French Iron Division, which were anything but what they had been taught to expect trenches would be. There were little sections of disconnected trench forming this front,

which were made by throwing up a little dirt against the backs of hedges and were not even bullet proof. There was no daylight communication between these sections and no daylight communication to the rear. The problem that confronted the Canadians was whether it would be better to make a proper front line first, or to develop communications to the rear, and strong subsidiary line defences. They decided, on the advice of the engineers, that the first thing required was to make the front line fightable. To do this the engineers jumped in and kept large working parties working night and day on the construction of a properly traversed front line.

In one section of this front, held alternately by the 7th and 8th battalions, there was a particularly bad piece of trench, enfiladed by German artillery fire, which connected the line to a very important little knoll. One engineer subaltern impressed on the colonels of these relieving battalions that that piece of line should be immediately put in good shape. He urged on them almost day and night to get the maximum number of men available working on this piece of line. It was a disagreeable piece to work in, because the French had believed in the theory of making no move during the daylight hours, and they had buried their dead side by side in the bottom of this trench, and covered them about a foot deep with earth. To improve the trench it was necessary to dig through these bodies and construct a heavy parapet and put in large traverses. The work was extremely disagreeable for the infantry working parties, who would only be there for a six hour stretch, but it was still more disagreeable for the engineers, who were there all the time. In a few nights this section of trench was completed, and none too soon, as the big German gas attack was then launched. This piece of trench held, and one of the colonels, now a major-general, after the second battle of Ypres, told this engineer officer that his obstinacy in insisting on getting the large working parties, and keeping the infantry at it day and night, in getting that section of trench completed, had saved practically a company of the battalion from annihilation. That engineer officer, in dealing with these large working parties, could not have been successful in the accomplishment of this work, if he had not been backed up by a very high class of sappers on whom he could depend individually to handle from 50 to 100 men efficiently and well, under most trying conditions. This is an example of where the high class of personnel among sappers may mean the difference between holding a line and failing to hold it.

Electrification of the Lehigh Valley Rd. is said to be under consideration, and engineers are reported to be making surveys and investigations preparatory to rendering a report upon the project. The L.V.R. carries a very heavy coal traffic from the anthracite region to tidewater, and all trains have to climb over a high summit in passing west from Wilkes-Barre. It is stated that the plans for electrification comprehend the entire main line from Jersey City to Wilkes-Barre.

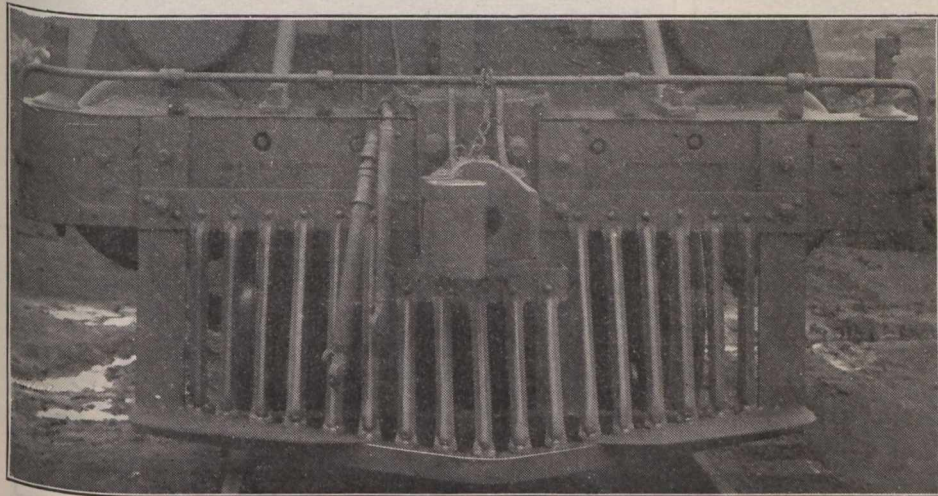
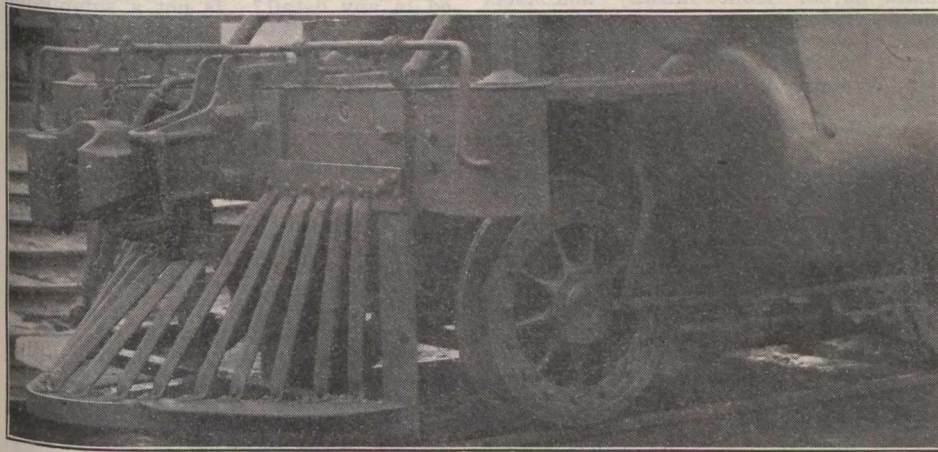
American Association of Dining Car Superintendents.—E. W. Smith, Superintendent, Dining and Parlor Car Service, G.T.R., Toronto, and S. Wertheim, Superintendent, Sleeping, Dining and Parlor Cars, District 2, C.P.R., Toronto, have been elected chairman and secretary, respectively, of the association's Canadian territorial committee.

Standard Steel Pilot for Canadian Pacific Locomotives.

The accompanying illustrations show a standard steel pilot applied to a C.P.R. Pacific type passenger locomotive, which

missioners, also copy of order in council Oct. 21, 1916, appointing W. M. Acworth, in place of Sir George Paish resigned. The return also contained a copy of a memorandum issued by the Prime Minister in Sept., 1916, making public a letter written him by Sir Henry Drayton on

commission. All of the documents mentioned were published in Canadian Railway and Marine World from time to time. The return did not contain any information as to the commissioners' remuneration or the names of the persons employed by them and the remuneration paid such persons.



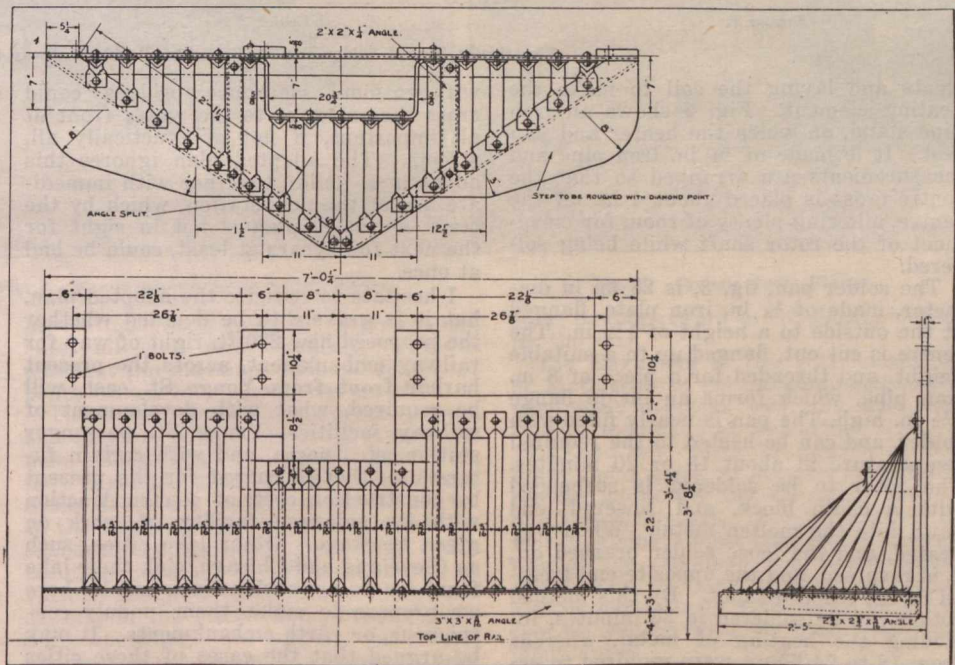
Pilot on Pacific Type Passenger Locomotive, C.P.R.

is simple, but strong and inexpensive to manufacture and apply, giving a very neat, substantial appearance. The bars are made of old boiler tubes, which are put through a set of rollers and rolled into triangular shape, so that they resemble the ordinary slat used with a wooden pilot. The rolling is done cold. The bars are flattened and bent at each end to the proper angle to suit their location in the pilot. They are fastened to the pilot frame and nosing by 1/2 in. rivets. The nosing is made of 3 in. x 3 in. x 5/16 in. angle, and the frame of flat steel bars.

Commission of Enquiry Into Railway Situation.

On motion of Sir Wilfred Laurier, the House of Commons, on Jan. 31, ordered a return of copies of all correspondence respecting the appointment of a commission to investigate the financial and economic condition of Canadian railways, showing the names of the commissioners and the rate of their remuneration, along with the names of the secretaries and engineers appointed by them or by the commission, and the rate of their remuneration.

On Feb. 6 the Minister of Railways presented to the House, a return containing a copy of order in council of July 13, 1916, appointing A. H. Smith, Sir Henry Drayton and Sir George Paish, as com-



Details of Pilot on Pacific Type Passenger Locomotive, C.P.R.

Sept. 19, 1916, and also a letter from the Canadian Society of Civil Engineers council, written on Sept. 7, protesting against the employment of aliens by the

available. Applications for certificates entitling eligible persons to enter the competition should be addressed to C. H. Buell, Staff Registrar and Secretary,

C.P.R. Scholarships at McGill University.

George Bury, Vice President, C.P.R., has issued the following circular:—Three free scholarships, covering four years tuition in chemistry, civil, mechanical or electrical engineering at McGill University, are offered, subject to competitive examination, to apprentices and other employes enrolled on the company's permanent staff and under 21 years of age, and to minor sons of employes. The competitive examination, which will be the regular entrance matriculation examination provided for in the University's annual calendar, will be held at the University, Montreal, and at other centres throughout Canada, in June. The candidates making the highest average and complying with the requirements of admission will be awarded the scholarships and have the option of taking any of the above courses. Scholarship will be renewed from year to year, to cover a period not exceeding four years, if, at the close of each session, the holder thereof is entitled, under the rules, to full standing in the next higher year. In case a scholarship holder finds it necessary to interrupt his course for a year or more, notice must be given at the close of the session to the company and to the Dean of the Faculty of Applied Science of the University, in order that the scholarship may be open to other applicants. In order to establish prior claim to the next available scholarship, notice of the students' intended return must be given to the company to the Dean not later than Jan. 1 preceding the opening of the session in which such scholarship will be

Pension Department, Montreal. Copies of the annual calendar containing the conditions of admission and announcement of courses may be obtained upon application to the Registrar, McGill University, Montreal.

Electrically Heated Solder Pan in C.P.R. Shops.

The pan shown in the accompanying illustration is used at the C.P.R. shops at Fort William, Ont., and Vancouver, B.C., for soldering end rings and bars on rotors for induction motors when they are being rewound. The heating plate is made of 1/8 in. iron, 27 in. in diameter, covered with a sheet of 1/4 in. asbestos of the same diameter. The asbestos is fastened to the iron plate by porcelain cleats, which are bolted to the plate with flat head stove bolts. The heating element is a coil containing 110 ft. of no. 18 nicrome wire, connected on a 250 volt circuit using 12 amperes. The coil is formed on 1/4 in. pipe.

Fig. 1 shows the method of placing the

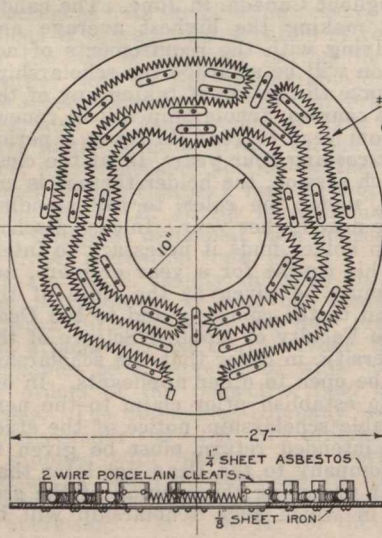


FIGURE 1.

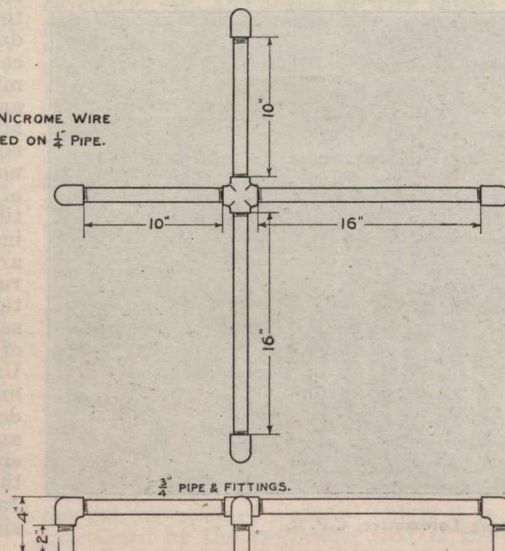


FIGURE 2.

enormous cost of railway properties in Canada, a cost very much greater than necessary, even for the existing mileage, is becoming more and more evident. For this cost the people must pay, whether indirectly in taxes or directly in charges for use. Why should useless cost be forced in any detail? Is not a submission of this vital grade separation problem to absolute engineering solution, on the best authority available, without hamper of possible preconceived notion of Board of Trade, Harbor Board, city, railways or any other body, of what the solution should be, still in order?

New Zealand Government Railways Unsatisfactory.

Sydney Smith has written from Rotorua, N.Z., to the Financial Post, as follows: "If you want a convincing argument against state ownership of railways investigate the Australian and New Zealand railways. I have travelled in the five continents and have never experienced a

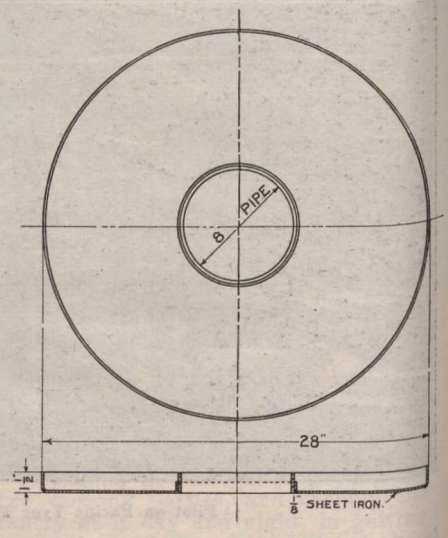


FIGURE 3.

Electrically Heated Solder Pan in Canadian Pacific Railway Shops.

cleats and laying the coil to make the heating element. Fig. 2 shows an iron pipe stand, on which the heater and pan rest. It is made of 3/4 in. iron pipe and measurements are arranged so that the centre cross is placed about 4 in. off the centre, allowing plenty of room for movement of the rotor shaft while being soldered.

The solder pan, fig. 3, is 28 in. in diameter, made of 1/8 in. iron plate, flanged at the outside to a height of 1 1/2 in. The centre is cut out, flanged up to a suitable height, and threaded for a piece of 8 in. iron pipe, which forms an inside flange 1 1/2 in. high. The pan is nearly filled with solder, and can be heated to the required temperature in about 15 or 20 minutes. The rotor to be soldered is suspended with a chain block, and lowered end down into the molten metal. When well heated, and the loose solder brushed off, it is reversed, and the opposite end treated in the same manner. By this method rotors can be soldered in 30 minutes, including the heating of metal, whereas from 18 to 24 hours were required to accomplish the same purpose with gasoline torch and soldering iron. We are indebted for this information to J. McLaughlin, formerly Resident Electrician, C.P.R., Fort William, now Electrician, C.P.R., Vancouver.

with rational clearance, bridges could cross the railways to the water front at all important, if not at practically all, streets. The adopted plan ignores this advantage. Relief, together with immediate use of the new station, which by the track elevation plan is not in sight for the next four years at least, could be had at once.

I hesitate to criticize the adopted plan, but it is gravely to be doubted whether the proposed new 230 ft. right of way for railway embankment, across the present harbor front from Yonge St. east, will be required, what with development of railway facilities, Yonge St. passenger station, etc., north, and with certain future use, though barred for the present by construction cost, of electric traction with its enlarged facility of work on given trackage. Other lake cities, such as Cleveland and Chicago, sink their lake front tracks as much as practicable; here we propose to make them unduly conspicuous, on earth embankments. It may be argued that the cases of these cities are different. They are, somewhat. No two cases are wholly alike.

The right solution of any problem, engineering or other, is arrived at only by giving due weight to all conditions that have bearing on it. For one thing, the

worse rail service than in New Zealand or a more costly service to travel or freight on; freights and passages are of the highest, the service is of the worst, and the employes the most casual. The express between the capital city, Wellington, and the largest city, Auckland, averages just over 20 miles an hour, the trains are filthy, and porters are practically unobtainable. When one thinks of your magnificent C.P.R. and all that it has done for Canada's service, one is impelled to write and call "cave" before you change. You will never improve it under state ownership and are fairly certain to destroy its efficiency.

The Institution of Civil Engineers' Council has invited any of the Canadian Society of Civil Engineers' members, who may be visiting England, to use the Institution's library and reading rooms in London, as well as attend its meetings. A letter of introduction from the Canadian Society of Civil Engineers will be necessary.

In France all express trains, with the exception of postal and long-distance trains, are ordered discontinued, as one of the steps taken to facilitate transport connected with national defence and commercial traffic.

C.P.R. Snow Fighting Equipment at Fort William.

The accompanying illustrations show how snow was handled in Fort William terminals during the past winter.

Fig. 1 shows snow plough and spreader, which means a plough on both ends, and no time is lost in ploughing in either direction, or winging.

Fig. 2 shows a champion ice cutter, which clears out all the ice from between the rails, no matter how hard it may be. It is operated by air.

Fig. 3 shows a train removing the snow from between the tracks in the terminals.

Fig. 4 shows the big lift bridge over

customs at the frontier, to its destination in Canada, if the destination be a customs port or outport, and if not, then to the customs port or outport nearest to but short of its destination, for customs clearance thereat, instead of at the frontier; the carriage from the frontier to the interior point of clearance to be in bond under customs manifest prepared by the railway company and signed by a customs officer.

Women Workers at Angus Shops, Canadian Pacific Railway.

In 1915 women workers were introduced into the C.P.R. Angus shops, Montreal,

their lunch can with them, and these they may prepare in the lunch can room which accommodates 200. Soup and bread are provided by the company at cost. Attached to the lunch can room is a rest room, and near the rest room is a first aid room where accidents are treated. Seventeen of the women workers hold certificates of proficiency in first aid work and their services are very valuable when accidents occur.

Men for Railway Work.—As one of the practical results of the National Service Commission's action in having cards filled up and signed throughout Canada, it may be mentioned that the Chief Railway



Fig. 1. Snow Plough and Spreader.

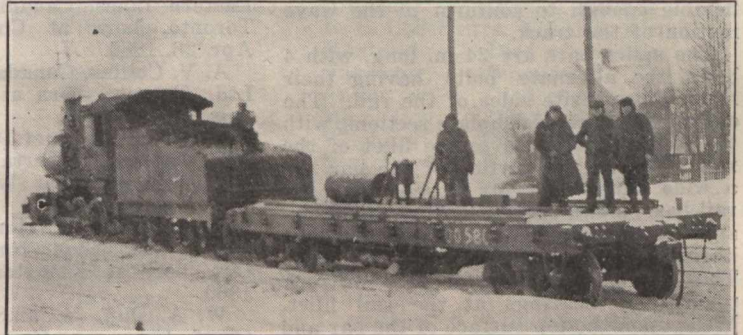


Fig. 2. Air Operated Ice Cutter.

the Kaministikwia River, where over 1500 cars of snow were dumped during the winter.

Fig. 5 shows cyclone snow blower for cleaning out loose or soft snow from the switches and leads. This is an invention of D. McIntyre, the Roadmaster of the Terminals. It is an ordinary fan attached to motor car, and having swinging spout so that it can be swung to either side of the track. Mr. McIntyre hopes to improve on this, so as to affect a big saving next winter.

and 200 are now engaged. They have been organized and work under the supervision of Mrs. J. W. Bell, wife of the superintendent of the Windsor St. Station. Each woman has a locker in which she places her overalls and cap. At the outset it was difficult to induce some of the women to take kindly to the garments which tradition had marked out as male preserves, but after a little while every woman found these working dresses were more convenient than skirts. The overalls have three distinct recom-

Commissioner, in view of the fact that the transportation situation is somewhat unsatisfactory owing to a shortage of men, applied recently to the National Service Board, for a list of experienced men not working at their trades. As a result the names of from 500 to 600 such men were supplied him, and he transmitted them to railway companies requiring such assistance. The men had all expressed their willingness, in the interest of national service, to undertake any duty in Canada which might be neces-



Fig. 3. Removing Snow Between Tracks.

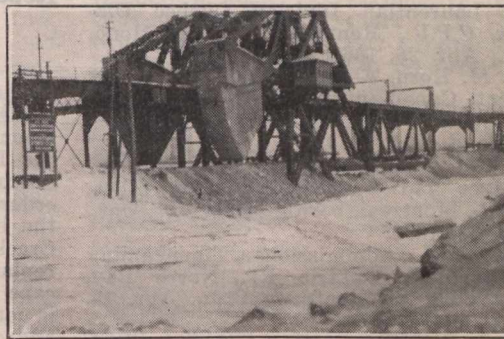


Fig. 4. Kaministikwia River Swing Bridge.

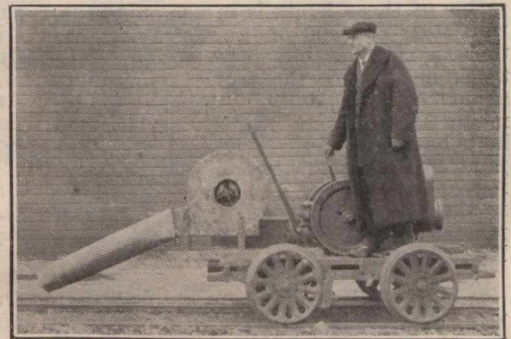


Fig. 5. Cyclone Snow Blower.

Customs Arrangements to Facilitate Coal Movements.

The Board of Railway Commissioners passed general order 182, Feb. 16, as follows:—Upon its being represented to the board that the movement of bituminous coal from the United States to Canada is delayed at the frontier for custom clearance, and that such delay can be obviated by the coal being entered for duty at interior ports of entry or outports; and upon reading what has been filed by the Commissioner of Customs stating that no objection exists to such obviation, although the coal may be billed for customs clearing at the frontier, it is ordered that railway companies be permitted to forward bituminous coal from the United States, billed for clearance of

mendations: they are tidy, sanitary, and safe, allowing their wearers to move amongst the machines without danger of being drawn into machinery clutches.

The women work on the piece system, and they are paid at the same rate as the men. They work among the men with the harmony that prevails in offices where there are male and female clerks. In the Angus shops the woman are to be found sweeping, coach washing, coach painting, working on drills, at lathes, at various kinds of machinery, filing and drilling in the brass shops, brass polishing, operating nut-tapping machines, cleaning dynamos in the electrical department, assisting in the steamfitting centre, and making mattresses and pillows. No woman is asked to do heavy work.

The women take the provisions for

sary, having regard to conditions created by the war.

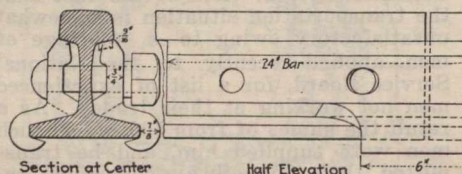
The Engineers in the War.—Capt. D. M. Mathieson, of the Canadian Engineers, who went overseas with the first contingent mobilized at Valcartier, Que., in 1914, and who spent 17 months in Belgium and France, principally in the Ypres region, addressed the Canadian Society of Civil Engineers, Toronto Branch, on Mar. 9, giving a most interesting description of the Canadian Engineers' organization and of their work at the front, dealing particularly with trench construction as well as with the other multitudinous duties.

Alleged Embezzlement.—A. E. D. Stewart, ticket agent, Chicago, Milwaukee & St. Paul Ry., Vancouver, B.C., was committed for trial recently on charges of theft of \$2,698.96.

New Rail Joint of Grip Type.

A rail joint now in experimental use is so designed that the splice bars transmit the pressure or load upon the rail head directly to the junction of the web and base of the rail. The bars have a vise-like grip on the rails at this point, instead of a wedging fit between the head and base of the rails. In this way they prevent relative movement of the two rail ends, both laterally and vertically. The object is to hold the rail ends in exact line and level, and thus to prevent battering and wear of the top and side of the rail heads, as well as to prevent wear of the contact surfaces of the splice bars and rail heads. At the same time the joint is flexible enough to conform to the wave motion of the track.

The splice bars are 24 in. long, with 4 bolts, the alternate bolts having their heads on opposite sides of the rail. The end portions are of fishplate sections, with the lower edge fitted to the fillet of the rail. The middle portion of the bar has a wide flange that fits closely upon the rail base, and a special feature of the design is that this flange has a rib that hooks under the edge of the rail base. Thus the bars cannot oscillate or rock upon their bearings at the rail fillet. Wear upon the top surface of the bar and the bottom of its flange can be taken up by tightening the bolts. This rotates the bars on their bearings, drawing the upper



New Grip Rail Joint.

end inward and the flange upward, so as to maintain the two rails in proper level and line.

One of these joints is in use on 100 lb. rails near the end of a subway, where there is considerable wave motion in the track and where the traffic amounts to about 100 trains daily, with heavy equipment. During six months service the bolts have not required tightening and the joint did not become low, so that no tamping or raising was necessary. The joint is the invention of A. L. Clapp, Roadmaster of the Chicago & Northwestern Ry., Chicago.

A third new railway station at Buffalo, N.Y., is presaged in the approval by the Terminal Commission of plans for a new passenger and freight terminal for the New York Central Lines. The Lehigh Valley is already in its new station and the Lackawanna's new station is fast approaching completion. All three of these stations are within an area of four blocks, the New York Central being immediately alongside the Lehigh Valley. This new station will be on the site of the old, that is, extending along Exchange St. from Washington to Michigan St., and will have full passenger and freight accommodations.

Mount Chamberlin.—The Geographic Board of Canada has named a splendid peak in the Rocky Mountains "Mount Chamberlin," in honor of E. J. Chamberlin, President of the Grand Trunk and Grand Trunk Pacific Railways. The peak is at the southerly end of a massive mountain range in the Grand Fork amphitheatre, and is surpassed only by its near neighbor, Mount Robson.

Birthdays of Transportation Men in April.

Many happy returns of the day to:—

F. G. Adams, Commercial Agent, G. T. R., and Division Freight Agent, Grand Trunk Pacific Ry., Winnipeg, born at St. John's, Nfld., Apr. 6, 1878.

W. H. Ardley, Comptroller, G.T.R., Grand Trunk Pacific Ry., Montreal, born at London, Eng., Apr. 24, 1858.

Jas. Black, Freight Claim Agent, C.P.R., Vancouver, B.C., born near Seaforth, Ont., Apr. 19, 1858.

C. G. Bowker, General Superintendent Eastern Lines, G.T.R., Montreal, born at Medford, N.J., Apr. 21, 1871.

G. C. Briggs, Supervisor of Buildings, Eastern Lines, Canadian Northern Ry., Toronto, born at Cockermonth, Eng., Apr. 23, 1886.

A. V. Collins, Canada Steamship Lines, Ltd., Toronto, born at Island Pont, Vt., Apr. 21, 1868.

R. J. Collins, Chief Dispatcher, Edmonton Division, Alberta District, C.P.R., Edmonton, born at Winnipeg, Apr. 30, 1883.

Sir Henry L. Drayton, K.C., Chief Railway Commissioner for Canada, Ottawa, Ont., born at Kingston, Ont., Apr. 27, 1869.

W. A. Duff, M.Can.Soc.C.E., Assistant Chief Engineer, Canadian Government Railways, Moncton, N.B., born at Hamilton, Ont., Apr. 20, 1877.

A. E. Edmonds, General Agent, C.P.R., Detroit, Mich., born at Woodstock, Ont., Apr. 8, 1866.

A. Gaboury, Superintendent, Montreal Tramways Co., Montreal, born there, Apr. 6, 1875.

B. C. Gesner, Moncton, N.B., formerly Air Brake Inspector, I.R.C., now Eastern Sales Agent, Galena Signal Oil Co., born at Cornwallis, N.S., April 23, 1859.

J. Murray Gibbon, General Publicity Agent, C.P.R., Montreal, born at Ude-wella, Ceylon, Apr. 12, 1875.

V. A. Harshaw, Assistant Superintendent, Laurentian Division, Quebec District, C.P.R., Montreal, born at Mono, Ont., Apr. 26, 1865.

J. M. Horn, Assistant General Freight Agent, Canadian Northern Ry., Winnipeg, born at Allanton Mills, Lanarkshire, Scotland, Apr. 12, 1880.

J. H. Johnston, Superintendent of Bridges and Buildings, Eastern Lines, G.T.R., Montreal, born at Uxbridge, Ont., Apr. 22, 1866.

G. W. Lee, Commissioner, Timiskaming & Northern Ontario Ry., North Bay, Ont., born at Renfrew, Ont., Apr. 15, 1871.

J. D. McMillan, acting Superintendent, Belleville Division, Ontario Lines, G.T.R., Belleville, born in Eldon Tp., Ont., Apr. 5, 1858.

J. A. Macgregor, Superintendent, Edmonton Division, Alberta District, C.P.R., Edmonton, born at Dufftown, Scotland, Apr. 5, 1873.

B. R. Marsales, District Freight Agent, Canadian Northern Ry., Calgary, Alta., born at Guelph, Ont., Apr. 13, 1887.

J. H. Mills, Master Mechanic, Algoma District, C.P.R., North Bay, Ont., born at Sherbrooke, Que., Apr. 23, 1865.

P. Mooney, General Freight and Passenger Agent, Halifax & South Western Ry., Halifax, N.S., born at St. Catharines, Que., Apr. 19, 1871.

Paul J. Myler, President, Canadian Westinghouse Co., Ltd., Hamilton, Ont., born at Pittsburg, Pa., Apr. 24, 1869.

F. L. Nason, General Agent, Passenger Department, C.P.R., San Francisco, Cal., born at Newton, N.H., Apr. 16, 1880.

G. D. Perry, General Manager, Great North Western Telegraph Co., Toronto, born at Whitby, Ont., Apr. 19, 1858.

R. A. Pyne, Superintendent of Motive Power and Car Department, Eastern Lines, C.P.R., Montreal, born at Toronto, Apr. 10, 1874.

R. S. Richardson, Superintendent, District 3, Transcontinental Division, Canadian Government Railways, Fort William, Ont., born at Napanee, Ont., April 9, 1865.

F. Rioux, Assistant to President, Reid Newfoundland Co., St. John's, Nfld., born at Trois Pistoles, Que., April 18, 1867, now on active service.

W. A. Ritchie, District Superintendent, Pullman Co., Montreal, born at Edinburgh, Scotland, Apr. 13, 1854.

E. W. Smith, Superintendent, Dining and Parlor Car Service, G.T.R., Toronto, born at North Bridge, Mass., Apr. 21, 1869.

D. F. Thomas, General Manager, Algoma Eastern Ry., Sudbury, Ont., born in Halton County, Ont., Apr. 20, 1867.

W. S. Tilston, Chief of Montreal Board of Trade Transportation Bureau, born at Manchester, Eng., Apr. 14, 1877.

C. H. Towle, Assistant Superintendent, Brownville Division, New Brunswick District, C.P.R., Brownville, Jct., Me., born at Enfield, Me., Apr. 13, 1878.

E. D. Toye, ex-Storekeeper, Ontario Division, Canadian Northern Ry., Trenton, born at Dalston, Ont., Apr. 27, 1891, now on active service.

E. M. Wood, Deputy Municipal and Railway Commissioner for Manitoba, born at Brantford, Ont., Apr. 20, 1858.

W. Woollatt, Vice President and General Manager, Essex Terminal Ry., Walkerville, Ont., born at Weedon, Hertfordshire, Eng., Apr. 2, 1855.

Repairs Etc. Ordered on St. Martins Railway.

The Board of Railway Commissioners passed Order 25865, Feb. 14, as follows: Upon the report and recommendation of the Board's Assistant Chief Engineer, concurred in by its Chief Engineer, it is ordered that the St. Martins Ry. repair the bridges on its line as follows: McCracken Brook—Decayed stringers to be replaced. Robinson Road—Requires new caps and some new stringers. One bent is not perpendicular and should be braced, and one mud sill should be straightened up. Nodwell bridge—Requires new guard rail. Moonlight trestle—Decayed stringers, posts and mud sills to be replaced. Titus Mill bridge—Some new caps and mud sills required. Titus Mill bridge no. 2 — Decayed stringers to be replaced. German Brook—New steel span to be constructed, or present wooden truss to be repaired. Hanford Brook—New steel span to be constructed, or present wooden truss to be repaired. Porter Brook—New steel span to be constructed, or present wooden truss to be repaired. High Bridge—Floor beams to be replaced and bent in north approach to be repaired.

And it is further ordered that the company reconstruct its roadbed where it runs along the hillside just north of Upham station, where the embankment has been washed away; and erect road crossing signs at highway crossings. The work herein required to be done is to be commenced by April 1, 1917, and completed within 60 days thereafter.

Ladder Dredge for Clearing Snow.

A ladder dredge for excavating snow on the Chilean Trans-Andean Ry. has been designed by W. T. Lucy, of the road's engineering staff. This railway is already equipped with a rotary snow plough built by the American Locomotive Co., but Mr. Lucy states that in deep cuts when the snow is filled to a greater depth than 15 ft., the plough does not work well, as snow has to be shoveled off by hand from the top of the cut. More serious trouble is experienced when a deep cut is filled with snow by an avalanche, as pieces of rock are often brought down with the snow and cause much damage when struck by the rapidly moving blades of the rotary excavator. Mr. Lucy has therefore designed a snow clearing machine consisting of two parallel ladders carrying endless chains of buckets of the pattern usually employed for excavating stiff clay. The snow excavated by these buckets is discharged into a hopper, from which it is discharged by gravity upon a centrifugal ejector which throws it either to the right or left of the track as required. The approximate weight of the machine is about 60 tons. The Chilean Trans-Andean Ry. has not yet been financially able to purchase the machine, but intends to try it as soon as circumstances permit.

Advice to G.T.R. Employees.

E. J. Chamberlin, President G.T.R. and G. T. Pacific Ry., has issued a card as follows: "I desire to bring to the attention of G.T.R. employes the following verses by E. A. Guest, published in the Detroit Free Press. I trust you will study same carefully and that they may prove an inspiration to each of you, with consequent beneficial results to the company which employs you."

Not His Job.

"I'm not supposed to do that," said he
When an extra task he chanced to see;
"That's not my job, and it's not my care,
So I'll pass it by and leave it there."
And the boss who gave him his weekly pay
Lost more than his wages on him that day.

"I'm not supposed to do that," he said,
"That duty belongs to Jim or Fred."
So a little task that was in his way
That he could have handled without delay
Was left unfinished; the way was paved
For a heavy loss he could have saved.

And time went on and he kept his place
But he never altered his easy pace,
And folks remarked on how well he knew
The line of the task he was hired to do;
For never once was he known to turn
His hands to things not of his concern.

But there in his foolish rut he stayed
And for all he did he was fairly paid,
But he was never worth a dollar or more
Than he got for his toil when the week was o'er;
For he knew too well when his work was through
And he'd done all he was hired to do.

If you want to grow in this world, young man,
You must do every day all the work you can;
If you find a task, though it's not your bit,
And it should be done, take care of it;
And you'll never conquer or rise if you
Do only the things you're supposed to do.

Saskatchewan Engineers' Organization.—The Canadian Society of Civil Engineers, Saskatchewan Branch, has appointed L. A. Thornton, J. N. de Stein, of Regina, and J. D. Mackie of Moose Jaw, as a committee to consider matters in connection with the proposed provincial legislation as to the engineering profession. A paper on "Some Aspects of Indian Engineering" was read at a meeting on Mar. 8, by G. W. Montgomery.

The Canadian Pacific Railway's Honor Roll No. 18.

Alexander, George B.	Laborer	Calgary	Wounded
Allingham, J. R. E.	Brakeman	Medicine Hat	Presumed dead
Armstrong, Arthur P.	Brakeman	Cranbrook	Presumed dead
Bailey, Arthur	Clerk	Outremont	Wounded
Beggs, J. P.	Switchman	Glen Yard	Wounded
Bell, Gerald Joseph	Clerk	Winnipeg	Wounded
Bennet, John George	Nut tapper	Winnipeg	Wounded
Bibby, Lawrence	Wiper	Calgary	Wounded
Biddlecombe, G. A.	Constable	Vancouver	Wounded
Bishop, Gilbert	Clerk	Montreal	Wounded
Blois, George	Locomotive man	Regina	Presumed dead
Bowden, Chris. J.	Checker	New Westminster	Presumed dead
Brown, John A.	Trainman	Regina	Suffering from shock
Buckle, Thos. W.	Locomotive fireman	Brandon	Died of wounds
Campbell, George	Fireman	B. C. Coast Strs.	Killed in action
Chaffey, Joseph	Waiter	Montreal	Died of wounds
Chapman, George	Checker	Vancouver	Wounded
Clark, Charles B.	Clerk	Angus	Died of wounds
Colley, Vincent	Locomotive fireman	Minnedosa	Killed in action
Copping, Ernest N.	Instrumentman	Weyburn	Wounded
Corbin, Harold J.	Steamfitter	McAdam Jct.	Killed in action
Cornwall, Chas. W.	Buffer	Angus	Presumed dead
Cregg, Joseph	Tinsmith	West Toronto	Wounded
Crouch, Jack	Porter	Port McNicoll	Died of wounds
Cumine, Butler P.	Night watchman	Glacier House	Presumed dead
Davidson, Henry	Apprentice carpenter	Winnipeg	Suffering from shock
Davies, John T.	Brakeman	Moose Jaw	Wounded
Decker, Archie	Apprentice	Coquitlam	Killed in action
Delaney, Martin	Locomotive fireman	Outremont	Wounded
Dickinson, Chas. E.	Machinist's apprentice	Winnipeg	Presumed dead
Dove, Andrew	Machinist	Winnipeg	Killed in action
Dubois, John	Janitor	Regina	Presumed dead
Edgar, John	Painter	B. C. District	Wounded
Fawcett, Archie	Clerk	Moose Jaw	Wounded
Gallagher, Jas. W.	Checker	Montreal Wharf	Presumed dead
Gammon, Lee	Locomotive fireman	Cranbrook	Wounded
Gordon, Harry	Wiper	Medicine Hat	Presumed dead
Gray, David	Locomotive fireman	B. C. District	Wounded
Green, John	Wiper	Minnedosa	Wounded
Greentree, Geo. D.	Rodman	Strathmore	Killed in action
Guyot, Alfred	Boilermaker's appren.	Angus	Suffering from concussion
Gwinn, Cecil	Wiper	Dunmore	Wounded
Hall, Joseph	Storeman	Montreal	Presumed dead
Harrison, Robt. H.	Trimmer	West Toronto	Wounded
Henderson, John	Locomotive fireman	Kenora	Wounded
Hern, Loftus Roy	Clerk	Edmonton	Presumed dead
Hill, Albert	Car repairer	North Bay	Presumed dead
Hinton, Thomas	Car repairer	Windsor, Ont.	Killed in action
Jenkins, Alexander	Clerk	Montreal	Died of wounds
Johnson, W.	Pantryman	Chateau Frontenack	Killed in action
Kay, Robert	Cook	Montreal	Wounded
Keay, George N.	Locomotive fireman	Cranbrook	Wounded and missing
Kinne, Hudson P.	Trainman	La Riviere	Wounded
Lamourie, Peter	Switchman	Winnipeg	Wounded
Lawson, Frederick	Lineman	Revelstoke	Wounded
Leonard, Frederick	Specialist	Angus	Presumed dead
Lewis, Arnold	Cook	Montreal	Wounded
Longmire, Harold	Transferman	North Bay	Died of wounds
Loveridge, Harold D.	Laborer	Glen Yard	Wounded
Lowe, George	Loader	Lethbridge	Wounded
McDermott, Chas.	Bellboy	Winnipeg	Presumed dead
McKenzie, Alex.	Cook	Montreal	Wounded
McNicol, James	Trainman	North Bay	Wounded
Marr, Lionel Geldert	Gardener	Duncan	Suffering from shock
Mead, Mark	Cook	Montreal	Died of wounds
Morkill, Francis E.	Transport'n student	Toronto	Killed in action
Newman, George S.	Clerk	Winnipeg	Wounded
Norton, Cecil H.	Draftsman	Montreal	Presumed dead
Parkinson, Alfred O.	Brakeman	Red Deer	Killed in action
Parnell, Reginald R.	Laborer	Muskoka	Wounded
Pope, Chirs. L.	Stakeman	Kootenay Cent. Ry.	Presumed dead
Queenville, Stephen	Sectionman	Green Valley	Wounded
Renton, Sidney C.	Locomotive man	Lethbridge	Presumed dead
Robinson, Alfred	Leading handler	Montreal	Wounded
Robinson, John R.	Cook	Montreal	Wounded
Roughton, Clifford G.	Baggage checker	Calgary	Presumed dead
Sexton, F. J.	Laborer	Winnipeg	Wounded
Spencer, Kenneta M.	Clerk	Cranbrook	Killed in action
Sweeney, James A.	Purser	B. C. Lake Strs.	Died of wounds
Todd, Arthur	Brakeman	Laurentian Div.	Died of wounds
Wade, Robert C.	Locomotive fireman	Winnipeg	Killed in action
Westwood, William	Chef	Montreal	Believed killed
Wood, W. J.	Waiter	B. C. Coast Strs.	Presumed dead
Woodward, Frederick	Car repairer	Cranbrook	Killed in action

Increase in Cost of Railway Coal.

The coal bill of Canadian railways will show an increase of over \$8,000,000 this year. The railway coal contracts are mostly made to cover a twelve month period from April to April each year, and the railway purchasing officers are now making their agreements with the mines. "Just what the actual increase will be cannot be determined for a few weeks," said one purchasing agent in Montreal recently, "but indications are that the increase in the price of railway coal will range from 75 to 150% over last year's prices. The fuel bill of the railways is already an enormous one, and the new additions to the price will prove a heavy strain on the revenues of the roads. The Canadian lines carry an added burden in the form of a 7½% duty on the coal imported. This tax is under the War Revenue Act of 1915, and is computed on the value of the coal. With the doubling up in the price of fuel during the next twelve months, this taxation will also be increased to a very large figure. A very large proportion of the coal used on Canadian railways must be brought from the United States. The cause of the increased price lies in the abnormal demand for all classes of steam coal, due to the great industrial activity prevailing. Plants which previously ran 12 hours a day are now operating for the full 24 hours, and fuel demands have increased proportionately. Just what the future holds in the way of ever increasing costs of operation for railways cannot be accurately gauged, but the increase in

the price of coal finds a parallel in nearly all other staples used by the lines. That the situation is very serious, railway executives fully realize, especially as they are selling transportation service at rates fixed long before these increases were thought probable or possible."

Canadian Pacific Railway Double Track Mileage.

The following table shows the double track actually in operation by the C.P.R.

Quebec District.		Miles.	Miles.
Montreal (Windsor St.)—Smiths Falls yard		129.20	
Montreal West—Brookport		44.79	
Montreal West—Mile End		7.11	
Montreal (Place Viger)—Ste. Therese		20.11	
Montreal Terminals (additional mileage)		3.90	
			205.11
Ontario District.			
Smiths Falls—Glen Tay		14.83	
Agincourt—Leaside		7.58	
Don—Parliament St.		0.78	
Toronto—Guelph Jct.		39.10	
Toronto (Bathurst St. Jct.)—Hamilton		39.10	
North Toronto line		3.93	
London Terminals		0.62	
			105.95
Algoma District.			
Romford—Sudbury		6.80	
Azilda—Genever		30.20	
Roberts—Woman River		25.90	
Nemegos—Esher		25.50	
Healy—Bolkow		19.10	
Depew—King		27.10	
Heron Bay—Peninsula		8.40	
Selim—Pays Plat		13.70	
Cavers—Gurney		11.00	
Fire Hill—Rugby		4.20	
Navilus—Port Arthur		8.10	
			180.00

Manitoba District.	
Port Arthur—Winnipeg	426.30
Winnipeg Terminals	23.20
Winnipeg—Virden	179.30
Whitewood—Broadview	14.30
	643.00
Saskatchewan District.	
Broadview—Grenfell	16.00
Indian Head—Swift Current	194.20
	210.20
Alberta District.	
Swift Current—Java	6.00
Calgary Terminals	6.20
	12.20
British Columbia District.	
Connaught—Glacier	5.80
Revelstoke—Taft	24.20
Pritchard—Kamloops	24.10
Kamloops—Tranquille	8.70
Ruby Creek—Vancouver	81.10
	143.90
	1,500.36

*The 39.10 miles between Bathurst St. Jct., Toronto & Hamilton, is G.T.R., over which the C.P.R. has running rights.

The total of 1,500.36 miles is very much greater than the double track mileage of any other line in Canada; in fact it exceeds that of all the other Canadian railways put together. Alternative routes are also in operation between the points named below and they are practically equivalent to double track. The mileage of the shortest route between the two points is shown in each case.

	Miles.
Ontario District—	
Gley Tay to Agincourt via Peterboro..	181.70
Manitoba District—	
Virden and McAuley	36.50
Alberta District—	
Java and Bassano	230.20
Gleichen and Shepard	41.00
	489.40

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.

The dates given of orders, immediately following the numbers, are those on which the hearings took place, and not those on which the orders were drawn.

General order 182, Feb. 16.—Re forwarding of bituminous coal from United States billed for clearance at frontier. This order is given in full on another page.

General order 183, Feb. 24.—Re filing of express companies tariffs. This order is given in full on another page.

25873, Feb. 19.—Ordering Vancouver, Victoria & Eastern Ry. & Navigation Co. to build farm crossing for R. C. Johnston, Bridesville, B.C. at his cost; work to be completed within 30 days.

25874, Feb. 16.—Authorizing C.P.R. to build spurs for Credit River Works, Ltd., Toronto Tp., Ont.

25875, Feb. 17.—Approving plans showing freight sheds to be erected by Northern Pacific and B. C. Ry. Co. at New Westminster, B.C.

25876, Feb. 20.—Authorizing Canadian Northern Ry. to occupy C.P.R. land, being part of s.e. ¼ Sec. 32-16-26, w. 2 m. Sask.; if parties fail to agree as to compensation, same to be determined by arbitration clauses of Railway Act.

25877, Feb. 16.—Approving agreement between Bell Telephone Co. and Graham Private Telephone Line, Ltd., Terrebonne County, Que.

25878, Feb. 16.—Authorizing Canadian Northern Ry. to remove Celtic Brick Co.'s spur near Prince Albert, Sask.

25879, Feb. 19.—Approving agreement between Bell Telephone Co. and Saugeen Rural Telephone Co., Bruce County, Ont.

25880, Feb. 20.—Ordering C.P.R. to build farm crossing for R. J. Jary, Winnipeg, Man., at his cost; work to be completed by May 1.

25881, Feb. 19.—Ordering that half interlocking plant installed at crossing of G.T.R. Lachine Wharf Branch, by Montreal Park & Island Ry. (Montreal Tramways Co.), at Notre Dame St., Lachine, Que., be operated between 6.30 a.m. and 6 p.m. by signalman, appointed and paid by M. T. Co.; and, until traffic shall demand night and day signalmen, any G.T.R. movement after 6 p.m. to be flagged over crossing by G.T.R. crew.

25882, Feb. 22.—Ordering Canadian Northern Ry. to enlarge station at Birch Hills, Sask., and

relocate same at east end of yard, on south side of tracks; to be completed by Sept. 1.

25883, Feb. 22.—Authorizing Provincial Bank of Canada, St. Eustache, Que., to repay C.P.R. \$1,250 deposited to the Board's credit with accrued interest.

25884, Feb. 22.—Ordering C.P.R. and Grand Trunk Pacific Ry. to interchange traffic on existing government elevator track at Moose Jaw, Sask., pending location of permanent transfer tracks, and in meanwhile operation under order 25485, Sept. 30, 1916, is suspended.

25885, Feb. 23.—Requiring Grand Trunk Pacific Ry. to appoint station agent at Delburne, Alta., by Feb. 28.

25886, Feb. 23.—Amending order 25848, Feb. 3, re Canadian Northern Ry. highway diversion between Sec. 15-27-4 and Sec. 2-28-4, w. 4 m., Alta.

25887, Feb. 24.—Ordering Canadian Northern Quebec Ry. to build boom about 1,200 ft. long on Rouge River, Arundel Tp., Que., according to plan filed; to be completed by Apr. 1.

25888, Feb. 24.—Approving revised location of C.P.R. shelter at Emery, Ont.

25889, Feb. 19.—Ordering G.T.R. to appoint watchman at crossing just east of Amigari station, Ont., between 7 a.m. and 7 p.m., daily, watchman to see all cars are kept back 100 ft. from each side of crossing; G.T.R. to be relieved from speed limitation of 10 miles an hour at crossing.

25890, Feb. 22.—Authorizing G.T.R. to rebuild bridge 290 over Pine River, Essa Tp., Ont.

25891, Feb. 15.—Approving agreement between Bell Telephone Co. and East Luther Telephone Co., Dufferin County, Ont., Feb. 6.

25892, Feb. 26.—Authorizing C.P.R. and Sudbury-Copper Cliff Suburban Electric Ry. to operate over crossing in Sudbury, Ont., without first stopping; speed over crossing limited to 10 miles an hour.

25893, Feb. 22.—Rescinding order 24968, May 6, 1916, re rates on pig lead, spelter and antimony. This order is given in full on another page.

25895, Feb. 26.—Ordering C.P.R. to build standard A-2 station at Major, Sask., by July 1.

25896, Feb. 26.—Relieving C.P.R. from providing further protection at crossing between Secs. 11 and 14-17-9, w. 2 m., Sask.

25897, Feb. 22.—Rescinding order 25082, June 17, 1916, re rates on copper commodities from Spelter, Grand Forks and Greenwood, B.C., to Eastern Canada. This order is given in full on another page.

25893, Feb. 26.—Authorizing Mount Royal Tunnel & Terminal Co. (C.N.R.) to build its railway, temporarily, for not exceeding 5 years from date,

across Cote de Liesse Road, St. Laurent Parish, Que., and reserving right to parties concerned to apply to board for variation of order on a changed state of facts.

25898, Feb. 26.—Extending, for 30 days from date, time within which C.P.R. shall install bell at crossing between Lot 22, Con. 1, and Lot 22, Broken Front Con., Darlington Tp., Ont.

25899, Feb. 26.—Authorizing C.P.R. to rebuild bridge 75.6 over Dutch Creek, Kootenay Central Subdivision, B.C.

25900, 25901, Feb. 26.—Authorizing Canadian Northern Ontario Ry. to build bridges across Gordon Creek at mileage 110.7 and 110.9 north from Parry Sound.

25902, Feb. 26.—Authorizing C.P.R. to make highway diversion along southern boundary of right of way in n.e. ¼ Sec. 9-10-10, w. 2 m. in lieu of road allowance on eastern boundary; diversion to cross tracks at grade; C.P.R. to close diverted portion within right of way limits.

25903, Feb. 26.—Approving Essex Terminal Ry. Standard Tariff C.R.C. 361, and rescinding order 10016, Mar. 30, 1910, approving its Standard Freight Tariff C.R.C. 37.

25904, Feb. 26.—Re clause in C.P.R. schedules respecting existing milling-in-transit arrangement at Montreal with respect to destinations on Canadian Government Railways. This order is given in full on another page.

25905, Feb. 26.—Ordering Canadian Northern Ry. to build station at Norway Bay, Que., by May 1.

25906, Feb. 28.—Amending order 15090, Oct. 11, 1911, authorizing construction of subway at Birch Ave., Hamilton, Ont., under Toronto, Hamilton & Buffalo Ry. spur; to provide that cost of maintaining subway be paid by city.

25907, Feb. 27.—Amending order 25558, Oct. 20, 1916, re crossings of highway by G.T.R. and C.P.R. at Dorval, Que.

25908, Feb. 28.—Authorizing Michigan Central Rd. to operate interlocking plant at crossing of G.T.R., at Canfield, Ont.

25909, Feb. 28.—Authorizing Toronto, Hamilton & Buffalo Ry. to operate its car ferry dock and slip on Grand River at Port Maitland, Ont.

25910, Mar. 2.—Authorizing Alberta Public Works Department to extend Newlands St., Loughheed, across C.P.R.

25911, Mar. 2.—Approving stress sheet, Dec. 15, 1916, showing details of superstructure between bents 12 and 15 over C.P.R., at Moose Jaw, Sask., authorized by order 20376, Sept. 20, 1913.

25912, Mar. 1.—Ordering Bell Telephone Co. to remove and relocate its poles on Main St., Richmond, Que.

25913. Mar. 2.—Amending order 25905, Jan. 12, requiring Canadian Northern Ontario Ry. to erect shelter at Merivale, Ont.

25914. Mar. 2.—Authorizing Alberta Public Works Department to build highway crossing over C.P.R. between Secs. 28 and 33-43-11, w. 4 m.

25915. Mar. 2.—Authorizing Canadian Northern Ry. to build transfer track under Moose Jaw Electric Ry. at Fourth Ave.

25916 to 25921. Mar. 5.—Authorizing British Columbia Public Works Department to build highway crossings over C.P.R. at mileages 32.62, 28.64, 29.42 west of Revelstoke; 4.46 south of Revelstoke; 37.61 and 43.38 west of Revelstoke.

25922. Mar. 5.—Authorizing C.P.R. to divert road allowance on southerly boundary of Sec. 27-20-6, w. 2. m., Sask.; to carry diversion across its Neudorf Subdivision, at grade, at mileage 113.8, and to close diverted portion within the right of way limits.

25923. Mar. 5.—Authorizing Canadian Northern Ry. to build bridge across Wilson River at mileage 186.7, Kamsack Subdivision, Man.

25924 to 25926. Mar. 6.—Approving Bell Telephone Co.'s agreements with Silver Creek Telephone Association, Bruce County, Ont., July 20, 1915; Snake River Telephone Association, Renfrew County, Ont., Aug. 25, 1915; and Metcalfe Rural Telephone Co., Carleton County, Ont., Feb. 23, 1917; and rescinding order 12254, Nov. 11, 1910, approving agreement dated Jan. 19, 1910.

25927. Mar. 5.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur in Hamilton, Ont., from its belt line, near Primrose Ave., northerly across Primrose Ave., two alleys, and Chipman Holton Knitting Co.'s lands, to point marked "earth bumping post, 5+70."

25928. Mar. 6.—Approving plan showing layout of proposed interlocking plant to be installed where Trent Valley Canal crosses Canadian Northern Ontario Ry. near Washago.

25929. Mar. 7.—Authorizing C.P.R. to build spur for Mond Nickel Co., at mileage 25.1, in Lot 2, Con. 2, Drury Tp., Ont.

25930. Feb. 7.—Authorizing C.P.R. to build diversion at grade across tracks in lieu of existing road allowance on eastern boundary of s.e. ¼ Sec. 28-16-25, w. 2 m., Sask.; and to close diverted portion within right of way limits.

25931. Mar. 9.—Authorizing Canadian Northern Quebec Ry. to build spur for International Manufacturing Co., Ltd., Longue Pointe Parish, Montreal.

25932. Mar. 10.—Ordering that crossing of Canadian Northern Ry. and C.P.R. at Bay Bridge Road, Belleville, Ont., be protected by gates operated by day and night watchmen; cost to be divided equally between companies.

25933. Mar. 12.—Approving plans, Nov. 1, 1916,

showing electrification of Mount Royal Tunnel & Terminal Co.'s railway and crossings of Jacques Cartier Union Ry. and Cartierville Road, excepting portion south of Cathcart to Lagauchetiere St., Montreal.

25934. Mar. 9.—Directing that cost of supplies for cabin and watchmen at crossing of Main St., Hamilton, Ont., under order 24328, Oct. 16, 1915, be divided equally between City of Hamilton, G.T.R. and Hamilton, Grimsby & Beamsville Electric Ry.

25935. Mar. 12.—Authorizing Canadian Northern Ry. to build additional siding for Edwin Crabtree & Sons, Crabtree, Que., to be completed within three months from date.

25936. Mar. 12.—Authorizing G.T.R. to build spur for Canadian Steel Foundries, Ltd., Montreal.

25937. Mar. 13.—Authorizing C.P.R. and Jacques Cartier Union Ry. to operate trains, over crossing at Ballantyne, Montreal, without first stopping.

25938. Mar. 13.—Authorizing G.T.R. to build spur for Grasselli Chemical Co., Hamilton, Ont.

25939. Mar. 14.—Approving plan, Feb. 13, showing location of G.T.R. passenger station adjoining Church St., Mimicoe, Ont., authorized under order 25851, Jan. 30.

25940. Mar. 17.—Extending for three months from date time within which G.T.R. shall complete spur for International Harvester Co. of Canada, Hamilton, Ont., authorized under order 24801, Mar. 14, 1916.

25941 to 25943. Mar. 16.—Approving Bell Telephone Co.'s agreements with South Diagonal Telephone Association, Grey County, Ont., June 5, 1915; Upper Adamston Telephone Co., Renfrew County, Ont., Feb. 22, 1917; Udney Telephone Co., Ontario County, Ont., Mar. 3, 1917.

25944. Mar. 16.—Approving Canadian Northern Ry. Supplement 1 to Tarif C.R.C. no. W-1283, providing for maximum passenger fare of 4c. a mile on line west of Tannis, Alta.

25945. Mar. 19.—Ordering Niagara, St. Catharines & Toronto Ry. Co. to proceed forthwith with such alterations or additions to its rails and electrical connections thereof as will result in preventing further injury to underground metal pipes of Niagara Falls Corporation, Ont., and Provincial Natural Gas & Fuel Co.; work to be completed within three months.

25946. Mar. 20.—Authorizing Canadian Northern Quebec Ry. to build spurs for Imperial Oil Co., Ltd., in Pointe aux Trembles Parish, Que.; to cross Montreal Terminal Ry., C.N.Q.R., and Montreal Tramways Co.'s tracks on Notre Dame St.; and to remove cross-over tracks shown in red on plan; protection at crossings to be approved by Board's Chief Engineer.

25947. Mar. 19.—Authorizing Canadian Northern Ry. to build across Sixth Ave., Moose Jaw,

Sask., and rebuild bridge there.

25948. Mar. 19.—Ordering Edmonton, Dunvegan & British Columbia Ry. to appoint caretaker at Tomkin's Crossing, Alta., to see that station is kept for accommodation of passengers and package and perishable freight, and for delivery of shipments between 8 a.m. and 6 p.m.

25949. Mar. 13.—Ordering Grand Trunk Pacific Ry. to erect shelter at Keppel, Sask., not to be below Board's standard 1-A; to provide for heating same, and the necessary flagging equipment.

25950. Mar. 19.—Dismissing C.P.R. application for order apportioning cost of signals to be provided on its Winnipeg Beach Subdivision, Man.

25951. Mar. 19.—Dismissing dispute between Grand Trunk Pacific Ry. and Canadian Northern Ry. regarding reparation claimed by G.T.P.R. on account of C.N.R. interswitching to Canada Cement Co.'s spur, Winnipeg.

25952. Mar. 21.—Authorizing North American Collieries, Ltd., to build two mine entries under Grand Trunk Pacific Ry. in Sec. 19-53-7, w.5m., Alta.

25953. Mar. 21.—Authorizing Canadian Northern Ry. to build across road allowance between Secs. 28 and 33-4-12, w.p.m., Man.

25954. Mar. 22.—Establishing delivery limits for Dominion Express Co. in Trail, B.C. This is given fully under "Among the Express Companies" on another page.

25955. Mar. 21.—Authorizing Canadian Northern Ry. to build spur for Woodward Elevator Co., Portage la Prairie, Man.

25956. Mar. 22.—Authorizing C.P.R., Canadian Northern Ry. and Grand Trunk Pacific Ry. to charge \$3 a car for lining cars for flaxseed in bulk, subject to conditions in order 23894, June 22, 1915.

25957, 25958. Mar. 22.—Relieving C.P.R. from providing further protection at highways near Kent Bridge and Merrickville, Ont.

25959. Mar. 22.—Requiring Boston & Maine Rd. to install bell at Comstock Bridge crossing, near Lennoxville, Que.

25960. Mar. 23.—Approving agreement between Bell Telephone Co. and Flos Tp., Ont., Feb. 13, 1917.

25961. Mar. 22.—Ordering Edmonton, Dunvegan & British Columbia Ry. to build siding and station facilities to take care of l.c.l. freight and express matter, and shelter for passengers, at west switch of branch connection in Sec. 16-78-5, w.6m., Alta.; work to be completed by July 15; station not to be below standard 1-B.

25962. Mar. 24.—Amending order 25949, Mar. 13, substituting Mead for Keppel.

General order 184. Mar. 22.—Amending order 8860, Dec. 10, 1909, re supply of car doors by railway companies.

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

Alberta & Great Waterways Ry.—R. Douglas, Inspecting Engineer of the Alberta Railways Department, returned to Edmonton, Mar. 5, from an inspection of construction on the line. He is reported to have said that steel is laid to mile 240, within 50 miles of McMurray, and that the intervening mileage is expected to be laid by the middle of April. Tracklaying was commenced on Dec. 17, at mileage 202, but was held up from time to time by snow and other bad weather conditions. It was expected to have the track laid to Clearwater River, mileage 274, before the end of March, which would open traffic to McMurray by scows. The whole of the bridge work has been completed. Freight is being carried by the railway to mileage 233 and is teamed thence to McMurray. (Mar., pg. 100.)

Central Canada Rd. & Power Co.—A committee of the Manitoba Legislature, which has been considering the bill asked for by this company, has struck out all the sections and clauses granting power franchises, and the bill simply becomes one for the incorporation of a company to build a railway. The title will probably be altered to the Central Ry. Manitoba Co., so as to make it conform to the other J. D. McArthur charters in Saskatchewan and Alberta. The intention of the company is said to be to start at Selkirk or St. Boniface this spring and build to Winnipeg River. Next year the road may be pushed on to the mines at Rice Lake, as the charter will call for completion of at least 100 miles in two years. Within five years the entire line

to Hudson Bay, 400 miles, must be built. A section is being added to give the Manitoba Government power to purchase the entire undertaking at any time for the then fair value as a going concern. (Mar., pg. 100.)

Central Canada Ry.—Application is being made to the Minister of Public Works, under the Navigable Waters Protection Act, for approval of site of and plans for a bridge across the Peace River in front of Lot 4, Block 1, River Lot 8, of the Peace River Settlement at Peace River, Alta.

W. R. Smith, Chief Engineer, is reported to have said, Mar. 12, that rapid progress is being made with the work of putting in the substructure for this bridge. The caisson for pier 8 was successfully launched through the ice, Feb. 24; and those for piers 6 and 7 are nearly ready for launching. Gangs are working night and day at the bridge site. (Feb., pg. 50.)

Central Canada Saskatchewan Ry.—The Saskatchewan Legislature has incorporated a company with this title to build from the western boundary of the province to Prince Albert, and such other lines as may be designated by the government. This is part of the McArthur lines now under construction in Alberta, which it is proposed to connect with points in Saskatchewan, and, according to press reports, with Winnipeg. (Mar., pg. 100.)

Crows Nest & Tent Mountain Ry.—The Alberta Legislature is being asked to incorporate a company with this title to

build a railway from Crowsnest, on the C.P.R. line, west of Macleod, southerly through Tps. 8 and 7, west of the 5th Meridian, to and across the s. ½ of Section 63, Tp. 7, Range 6, about six miles. The office is to be at Tent Mountain, Alta.; the capital is fixed at \$50,000, and bonds are to be issued for \$20,000 a mile. The provisional directors are: J. C. McDonald, L. McDonald and W. G. Atkinson, Edmonton, Alta.

Esquimalt & Nanaimo Ry.—H. S. Beasley, General Superintendent, Victoria, B.C., is reported to have said in an interview recently that from \$125,000 to \$150,000 will be spent on the line for betterments this year, including the building of a permanent steel structure to replace a wooden trestle put in when the line was constructed in 1910-11 to the west coast. A good deal of the money will be expended on the Alberni Branch.

Plans are reported to have been filed at Ottawa for a swing bridge across the inner harbor at Victoria, B.C., to carry tracks into the Store St. station. The structure proposed to be erected is the steel bridge formerly carrying the C.P.R. across the Red River at Winnipeg, and now stored at Coquitlam. (Mar., pg. 100.)

Grand Trunk Pacific Ry.—The Board of Railway Commissioners, on Mar. 14, gave a decision as to the location of the station at Prince George, B.C. The matter has been at issue since 1912 between the company and rival real estate agents, who each claimed to have the "only and original location."

The Minister of Public Works is being asked to approve of site of and plan for a lumber mill and other works to be erected in front of Waterfront Block I, Prince Rupert Harbor, B.C. (Feb., pg. 51.)

Grand Trunk Ry.—We are officially advised that plans for the proposed freight sheds at Mimico, Ont., are before the Board of Railway Commissioners. (Mar., pg. 50.)

Great Northern Ry.—F. L. Townley, architect in charge of the erection of the terminal station and other buildings on False Creek, Vancouver, B.C., is reported to have stated that 90% of the work on the station proper was completed, and it was expected to have it completed by Mar. 30. Work has been started on the locomotive house and other buildings. A car yard is being laid out about a quarter of a mile east of the passenger station. It will contain 4 tracks, each 1,500 ft. long, and will be piped for steam, compressed air, water and air brake testing lines, and provision will also be made for battery charging. (Mar., pg. 101.)

Greater Winnipeg Water District.—It is reported by the auditors that up to Dec. 31, 1916, out of \$6,180,799.94 expended for all purposes, \$1,595,666.23 was expended upon the commission's railway and its equipment.

The commission has adopted a recommendation of Chief Engineer Chace for the pipe line route between Deacon and the Red River. This is an air line route direct from Deacon to the Dawson Road, just east of the St. Boniface municipal yards. In connection with it, Mr. Chace reported that where considered solely as a pipe line route or from the standpoint of providing in addition a route for a permanent railway entrance to St. Boniface, this route is the cheapest and most satisfactory. A 100 ft. right of way will be provided the entire distance. (Jan., pg. 19.)

The Michigan Central Rd.'s station at Charing Cross, Ont., was totally destroyed by fire, Mar. 9. Arrangements are being made for rebuilding. (Mar., pg. 101.)

Montreal Central Terminal Co.—The Dominion Parliament is being asked to extend the time within which the company may build its terminal station, with railways, tunnels, and bridge connections in and around Montreal. F. E. Came, Montreal, is Secretary. (June, 1916, pg. 281.)

Pacific Great Eastern Ry.—Information as to the legislative investigation into the company's affairs is given on another page of this issue.

Construction work on the line is reported suspended for the present at least. (Mar., pg. 101.)

Prince Edward Island Ry. Car Ferry.—A press report from Charlottetown, P.E.I., states that it is expected that the car ferry service between Port Borden, P.E.I., and Cape Tormentine, N.B., will be inaugurated in August. (Feb., pg. 51.)

Saskatchewan & Hudson Bay Ry.—The Saskatchewan Legislature has incorporated a company with this title to build a railway commencing in Tp. 17 or 18, Range 30, West of the 3rd meridian, easterly through Tps. 16, 17 and 18 to Range 22 in either of these townships, thence northeasterly to Cabri, thence northerly and easterly to a point in either Tps. 27, 28, 29 or 30, in Ranges 11, 12, 13 or 14, thence northeasterly to Saskatoon. The capital is fixed at \$100,000; and power is asked to issue bonds for \$30,000 a mile. The office is to be in Re-

gina. The provisional directors named are: H. Keeble, Haverhill, Sask.; L. L. Dawson, Regina, and F. Crandall, Calgary, Alta.

From the association of F. Crandall, it would appear that this railway is being incorporated to build the Saskatchewan section of a railway project covered by the charters of the Calgary & Fernie Ry. and the High River, Saskatchewan & Hudson Bay Ry., and extending from Fernie, B.C., to Fort Churchill, on Hudson Bay. (See Alberta-Hudson Bay Ry., Mar., pg. 101.)

St. John & Quebec Ry.—We are officially advised that a contract has been let to the Nova Scotia Construction Co. for building the section of this railway from the present northerly terminus at Centreville, N.B., to a connection with the C.P.R. at Andover, about 26 miles. Construction work will be started early in the spring.

F. W. Summer, President, St.J. & Q.R., is reported as stating, Mar. 10, that the Nova Scotia Construction Co. would start work on the new section of the line from Centreville to Andover as soon as weather conditions permit.

T. Cozollino, President of the N. S. Construction Co., is reported to have said, Mar. 10, that satisfactory progress had been made with construction on the southern section of the line from Georgetown to Westfield during the winter. A good deal of the heavier part of the work, including a considerable amount of bridge work, has been done. (Mar., pg. 101.)

St. Maurice Construction Co., Ltd.—The Shawinigan Water & Power Co.'s annual report for 1916 has the following reference to one of its subsidiaries: "During the past year the St. Maurice Construction Co., Ltd., a subsidiary of your company, has continued the construction on the La Loutre storage dam, and steady progress is reported on this work. During the early part of the year the work consisted in building 20 miles of railway, the organization of the river transportation system and the construction of the cofferdams in the east channel of the river. The concrete has now been placed in the east channel and work is proceeding on the west, or main channel. The work is up to schedule and should be completed at the end of 1917."

We are officially advised that the railway parallels the St. Maurice River for 20 miles, beginning at Chaudiere Falls, on the river bank, 30 miles above Weymontachine, or Weymont station, on the National Transcontinental Ry. The line is standard gauge. It is operated by locomotive burning fuel oil. There are four contractors' locomotives, 18 flat cars, two box cars and 24 dump cars. The contractors and engineers were the St. Maurice Construction Co., Ltd., with Fraser, Bryce & Co., Ltd., Montreal, as supervising engineers. The maximum grade is 3½%, and the maximum curvature 18 deg.

River transportation operates between Weymont, or as a matter of fact, from Sanmaur, which is the name of a station opened for the St. Maurice Construction Co.'s operations, two miles from Weymont, to the point on the river where the railway begins. The outfit consists of about 20 scows, with capacities of between 12 and 30 tons each. These are towed by gasoline and steam tow boats. At one point in the river it is so swift that an alligator boat is used to pull the scows up. The towing is in two divisions above and below this swift water. The railway and river systems are used only

for the St. Maurice Construction Co.'s operations and business incidental to the construction of the dam.

We are further officially advised that it is impossible to state what will be the future of this railway, whether it will be taken up on the completion of the dam, or whether it will be made a permanent work and extended.

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, compared with those of 1915-16, from July 1, 1916:

	Gross Earnings	Expenses	Net Earnings	Increase
July	\$3,834,200	\$2,636,800	\$1,197,400	\$ 711,000
Aug.	3,684,900	2,612,900	1,072,000	614,300
Sept.	3,187,900	2,455,300	732,600	x177,300
Oct.	3,716,800	2,496,500	1,220,300	x36,700
Nov.	3,722,300	2,472,300	1,250,000	38,600
Dec.	3,485,400	2,661,600	823,800	x378,300
Jan.	2,832,600	2,350,500	482,100	226,700
Feb.	2,358,600	2,250,400	108,200	x21,200

	\$26,822,700	\$19,936,300	\$6,886,400	\$ 977,100
Incr	\$5,295,100	\$4,318,000	\$ 977,100	.....

Approximate earnings for three weeks ended Mar. 21, \$2,126,400, against \$1,627,200 for same period, 1916.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1915-16, from July 1, 1916:

	Gross Earnings	Expenses	Net Earnings	Increase
July	\$12,247,440.39	\$8,230,348.66	\$4,017,091.73	\$1,216,688.61
Aug.	13,570,467.31	7,802,680.46	5,467,786.85	2,025,472.13
Sept.	12,134,159.96	7,004,400.80	5,129,759.16	384,458.52
Oct.	13,237,086.36	7,562,346.99	5,674,739.37	x904,694.78
Nov.	13,401,943.90	7,837,983.76	5,563,960.14	x790,452.89
Dec.	12,426,867.44	7,405,438.83	5,021,428.61	x278,806.01
Jan.	10,158,307.86	7,726,829.36	2,431,478.50	341,070.27

	\$86,876,273.22	\$53,570,028.86	\$33,306,244.36	\$1,591,648.99
Incr	\$11,817,283.34	\$10,225,634.35	\$1,591,648.99	.....

Approximate earnings for Feb., \$8,832,000, and for three weeks ended Mar. 21, \$7,760,000 against \$8,546,000 and \$6,737,000 for same periods, 1916.

Grand Trunk Railway Earnings.

The aggregate traffic receipts of the system from Jan. 1 to Feb. 28, are:

	1917	1916	Increase	Decrease
G.T.R.	\$6,825,821	\$6,437,336	\$388,485	.....
G.T.W.R.	1,272,560	1,383,708	.....	\$111,148
D.G.H.&M.R.	437,852	474,762	.....	36,910

\$8,536,233 \$8,295,806 \$240,427
Approximate earnings for three weeks ended Mar. 21, \$3,186,666, against \$2,916,801 for same period, 1916.

Grand Trunk Pacific Ry. Earnings.

The approximate earnings of the Prairie Section, 916 miles, for January were \$330,108; for Feb., \$295,512; total, \$625,620, against \$314,344 for Jan.; \$277,619 for Feb., and \$591,963, total, for same periods, 1916.

Arthur R. Mosher was detained by the Montreal police, Mar. 24, charged with having written a libellous letter concerning R. P. Neil, President of the International Brotherhood of Stationmen and Railway Employees, to Chief of Police Campeau. Mosher gave bonds for \$1,000 for his appearance in court, Mar. 26, but did not appear. On Mar. 27 Mosher's bail of \$1,000, which was ordered confiscated the previous day, was restored, when he showed that he had attended at the wrong court room.

Frederick Broughton's Pictures—A collection of oil and water color paintings, formerly the property of the late Frederick Broughton, who was General Manager of the Great Western Ry. of Canada in the seventies, were sold by auction in Toronto recently.

The Chilled Iron Car Wheel.

By G. W. Lyndon, President, Association of Manufacturers of Chilled Car Wheels.

Following are the principal portions of a paper read before the Canadian Railway Club in Montreal recently:

The method of manufacturing chilled iron car wheels has not been materially changed and the pattern introduced in 1850 by Washburn is the same in outline practically as that in use today. Nevertheless the wheel manufacturers in the face of restriction in weight and flange dimensions, and through improved foundry processes have been successful in maintaining the chilled iron wheel up to a high standard. A 33 in. 525 lb. chilled iron wheel of the Washburn type became standard soon after 1850 for 10-ton freight cars and also for passenger cars. Cars of this capacity remained standard for about 30 years. As late as 1875 there were only occasional cars having a capacity as high as 12 tons. The heaviest capacity passenger cars weighed 18 tons. Sleeping and drawing room cars of 12 sections weighed 30 tons. The operation of railways then was very different from what it is now. Interchange of traffic as we now know it did not exist. An official of a great railway charged another with running freight trains as fast as 12 miles an hour. "The wear and tear is something terrible," said he. "It is pounding the track to pieces. Every ton of freight handled at that speed is carried at a loss. The reduction of speed to 8 miles an hour will lessen the cost more than \$1,000 a day."

Such were the ideas of the foremost men in charge of transportation in the days of iron rails, hand brakes, link and pin couplers, fragile cars, etc. Under such conditions of light wheel loads, small flange pressures, slow speeds, low annual mileage, the wheels would last the entire life of the car. Wheel mileage obtained under such circumstances is sometimes erroneously used to indicate the superior service of wheels manufactured at that time. The ton mileage, which is the true basis for comparison, was extremely low as compared with wheel performance at the present time. The introduction of the air brake, the automatic safety coupler, heavy steel rails, more rigid cars and interchange of traffic have permitted an era of rapid transit of heavy capacity freight cars with time schedules almost equal to that of express trains. Daily runs averaging 30 miles an hour, including stops, with an occasional burst of speed as high as 50 to 60 miles an hour, to maintain the high average, is not uncommon.

The 30-ton car introduced in 1885 was the heaviest capacity car on any railway during 1893. It was strongly argued at that time that the wheel load of 11,000 lb. which was required under cars of 30 tons capacity was the maximum that could be carried on a 33-in. diameter wheel, because the area contact between the wheel and the rail being so small, any greater load would cause a permanent injury to both wheel and rail, by reason of the fact that the elastic limit in the metal would be exceeded, resulting in dents in the rail and flat spots in the wheel tread. Not only was 11,000 lb. a wheel considered the maximum wheel load, but there was a good deal of doubt expressed by the foremost engineers as to whether this load was not in excess of good practice. The introduction of the 30-ton car was very rapid on all rail-

ways. A chilled iron wheel weighing 600 lb. was used under cars of this capacity and was recommended as standard in 1904 by the M. C. B. Association. It was later modified and increased to 625 lb. in 1909, upon the recommendation of the Wheel Manufacturers' Association.

Notwithstanding the doubt expressed regarding the maximum wheel load, cars of 40 tons capacity were soon tried and found to be satisfactory and almost immediately thereafter the 50-ton car was developed for the coal carrying trade, and found to be so satisfactory that cars of lighter capacity ceased to be built for this service. The 700 lb. wheel was used under 50-ton cars and recommended as standard in 1904 by the M. C. B. Association, but afterwards, upon the recommendation of the Manufacturers' Association, was modified to 725 lb., and made standard in 1909. It will be noticed that in 1904 the first wheel made standard for the 50-ton cars weighed 700 lbs. In 1909 the manufacturers succeeded in getting the weight increased 25 lb. During the time intervening a new wheel of the rolled steel type was introduced, and notwithstanding the alleged superiority of metal, the steel wheel substituted for the 700 lb. chilled iron wheel weighed a minimum of 750 lb. The present indications are that the 50-ton car is likely to be superseded in the very near future by the 70-ton car for carrying such commodities as coal, iron ore, etc. Cars of 70 tons capacity have already proved successful from every standpoint and are being made in comparatively large numbers.

The marvellous increase since 1875 in the capacity of cars and the tremendous tonnage hauled has called for an increase in the weight of the car structure from 18,000 to 65,000 lb., or a 260% increase; an increase in the weight of rail from 50 to 125 lb, or 150%; in the axle from 350 to 1,070 lb., or 200% increase; the weight of the wheel from 525 to 725 lb., or 38% increase. The percentage of increase in the wheel is much less than for any other part of the car, and while the carrying capacity has increased from 10 to 70 tons, or 600%, the weight of the heaviest M. C. B. standard wheel has increased only 38%. This is a wonderful record for the performance of the wheel under adverse conditions, when it is considered that not only has the carrying capacity been increased but the speeds at which trains are operated have increased 600%.

The ton miles per annum made by the present 70-ton car is approximately 20 times that of the 6-ton car, which indicates the greater service given by the present wheel than was secured from any wheel during the pioneer days. It also plainly shows that the mere comparison of mileage is of no value whatever unless the load carried is taken into consideration.

While the chilled iron wheel has always met increased requirements by reason of the rapid increase in the capacity of the cars, there is one part of the wheel that has received scant consideration, and that is the flange. During all the remarkable railway development, one dimension in track structure has remained constant. The space between the running rail and guard rail has remained fixed as 1 3/4 in. The chilled iron wheel manufacturers have been trying for years to secure a stronger flange and

have demonstrated the fact that three-sixteenths of an inch can be added to the thickness of the present M. C. B. flange, compensation for the increase made in mounting each wheel 3/32 of an inch closer to the rail and still maintain the M. C. B. standard throat to back of flange dimension of 4 ft. 6 29/64 in. This ensures that the relation of the back of the flange to guard rail remains the same as at present and no change in track clearance is required. There can, therefore, be no objection from a track standpoint of making a liberal increase in the present flange thickness, and the manufacturers have received the approval of their plan from a special committee appointed for the purpose of investigation through the American Railway Engineering Association.

Under the 10-ton car, whose weight was about equal to its capacity, the load carried per wheel was approximately 5,000 lb., which would require about 4,000 lb. flange pressure to change the direction of the truck in engaging curves. Under the 70-ton car the load per wheel has increased to 25,000 lb., which requires almost 20,000 lb. flange pressure to change the direction of the truck, therefore, the flange thrust has increased 400% on account of the increased load, which is further augmented by the high speed of modern freight trains. Under present conditions of operation, considering the increased load and speed, the thrust on the flange, including impact, is at least 10 times greater than under the old 10-ton car, and it must be apparent that the increased duty has not been provided for.

The University of Illinois, under the direction of the consulting engineer for the Association of Manufacturers of Chilled Car Wheels, has been conducting a series of tests for the purpose of ascertaining the stresses to which the wheel is subjected in pressing the wheel on to the axle, and service conditions, with the following results: 1. When a wheel is pressed on an axle a compressive stress is developed radially and a tensile stress circumferentially. These stresses are of large proportion and extend all the way from the hub to the tread. 2. The plate must carry the load which produces a combination of stresses resulting in a wheel slightly elliptical. 3. On descending grades the heat generated by the brake shoe, which is a factor of load, grade and speed, causes a tensile stress in a radial direction in opposition to the compressive stress which was developed while pressing the wheel on the axle. 4. The heavy flange thrust causes a bending action in the plate, which intensifies the tensile stress developed by the heat in the front plate, and the compressive stress in the back plate developed while pressing on the axle. The ratio between these stresses developed in the 70-ton car as compared to the 10-ton car is much greater than that indicated by the mere increase in carrying capacity. The heaviest stress developed is probably that caused by the sudden rise in the temperature of the tread of the wheel from brake shoe application on descending grades. If we assume that trains are now operated at double the velocity they were 40 years ago and the load in the wheels five times as great, there will be 10 times the heat generated per unit of time on the

tread of the present wheel as compared to the wheel under the 10-ton car. Also the flange thrust being from 5 to 10 times greater indicates that we have 10 times the force to contend with than we formerly had.

The information obtained would indicate that in order to design a wheel that will fit a given condition of service, it requires a thorough understanding of the intensity of the stress in each part of the wheel and the relation of the stresses to service conditions. The manufacturers' association believes that due to the general conditions existing at the present time, and considering the safety factor of operation, three designs of wheels of 675, 750 and 850 lb. (with 3/16 in. increase in flange), respectively, for 30, 50 and 70-ton cars, would in a great measure solve present troubles and the recommendations are: 675 lb. wheels for cars having a maximum gross load of 112,000 lb.; 750 lb. wheels for cars having a maximum gross load of 161,000 lb.; 850 lb. wheels for cars having a maximum gross load of 210,000 lb.

No railway material sold today is so necessary for operation and comprehends so low an initial investment to the railways as the chilled iron wheel. The 8,000,000 tons of chilled iron wheels running today possess a higher relative market value when worn out, based upon their first cost, than is usual with other commodities purchased by the railroads. Hundreds of thousands of chilled iron wheels have been sold at a differential of \$10 a ton, which represents the difference between the original selling price and the scrap value of the old worn out wheels, and this \$10 a ton differential represents the cost of reconverting the old wheel into a new one plus the necessary labor, plus the price of the new material and the profit of the manufacturers. Special wheels are purchased by many railways at a higher differential than \$10 a ton, and some foundries, located in remote parts of the country, far from raw materials, such as coke and pig iron, must receive a higher price. About 30% of all wheels sold are removed by foreign lines and the price paid for these removals is fixed by the printed interchange rules of the M. C. B. Association, as follows:

	Chilled Iron.	Steel.
New value, each	\$9.00	\$19.50
Scrap value, each	4.75	4.50
Net cost	\$4.25	\$15.00
Cost of removing from and replacing in trucks, per pair, \$2.25 each	1.12	1.12
Cost under car, each	\$5.37	\$16.12
Cost of two turnings	.....	3.25
Total cost of wheel service, each	\$5.37	\$19.37

The total cost for wheel service for other types of wheels is about four times that of the chilled iron wheel and upon this basis of comparison any substitute must yield four times the mileage or time service in order to equalize the cost. As the master car builders fix the price of removals on the 30% of equipment on foreign roads, it must follow that the same relative basis of cost applies on the 70% of removals on a road's own lines. Chilled iron wheels sold at a differential of \$10 a ton, make the net cost of the three M. C. B. standards as follows:

625 lb. M. C. B. wheel for 30-ton cars,	\$3.12
675 lb. M. C. B. wheel for 40-ton cars,	\$3.37
725 lb. M. C. B. wheel for 50-ton cars,	\$3.62

The maximum cost of the 625 lb. M. C. B. wheel, guaranteed for 6 years, is 52c a year; that of the 675 lb. wheel, guaranteed for 5 years, is 67c a year; and that of the 725 lb. wheel, guaranteed for 4 years, is 90c a year. Any wheel that is

sold for \$20 will cost the railways, in interest charges alone, (at 5% per annum) more than the renewal charges of the chilled iron wheel, because while the guaranteed net cost to the railways is based upon six, five and four years service, respectively, the actual service is often twice as much.

Transportation Conference at Ottawa.

On Mar. 6, Sir Geo. E. Foster, Minister of Trade and Commerce, wrote a number of leading railway and steamship officials as follows: "The problem of transport for the current year is a very serious and complex one for the whole of this continent, and is by no means any less pressing and important for Canada. There is a great quantity of western grain to be moved from the interior and the head of the lakes and across the Atlantic, which should be cleared out before the next crop ripens. The St. Lawrence and our Canadian ports should, under all the circumstances, be able to command a large portion of this traffic, and the ocean tonnage to be provided by the allied governments for carrying munitions, war supplies and foodstuffs should be made to help in this direction. United action and thorough co-operation on the part of all our transport agencies would contribute greatly to the end desired, and it has been suggested that a conference of these various agencies would be advisable and helpful. Acting on that suggestion, I have invited them to meet in Ottawa on Mar. 19 for an interchange of views on the above mentioned subject. I would be glad, therefore, if you would kindly send a representative of your company to attend this meeting, the object of which will be generally to exchange views and consider what steps can be taken to ensure the greatest possible movement of grain and other commodities from Canadian ports, and to facilitate and speed up this movement."

In response to the invitation, a number of prominent officials of the Canadian Pacific, Grand Trunk, Canadian Northern, Canadian Government and other steam railways, of the Canada Steamship Lines, Ltd., and other steamship companies, and of the St. John, N.B., Quebec and Montreal harbor authorities, attended at Ottawa and were received by the Ministers of Trade and Commerce, of Customs, and of Railways. As the Ministers had to leave to attend a memorial service for the Duchess of Connaught, the meeting was turned over to Sir Henry Drayton, Chief Railway Commissioner, who took the chair, and there was considerable discussion but no definite conclusions were arrived at and no committees were appointed.

The Minister of Trade and Commerce states that the representatives present were asked to work along the following lines: To see that the grain remaining in the northwest is brought down to the head of the lakes speedily. This duty rests upon the railways and they state that they are quite able to accomplish it with speed and efficiency. The next step is between the Great Lakes and Montreal and the information is that Canadian lake shippers have tonnage sufficient and will find no difficulty in moving the grain from Fort William to the bay ports and Montreal, if the railways will co-operate across Ontario with dispatch and efficiency and prevent delays at the bay ports and transfer elevators. The railways chiefly interested in that operation

are the Canadian Pacific and Grand Trunk, and these two companies are asked to make such arrangements as will quickly lift from the bay port elevators the grain which is brought down across the lakes and run it into Montreal and possibly Quebec. There is not very much prospect of a large portion of grain being taken down from Port Colborne to the St. Lawrence, owing to the scarcity of canal boats, but whatever can will be done in this direction. The facilities at Montreal are first class and steps are being taken for such co-operation as will ensure a large output from that port, quite as much, it is thought, as transport across the ocean can be obtained for carrying away. Greater difficulty will be experienced in reference to the coal supply, and investigation is being made as to how the output of the Nova Scotia mines and the transportation system of the St. Lawrence can best be facilitated. This latter is a very hard proposition at the present time.

Ontario Railway and Municipal Board Act Amendments.

The Ontario Legislature has before it a bill amending the Ontario Railway and Municipal Board Act. The amendments provide for giving the board jurisdiction over all incline railways in the province; provides that the Chairman shall receive a salary of \$7,000 a year, the Vice Chairman \$4,500 a year, and the Secretary \$2,800 a year; the increased salaries of the Chairman and Secretary to date from Oct. 31, 1916.

A new section, to be numbered 38a, is added, providing for a penalty not exceeding \$1,000 in addition "to any other penalty provided in this or any other act" for contravention of the board's orders and in default of payment there is an alternative of imprisonment for not exceeding 30 days. Subsection 2 declares that each successive day during which such act or omission continues is a separate offence; subsection 3 deals with the manner of imposing the penalties, and subsection 4 provides that sheriffs and other police officers shall assist in enforcing the board's orders.

Canadian Society of Civil Engineers Secretaryship.—Prof. C. H. McLeod, who has been Secretary for nearly 30 years, having resigned, has been succeeded by Fraser S. Keith, B.A.Sc., A.M.Can.Soc.C.E., who was born at Smiths Falls, Ont., June 8, 1878. After an apprenticeship in the hardware business, he entered the Faculty of Applied Science, McGill University, Montreal, in 1899, spent his summer holidays at machine shop work, electric power plant operation, etc., and graduated with honors in electrical engineering in 1903, his summer thesis winning the Can.Soc.C.E.'s mechanical section's prize. In 1904 he was senior electrical demonstrator at McGill University, and in 1905 he went into technical newspaper editorial work. In 1908 he went to Vancouver and engaged in manufacturing concrete materials and in concrete construction. He returned to Montreal in 1915, since when, until his recent appointment, he was again engaged in technical newspaper work.

Faculty of Applied Science, Toronto University.—It is officially announced that 765 men have enlisted for overseas service, including 16 members of the staff. Seventy-five have been wounded, 45 killed and 38 have received military honors.

**Double Deck Automobile Cars,
Canadian Pacific Railway.**

The accompanying illustrations show the first of a series of automobile cars, built at the company's Angus shops, Montreal, and which are said to be the first double deck automobile cars built or

Freight and Passenger Traffic Notes.

The G.T.R. announces that Acton West station, on its Toronto-Guelph line, has been renamed Acton, to conform to the post office name.

The Great Northern Ry. was reported, Mar. 14, to be arranging to operate a

The Canadian Northern Ry. is operating two freight trains a day from Vancouver to eastern points, while the west-bound requires only one. Each of the three trains comprises 15 cars.

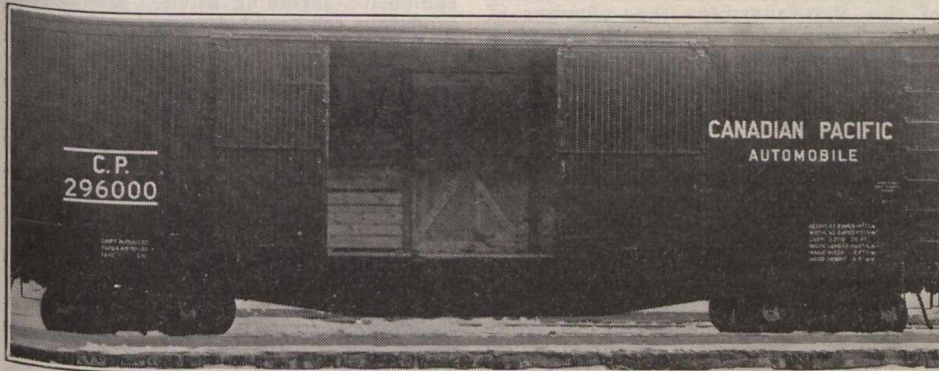
In order to aid in securing labor for farmers in the west, Canadian railways put in operation, Mar. 1, a 1c a mile rate from all points on the United States border in Canada and west of Ontario.

Owing to the necessity of relieving the freight situation, Canadian railways, upon the suggestion of the Board of Railway Commissioners, will not grant any reduced fares nor operate any special trains for the Easter holiday traffic.

M. McD. Duff, Manager, C.P.R. Great Lakes Steamships, has completed a tour of the C.P.R. system in connection with a general plan to promote travel during the navigation season by the rail and lake route rather than by the all rail route.

The G.T.R. has issued a new form of commutation ticket. Instead of a strip of detachable coupons for 10 trips, or a book for the 55 trips, the new ticket has a series of numbers printed along the side, one of which the conductor will punch out on each trip.

The Department of Railways has authorized the fitting up of a car for the exhibition of moving pictures dealing with the grave dangers of taking unnecessary chances in the performance of railway work. The car will travel over the Canadian Government Railways and lectures will be given as part of the safety first campaign.



Double deck Automobile Car, C.P.R.

owned in Canada. Their principal dimensions, etc., are as follows:

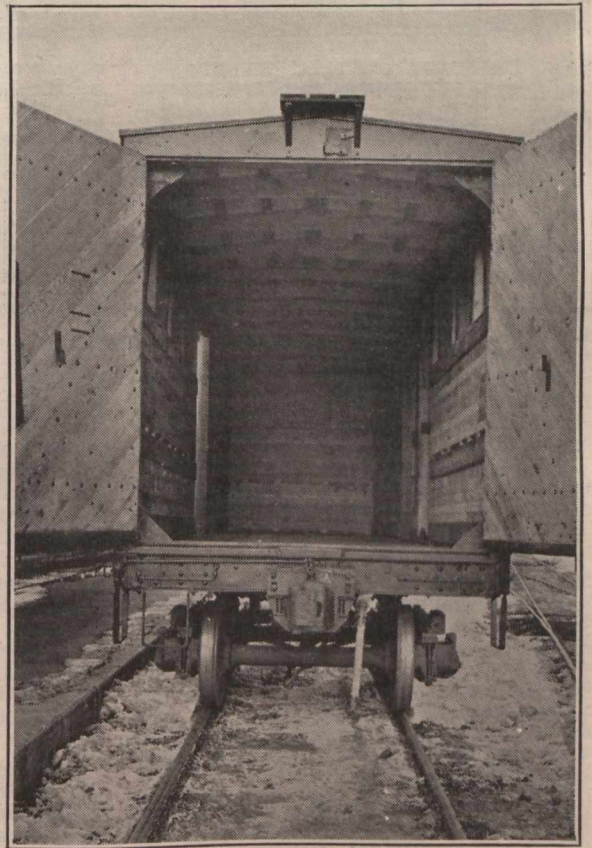
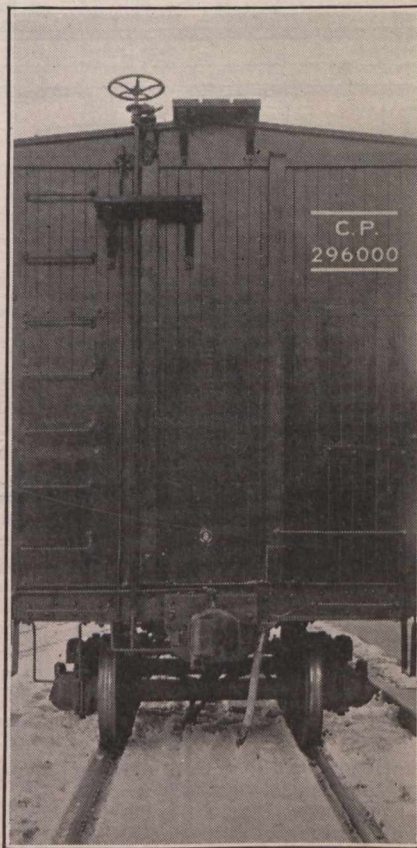
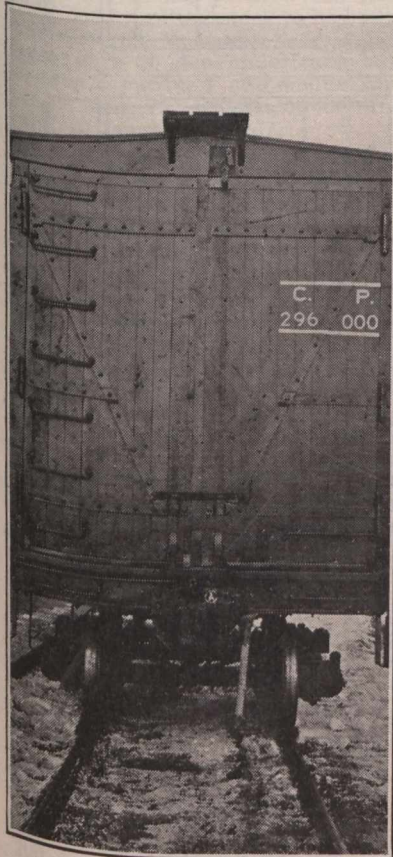
Height at eaves	14 ft. 1 in.
Width at eaves	9 ft. 9 in.
Inside length	40 ft. 6 in.
Inside width	8 ft. 7 in.
Inside height	9 ft. 6 in.
Capacity	3,300 cu. ft.
Tare	80,000 lb.
	44,900 lb.

through train service between Vancouver and Nelson, B.C., via Hope and Oroville, Wash.

The G.T.R. has issued a booklet, "Ottawa, Canada's Seat of Government," for circulation in the United States and elsewhere for the promoting of tourist traffic to that city.

The Canadian Northern Ry. started operating a train service over its Lulu Island Branch, Mar. 7. One train a day

Canadian Society of Civil Engineers.—Members in British Columbia discussed



Double Deck Automobile Car, Canadian Pacific Railway

with members of the provincial government recently matters affecting the status of civil engineers. R. W. McIntyre, past Chairman of the Victoria branch, and D. O. Lewis, District Engineer, Canadian Northern Ry., presented the case for the engineers, and the Premier promised to give the matter consideration.

is being operated each way between Steveston and Queensboro, B.C.

From a comparatively small catch a few years ago the shipments of halibut from Prince Rupert, B.C., over the Grand Trunk Pacific Ry. to Canadian and United States points have grown to about 15,000,000 lb. a year.

The Premier of Saskatchewan, on Mar. 13, promised to consider the question of the appointment of a traffic expert, which was urged by a deputation representing the boards of trade of the province. He stated it might be sufficient to secure one expert to look after the interests of Manitoba, Saskatchewan and Alberta.

C.P.R. trains on the Prescott Subdivision now leave from and arrive at Central station, instead of Broad St. station. Ottawa passengers arriving at either of these stations, and being ticketed through to points necessitating their going to the other station, are given street car transfer between Central and Broad St. stations and their baggage is transferred free.

C. E. McPherson, Assistant Passenger Traffic Manager, Western Lines, C.P.R., Winnipeg, visited San Francisco and Los Angeles recently, to arrange accommodation for meeting the large number of United States tourists visiting California, who will return over C.P.R. lines from Seattle and Vancouver, crossing the Canadian Rockies and the western prairies to Winnipeg, thence to their homes in Chicago, New York, Boston and other eastern points.

C.P.R. Prescott Subdivision trains now leave from and arrive at Central Station, Ottawa, instead of Broad St. Station. Passengers between points reached through Ottawa Broad St. Station and points on or reached via the Prescott Subdivision are directed by conductor to the ticket office at Ottawa station on ar-

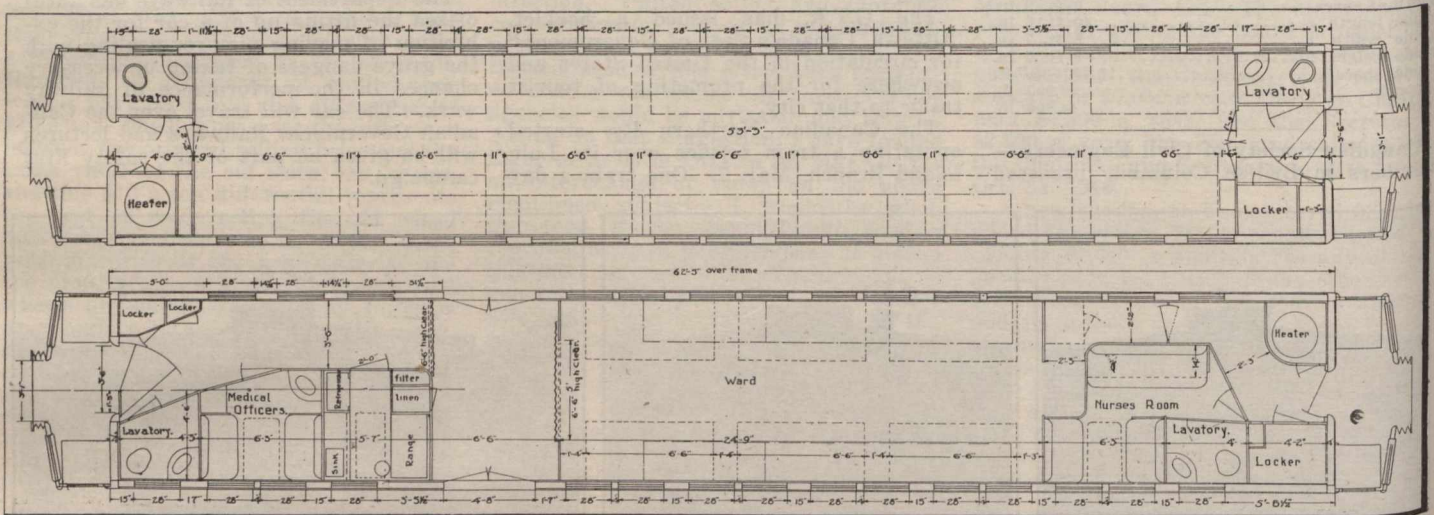
not move any special or extra passenger train, and we have also considerably curtailed our regular passenger train service."

The Ocean Limited, running between Moncton, N.B., and Montreal, has been withdrawn, the last train running Mar. 4. This step has been taken to facilitate the movement of freight. In consequence of this the following other changes of trains has been made on the Intercolonial Ry.: "Trains Nos. 199 and 200 run between Halifax and Moncton daily except Sunday. The Maritime Express runs through between Halifax and Montreal daily. In order to make close connections from Sydney with Maritime Express (westbound), train 6 leaves Sydney and intermediate stations to Truro one hour earlier than heretofore. Trains 41 and 42 are restored to schedule Mar. 5. The following branch line trains connect with nos. 199 and 200 trains are discontinued: 207, Loggieville to Newcastle; 208, Newcastle to Loggieville; 225, Dalhousie to Dalhousie Jct.; 226, Dalhousie Jct. to Dalhousie."

Increased Freight Rates in U. S. Asked. Washington press dispatch, Mar.

Canadian Pacific Railway Hospital Cars for Military Service.

The C.P.R. is remodelling eight tourist cars for the Military Hospitals Commission's service in removing wounded and invalid soldiers from the seaboard to their destinations. Four of these cars will be composite, including kitchen and accommodation for medical officer and nurses, and four will be straight ward cars. The cars will be run in pairs, one composite and one ward car. Patients for the ward cars will be taken on and off through the side door entrance of the composite car, and to facilitate this movement, the end doors have been increased to 3½ ft. wide at one end of each car only. The cars have six-wheel trucks, steel platforms and double sash, and are in general conformity with the standard construction of first class tourist cars. The illustration on this page shows plan views of the ward and composite cars respectively. The ward cars have accommodation for 14 patients, and composite cars are arranged with six cots in addition to quarters for medical officers and nurses. The accommodation for the nurses is equivalent to that of a drawing room on a stan-



Hospital Cars, Canadian Pacific Railway, for Military Service.

rival and are furnished with street car transfers between the Central and Broad St. stations and their baggage is transferred free of charge.

The G.T.R. has filed with the Board of Railway Commissioners its answer to the application of the City of Hamilton for an order directing the company to restore the passenger service between Hamilton and Burlington Beach. The company claims there is no contractual obligation to give this service, and that inasmuch as trains have not been operated over it for years, it would be unreasonable to expect the G.T.R. to provide a regular train service. The Hamilton Radial Ry. is able to provide for all the traffic except some occasional traffic during the summer.

Sunday school and other organizations which have been in the habit of promoting railway excursions during the summer have been notified that all negotiations for the running of special picnic trains have been withdrawn. The circular says: "As you are doubtless aware, all railways in Canada have been requested by the Board of Railway Commissioners to take every possible means of conserving motive power to facilitate freight train movements. At present, in conformity with the board's request, we can-

not be permitted to increase freight rates on a percentage plan was filed by a committee of railway presidents with the Interstate Commerce Commission today. The formal petition was filed on behalf of all the railways operating east of the Mississippi River and north of the Ohio and Potomac Rivers. A telegram was also filed, signed by 20 presidents of western railways, setting forth that they concurred in the petition, and stating that the western roads would file a similar petition at once. It is expected that the railways in the southeast will also file separate and similar petitions. The railways want the new tariff effective within 30 days.

The American Railway Engineering Association had a most successful annual convention at Chicago, Mar. 20 to 22. The following officers were elected for the current year: President, J. G. Sullivan, Chief Engineer, Western Lines, C.P.R.; First Vice President, C. A. Morse, Chief Engineer and Chairman Valuation Committee, Chicago, Rock Island & Pacific Ry.; Second Vice President, Earl Stimson, Engineer Maintenance of Way, Baltimore & Ohio Rd.; Secretary, E. H. Fritch; Treasurer, G. H. Bremner, District Engineer, Interstate Commerce Commission.

dard sleeping car, and is upholstered in leather. The kitchen accommodation is of the same type as is provided on the standard tourist sleeping car. The medical officers' quarters are arranged in a compartment with upper and lower berths and there is a small dispensary to each car so arranged. The ward cars consist of one large room the length of a standard sleeper, with lavatories at each end. The floors are covered with linoleum and the aisles are carpeted. The composite cars have two side entrances in addition to the usual one, these being utilized for the reception of patients, and the entrances are so arranged that heavy curtains can be drawn closely in bad weather, affording ample protection to patients already in the cars. The cars are lettered on the outside with the words Military Hospital, with a large red cross in the centre.

Loss by Forest Fires on Timiskaming & Northern Ontario Ry.—In connection with the forest fires in Northern Ontario about July 29, 1916, it is announced that the loss sustained by the T. & N.O.R. Commission was \$112,261.25, in addition to 109 freight cars, 94 of these being foreign and 15 T. & N.O.R. The insurance recoverable is \$61,336.97.

Railway Rolling Stock Notes.

The Canadian Northern Ry. has received a snow plough, no. 7338, from its Winnipeg shops.

The C.P.R. has received 89 box cars and 1 automobile furniture car from its Angus shops, Montreal.

The Dominion Steel Foundry Co. has received 1 Columbia (2-4-2) switching locomotive from Canadian Locomotive Co.

The Algoma Eastern Ry. purchased recently 1 ten wheel, and 4 consolidation locomotives from Chicago Great Western Ry.

The Timiskaming & Northern Ontario Ry. will be in the market shortly for a small number of box cars, details for which are under consideration.

The Dominion Government is reported to have purchased 13 locomotives, which were used by contractors on the Welland Ship Canal, for shipment to France for war purposes.

The Canadian Car & Foundry Co. has completed delivery of an order for 1,500 high sided gondola cars, and 500 sets of steel work for same, for the Paris & Orleans Ry., France. Details of these have been given in previous issues.

Recent advices announced that the Algoma Eastern Ry. was contemplating buying some steel ore cars of a special type, but we are now officially advised that the management does not contemplate purchasing any steel cars.

The C.P.R. has ordered the following additions to rolling stock to be built at its Angus shops, Montreal: 6 freight refrigerator cars, 36 steel underframe box cars, 40 tons capacity, 1 automobile furniture car, 7 vans and 2 steel underframe flat cars, 40 tons capacity.

The Toronto, Hamilton & Buffalo Ry. has ordered 4 six wheel switching locomotives from Canadian Locomotive Co. Following are the chief details:

Weight in working order, drivers	166,000 lbs.
Wheel base, rigid	11½ ft.
Wheel base, engine and tender	45 ft. 4½ ins.
Heating surface, firebox and arch tubes	142 sq. ft.
Heating surface, tubes	1,879 sq. ft.
Heating surface, total	2,021 sq. ft.
Driving wheels, diar.	51 ins.
Driving wheel centres	Cast steel
Driving journals	9 by 12 ins.
Cylinders, diar. and stroke	21 by 28 ins.
Boiler, type	Radial stayed
Boiler pressure	180 lbs.
Tubes, no. and diar.	165-2 ins.; 22-5½ ins.
Tubes, length	16 ft.
Brakes	Westinghouse American
Packing	King metallic
Superheater	Locomotive Superheater Co.'s Type A
Fire door	Franklin butterfly type
Brick arch	American Arch Co.
Valve Motion	Walschaerts
Reverse gear	Casey-Cavin power type
Weight of tender, loaded	110,000 lbs.
Water capacity	5,500 galls.
Coal capacity	8 tons
Tank, type	U shape, steel coal gate
Truck, type	Arch bar
Wheels	Solid steel 33 ins.
Journals	5 by 9 ins.
Brake beams	Buffalo
Axle boxes	McCord

The Russian Government has ordered from the Canadian Car & Foundry Co. 2,000 four-wheeled box cars, 5 ft. gauge, each of 1,200 poods (approximately 43,200 lbs.) capacity. Of these, 1,600 will have cabs, and 400 will be without cabs. The design of these cars is after the style of the regular continental type, with buffers, screw couplings and semi-elliptic bearing springs, resting on journal boxes and connected by means of brackets through shackles to the side sills. The wheels are to be of chilled cast iron, 39% in. diar. on the tread line. They will be

equipped with air and hand brakes, with four brake beams to each car. The Russian Government has 3,000 similar cars on order with the Eastern Car Co., mention of which was made in our last issue. Following are the chief details:

Length over buffers, without cab	26 ft. 10½ ins.
Length over buffers, with cab	28 ft. 10½ ins.
Length over end sill, without cab	22 ft. 11½ ins.
Length over end sill, with cab	24 ft. 11 5/16 ins.
Wheel centres, without cab	12 ft. 9¾ ins.
Wheel centres, with cab	13 ft. 1½ ins.
Height of buffer	3 ft. 4¾ ins. from rail
Screw coupling centre	3 ft. 4¾ ins. from rail
Height over all	12 ft. 5 5/16 ins.
Extreme width	9 ft. 8 ins.
Height inside	7 ft. 8½ ins.
Width inside	9 ft. 9 ins.
Length inside	22 ft. 9 ins.
Width over roof	9 ft. 8 ins.

Following are chief details of the 10 Mikado (2-8-2) locomotives, which the G.T.R. has ordered from Canadian Locomotive Co., and of 5 similar locomotives ordered from the "American Locomotive Co.":—

Weight in working order on drivers	205,000 lbs.
Weight in working order, total	276,000 lbs.
Wheel base of engine, rigid	16 ft. 6 ins.
Wheel base of engine, total	35 ft. 1 in.
Wheel base, engine and tender	67 ft. 7¾ ins.
Heating surface, firebox and arch tubes	235 sq. ft.
Heating surface, tubes	3,413 sq. ft.
Heating surface, total	3,648 sq. ft.
Driving wheels, diar.	63 ins.
Driving wheel centres	Cast steel
Driving journals, diar. and length	.....
..... Main 11 by 20, others 10 by 12 ins.	.....
Cylinders, diar. and stroke	27 by 30 ins.
Boiler, type	Radial stayed
Boiler pressure	175 lbs.
Tubes, no. and diar.	228-2 ins.; 32-5¾ ins.
Tubes, length	20 ft.
Brakes	Westinghouse American
Packing	King Metallic
Superheater	Locomotive Superheater Co.'s Type A
Fire door	Franklin butterfly type
Brick arch	American Arch Co.
Reverse gear	Casey-Cavin power type
Weight of tender loaded	166,000 lbs.
Water capacity	7,500 galls.
Coal capacity	12 tons
Tank, type	Hopper bottom
Truck, type	Pedestal with equalizer
Wheel, diar.	Solid steel, 33 ins.
Journals	6 by 11 ins.
Brake beam	Buffalo
Axle boxes	McCord

Railway Finance, Meetings, Etc.

Guelph Jct. Ry.—The Guelph, Ont., City Auditor reported to the City Council, Mar. 1, that the profits from the G.J.R. for 1916 were \$40,147.58, or \$4,387.50 in excess of the estimate.

Pere Marquette Rd.—The rights resting in the junior security holders of this railway were sold under orders of the court in the receivership proceedings, Mar. 16, for \$10,300,000 to Cox & Phillips, New York, trustees for the reorganization managers. The rights are covered by the consolidated and refunding mortgages of the line. The property of the company includes the Lake Erie & Detroit River Ry. in Canada, together with a contract with the Michigan Central Rd. for running rights from St. Thomas, Ont., to Buffalo, N.Y.

Timiskaming & Northern Ontario Ry.—Passenger earnings for Jan., \$44,958.79; freight earnings, \$101,717.52; total earnings, \$146,676.31, against \$35,015.60, passenger earnings; \$111,096.65, freight earnings; \$146,112.25, total earnings, for Jan., 1916.

In his budget speech in the Ontario Legislature recently the Provincial Treasurer said: "We have got \$1,000,000 from the T. & N.O.R., of which \$528,000 is net profit, and \$400,000 profit and loss account."

Investigation into Pacific Great Eastern Railway Affairs.

The British Columbia Legislature has appointed a special committee to investigate all matters connected with the financing of this company from its inception in 1912. The Premier, in moving the resolution, Mar. 12, traced the whole course of the legislation affecting the company's incorporation, the guaranteeing of its bonds and the payments made by the government to the company from time to time. He is reported to have said: "We put auditors on the company's accounts and they report that the company received \$5,704,000 more than it was entitled to." Chief Engineer Gamble has reported to me that to complete the road from North Vancouver to Fort George there is required in addition to the amount paid out, and the amount of the loan paid over, approximately \$10,779,000."

The Premier laid before the legislature, Mar. 12, the report of the auditors, Price, Waterhouse & Co., on the financial relations between the government and the company to which he had referred in his speech, Mar. 10. The report shows that the total securities guaranteed by the province amounted to \$20,160,000, equal to \$42,000 a mile. The purchase price of the old Howe Sound & Northern Ry., extending from Squamish towards Pemberton Meadows, was \$193,068.62. After a very lengthy examination of the accounts, the auditors, in conclusion, state that the company received from the government \$5,704,316.50 more than it was entitled to, according to the auditors' interpretation of the acts as confirmed by the Attorney General's Department.

The special committee met Mar 15, and organized with J. W. deB. Ferris, of Vancouver, as chairman. Among the counsel engaged are: S. S. Taylor, K.C., for the government; H. A. Maclean, K.C., for the company, and E. P. Davis, for P. Welch, the general contractor.

Toronto Express Delivery and Collection Limits.

In the recent application of Toronto for an extension of the free collection and delivery area for express companies, D'Arcy Scott, Assistant Chief Commissioner, Board of Railway Commissioners, delivered judgment, Mar. 27, extending the free area to include the sections south of St. Clair Ave., known as Wychwood and Bracondale, on both sides of the streets. Beyond that a pick up and delivery system for a toll, to be arranged from time to time, is established. This latter zone should be at any place within half a mile from the nearest free zone limit, except the southern limit, which is bounded by the water front, beyond which there should be no delivery, even for a toll. The minimum charge for picking up and delivering one or more parcels in one consignment aggregating not over 100 lbs., to be 15 cents; over 100 lbs. and not exceeding 200 lbs., 25 cents, and so on, adding 10 cents for each additional 100 lbs. or fraction thereof. Persons outside the free area, not desiring to have parcels delivered to notify the companies, otherwise the companies may exercise their powers under the Railway Act for the collection of tolls. The companies shall not be bound to deliver parcels beyond the free zone unless the through-fares are reasonably passable for express wagons. An order will be issued on these lines effective May 1.

Canadian Pacific Ry. Construction, Betterments, Etc. Contractors' Suit Respecting C.P.R. Yard Construction.

Eastern Lines.—The appropriations for the year provide for 445 miles of ballasting, the putting in of 1,517,790 new ties, the provision of 175,000 rail anchors, and the replacing of 400,000 tie plates.

New Brunswick District.—The appropriations for the year provide for: Six stall locomotive house extension, new cinder pit, 40,000 gal. tank and standpipe at Bay Shore, St. John; 60,000 gal. tank, standpipe, etc., at Jackson; and 40,000 gal. tank with standpipes at Holleb.

Algonquin Hotel, St. Andrews, N.B.—portion of the fourth story is being remodelled to provide 16 additional guest rooms, with 10 bathrooms and 2 private lavatories. A new dormitory building, 126 x 30 ft., for the hotel servants is under construction directly opposite the power house. It is to be finished in stucco and half timber, with a covered verandah, 68 x 10 ft., facing the street. The building will contain a common or lounge room, 16 x 28 ft., on the ground floor, 31 cubicles, each accommodating 2 men; eight rooms for married couples and superior staff, with a separate entrance at one end, and baths and lavatories on each floor. The building will accommodate 78 people, and will cost \$24,000.

Quebec District.—The appropriations for the year provide for new outbound freight shed, repairs to inbound freight shed, new platforms and other work at Sherbrooke; 2-track coaling plant, sand house, etc., and cinder pit at Farnham; electric interlocker at Montreal West; umbrella roof at Place Viger, Montreal; extension to locomotive house and other work at Glen yard; extension to block signals at St. Therese; umbrella roof, additional trackwork and other work at Quebec station; completion of diversion at Meath, Ont.; 7-stall extension to locomotive house, 200 ton coaling plant, sand house, ash pit, 65,000 gal. tank and some additional track at Smiths Falls.

Ontario District.—The appropriations for the year provide for: Automatic signals at Glen Tay and Agincourt; new freight shed at Belleville; new superstructure bridge, 107.2, McTier Subdivision; rearrangement of West Toronto and Lambton freight yards; extension to freight shed at West Toronto; additional office accommodation over present station at London; rebuilding London St. bridge, Windsor.

A press report states that C.P.R. engineers have made surveys and are making tests at the crossing of the macadamized road in Galt, with a view to building a subway under the railway tracks.

We are officially advised that all plans for building of a second track between North Toronto and Leaside have been filed, both with the city and the county authorities, and that application has been made to the Board of Railway Commissioners for their approval.

Western Lines.—The appropriations for the year provide for a large amount of ballasting and ditching; the supply of 375,576 tie plates, 313,600 rail anchors and 1,688,788 ties.

Manitoba District.—The appropriations for the year provide for extension of yards, including additional tracks to locomotive house, new sand and ash pit at Ignace, Ont.; new coaling plant and ash pit at Brandon, Man.

Tenders are under consideration for the construction of a small stream tunnel

near Keewatin, Ont., and for the construction of 6 section houses and 4 frame stations at various points on the Manitoba Division.

Saskatchewan District.—The appropriations for the year provide for new express building, including extension to freight shed, at Regina.

Tenders are under consideration for six no. 4 section houses; nine A2 stations; extending a freight shed by 192 ft.; deepening reservoir approximately 250 x 700 ft., and for a diversion of Frenchman's River in three places.

British Columbia District.—The appropriations for this year provide for: Automatic signals at Glacier; new ice house and extension of yards at Okanagan; extension of Pier D., dredging and masonry walls, Vancouver. This work is already in progress, the pile driving being well advanced. The pier will be doubled in length and will be made 15 ft. wider, and when completed will berth five large vessels. As soon as Pier D. is finished preparations will be made for starting Pier B. The growth of the fruit traffic has necessitated the building of a new ice house of 3,500 tons capacity at Okanagan. The work to be done on the division will also include some small terminal extensions at Smelter and a new station at Field.

The walls of the general waiting room at the C. P. R., Vancouver station, have been beautified by a completed series of mural paintings of the most striking mountain views to be seen from the line between Calgary and the coast. They are the work of Mrs. A. Langford, and taken in order from the north-west corner westward, are: Mount Stephen and Kicking Horse River, as seen from Field; Lake Louise, as seen from Chateau Lake Louise; the Falls at Banff; Mount Temple, as seen from the main line near Lake Louise; Banff, under the light of an evening sky; Mount Agnes and the other lakes in the clouds; the creek leading to Moraine Lake in the Valley of the Ten Peaks; the Beehive, as seen from the Lake Louise station trail; the Gap; the Three Sisters; Mount Wapta with Summit Lake; Castle Mountain; The Crow's nest; the Lions, from Vancouver Golf Links; Cathedral Mountain; Mount Regis,

Aerial Service for Prince Edward Island.—A Charlottetown press dispatch says that a branch of the Aerial League's Canadian Division has been organized there, with F. W. Hyndman as President, and that a committee was appointed to promote the organization of an aeroplane company to manufacture machines and conduct an aerial service between the Island and the mainland, so as to provide constant daily communication in winter as well as summer.

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

	Acres.
Calgary & Edmonton Ry.	2,716.54
Canadian Northern Alberta Ry.	14.70
Canadian Northern Ry.	160.00
Canadian Pacific Ry. grants	8.51
Canadian Pacific Ry. roadbed and station grounds	6.80
Edmonton, Dunvegan & British Columbia Ry.	24.70
Grand Trunk Pacific Ry.	7.62
Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co.	9,436.44
Total	12,375.31

John Marsch, contractor, Chicago, Ill., has entered suit in a British Columbia court against Foley Bros., Foley, Welch & Stewart, and the C.P.R. to recover \$285,627 for work done, etc. The plaintiff was a sub-contractor for the laying out of a freight clearing yard between the Kenora and the Lac du Bonnet subdivisions of the C.P.R., for which the Foley firms had the general contract, the work done including the Transcona yards. The contract was entered into May, 1912, provision being made for certain unit prices and for payment of 90% of the sum earned in cash month by month. It was agreed that the general contractor was to complete and deliver 28 miles of completed track and one of the humps, requiring 850,000 cu. yds. of train fill to be removed, by Sept. 1, 1912. Foley, Welch & Stewart also agreed in certain letters to pay all charges to the C.P.R. for pilot services. Work to the extent of \$562,586 was admitted as being satisfactorily done, including the removal of 2,061,080 yards of train fill for \$474,048 and the laying of over 95 miles of track. Altogether Marsch received \$573,387 from Foley, Welch & Stewart, but the latter firm disputes liability for payment of additional charges for work done amounting to \$285,627. Only a portion of this claim is made against the C.P.R., and then only because it was a consenting party to the contract between Foley, Welch & Stewart and Marsch. It is charged that in making up the final certificate, the C.P.R.'s Chief Engineer failed to exercise independent judgment and was prevented from doing so by the various defendants, and that the certificate was issued in collusion with them.

Grain Inspection at Western Points.

The following figures compiled by the Department of Trade and Commerce, show the number of cars of grain inspected on railways at Winnipeg and other points on the Western Division, for February, and for six months ended Feb. 28, compared with those inspected for six months ended Feb. 29, 1916.

	6 months to		6 months to	
	Feb. 1917.	Feb. 1917.	Feb. 1917.	Feb. 1917.
C.P.R.	4,199	75,856	115,070	3,285
C.P.R., Calgary	976	4,654	3,285	58,695
C.N.R.	3,098	39,482	58,695	3,116
G.N.R., Duluth	533	1,404	3,116	29,471
G.T.P.R.	739	14,823	29,471	209,637
Totals	9,545	136,219	209,637	209,637

Workmen's Compensation on Timiskaming & Northern Ontario Ry.—During 1916, 75 claims were registered on the books and submitted to the Workmen's Compensation Board for adjustment. Of these, 38 were passed and paid, 26 were disallowed and 11 were kept in abeyance. The 38 claims paid amounted to \$3,476.15, an average of \$91.48. The insurance cost for the year, based on premium paid in 1915, would amount to \$17,224.10, or an average premium of \$454.27, to protect an average award of \$91.48.

The Institution of Civil Engineers Council has invited any of the Canadian Society of Civil Engineers members, who may be visiting England, to use the Institution's library and reading rooms in London, as well as attend its meetings. A letter of introduction from the Canadian Society of Civil Engineers will be necessary.

Canadian Northern Railway Construction, Betterments, Etc.

Mount Royal Tunnel & Terminal Co.—The Board of Railway Commissioners has authorized the company to build its railway temporarily, for not exceeding five years, from Feb. 26, 1917, across Cote de Liesse Road, between St. Laurent Parish and Mount Royal.

It is reported that a single track has been laid through the tunnel in order to take in material for the building of the temporary station and other work which is now in progress. When the station building is finished, which it is expected will be by the autumn, a second track will, it is said, be laid to care for the traffic. Buildings are being torn down now for the erection of the temporary station, which will be placed in the block bounded by Cathcart, St. Monique, La-gauchetiere and Mansfield Sts. The entrance to the temporary station will be on Lagauchetiere St., and the building will be used as an express building when the whole scheme has been completed. When the work has been entirely finished the station premises will extend from Lagauchetiere to Cathcart Sts., and will, it is said, be roofed over in such a way that it will be possible to erect houses on the roof. It will be much like the subway stations in New York.

Western Lines.—M. H. MacLeod, General Manager and Chief Engineer, is reported to have stated that as soon as the weather conditions are favorable work will be started on the erection of the new station at Fort William, Ont. The new building, which will be erected a little to the north of the present station, will be similar to the Port Arthur one, and its probable cost is reported at about \$50,000.

We are officially advised that there is no foundation for a recent press report that the company is about to build a new locomotive house at Rainy River, Ont.

The Board of Railway Commissioners is being asked to approve plan of the proposed new main freight line, general layout, of new subway on Water St., and approach to Red River bridge at Winnipeg. The City of Winnipeg is interested as it has expended \$80,000 in putting in the substructure for a new bridge at Provencher Ave. The matter was discussed at a meeting of the council's works and property committee, Mar. 14, when it was said there is now just enough room for the city's street to run under the C.N.R. approach and reach the bridge at an altitude which renders it reasonably secure from floods. If the C.N.R. is allowed to cross the street further east, either the grade on to the bridge from the subway will be so steep that it will render the bridge valueless as far as Winnipeg is concerned, or the two first spans will be so low that high water will flood it and might easily carry the spans out. There appears to be only one other solution—the raising of the C.N.R. bridge approach.

A press report states that the plans for the electrification of the company's line to Victoria Beach will not be carried out this year. It is said they provide for connecting up the line with the Winnipeg Electric Ry. in East Kildonan.

M. H. MacLeod, General Manager and Chief Engineer, on his return to Winnipeg from Toronto, Mar. 19, is reported to have said the question of building new lines in the west was not brought up

when the estimates for the year's work were under consideration. There is little likelihood of any new construction being started this year. Some improvements will be made at Grand Beach to meet public demands.

We have been advised that the grading on the line from Oliver to St. Paul de Metis, Alta., which is being built under guarantee of bonds by the Alberta Government, has been completed for 100 miles. Track has been laid for about 18 miles to the first crossing of the Saskatchewan River, and it is expected to lay track on the balance of the 100 miles graded this year if the rails can be secured. This line is being built under the charter of the Canadian Northern Western Ry., which was declared to be a work for the general advantage of Canada, from Mar. 1. As projected the line will be continued easterly to the Alberta-Saskatchewan boundary line, where it will be connected with a line now under construction northerly and westerly from North Battleford, Sask.

Another C.N.W.R. branch line is under construction from Onoway, for which the Government has guaranteed the bonds for \$20,000 a mile for 100 miles. The Premier stated recently in the Alberta Legislature, that in 1913 grading was done on 73.9 miles of this line and steel laid on 32.3 miles; in 1914, a considerable amount of bridge work was done, and in 1915 an additional 1.53 miles of track were laid, the line being in operation to Sangudo, near the end of steel.

C. L. Hall, contractor's engineer in charge of the foundation work for the C.N.R. station on the False Creek flats, Vancouver, is reported to have said that over 2,000 of the 2,500 piles have been driven and two-thirds of the concrete mass has been placed on the top of the piles. The piles are being driven in groups, averaging about 35 in a group; each group is enclosed in a wooden caisson, as the water level in False Creek is almost up to the ground flood. The next step in the preparation of the foundation is the excavation around the piles and inside the caisson. Then the piles are cut off to the proper height and concrete is spread over the top, this concrete forming the base on which the columns of the building will rest.

The company's contract with the City of Vancouver calls for the completion of the terminal station, the sea wall, terminal trackage, tunnel under Mount Pleasant and a 250-room hotel by Feb. 5, 1918. The Mayor is reported to have said, Mar. 1, that the declaration of the C. N. Pacific Ry. to be a work for the general advantage of Canada does not affect this agreement, and would not interfere with the city's action in endeavoring to have pressure brought to bear upon the company to fulfil its agreements. Sir William Mackenzie, on his recent visit to Victoria, had made a suggestion as to an extension of time for the completion of the work, but the council, said the mayor, were not inclined at present to grant any.

The clearing of the track on the Lulu Island Branch has been completed and a train service has been started, connection being made with the British Columbia Electric Ry. at Ewen Ave.

On his recent visit to Victoria, Sir William Mackenzie is reported to have applied to the Provincial Government for

an increase of subsidy on account of the uncompleted mileage of authorized lines on Vancouver Island. The legislature authorized the guaranteeing of bonds for \$35,000 a mile for 250 miles of railway on the island; in addition to this the legislature also guaranteed bonds in respect of the construction of 145 miles of branch lines on the mainland, upon which construction has not yet been started.

The complete operation of the line from Patricia Bay to Victoria is expected at an early date, and it is also expected to lay track from Victoria to Alberni this year if rails can be obtained.

For the terminals in Victoria plans have been filed showing a 26½ acre area on the Songhees Indian reserve, and it is reported that the company has been advised to submit an offer to the government for the purchase of this site.

A. Angstrom, naval architect, was at Patricia Bay recently inspecting the car ferry terminals, now nearly completed, in connection with the preparation of plans for the building of another car ferry. (Mar., pg. 104.)

New England Lake and Rail Case.

The Interstate Commerce Commission gave a decision, Feb. 12, re Tariff I.C.C. 146, issued by C. J. Pierce, Manager, National Despatch-Great Eastern Line, Boston, Mass., to become effective July 15, 1916, which proposed to increase certain rates, rail lake and rail, and rail and lake, via the G.T.R. and the Northwestern Steamship Co., formerly known as the Port Huron & Duluth Steamship Co., from certain points in New York and New England to Duluth and St. Paul, Minn., and points taking the same or related rates. The order is as follows:

By order dated July 11, 1916, the commission entered upon a hearing concerning the propriety of the increases and the lawfulness of the rates, charges, regulations, practices stated in Agent C. J. Pierce's tariff I.C.C. 146, and on Oct. 19, 1916, ordered that the operation of said schedules be suspended until May 12, 1917.

A full investigation of the matters and things involved has been had, and the commission order that the carriers respondent herein be required to cancel said tariff on or before May 11, 1917, in so far as it proposes new rates on granite from stations on the Central Vermont Ry. and Montpelier & Wells River Rd. to points taking Duluth or St. Paul rates; that the carriers respondent herein be required to cancel said tariff on or before May 11, 1917, in so far as it proposes increased rates on ammunition and cartridges, and that the orders heretofore entered in this proceeding suspending the operation of said tariff, except in so far as it proposes rates which the carriers respondent are hereby directed to cancel, be vacated and set aside as of May 11, 1917, and that this proceeding be discontinued.

Maximum Length of Trains.—The Board of Railway Commissioners has decided that under existing conditions it would not be justified in fixing a maximum length for freight trains. The commission on its own motion took up the question and heard the views of the railways and railway employees. Commissioner McLean, in giving judgment, holds that during the war the expeditious movement of freight should be the first consideration. When the war is over the question of regulating the length of trains will be taken up again.

Traffic Orders by Board of Railway Commissioners.

Pig Lead, Spelter and Antimony Rates.

25894, Feb. 22. Re complaint of Consolidated Mining & Smelting Co. of Smelter, B.C., against increase by C.P.R. of rate on pig lead, spelter and antimony, from Smelter to eastern points; and order 24968, May 6, 1916, suspending item 20A on page 2 of Supplement 13 to C.P.R. Tariff C.R.C. no. W. 2110. Upon the report and recommendation of the Chief Traffic Officer of the board, no objection to the rescission of order 24968 having been filed by the applicant, and rates being now provided in Tariff C.R.C. no. W. 2190, it is order that order 24968 be rescinded.

Rates on Copper Commodities.

25897, Feb. 22. Re application of Consolidated Mining & Smelting Co. of Smelter, B.C., for suspension of proposed cancellation of rates on copper commodities to points in eastern Canada; and order 25082, June 17, 1916, suspending the proposed cancellation. Upon the report and recommendation of the Chief Traffic Officer of the board, no objection having been filed by the applicant company to the suspension order being lifted, and rates being now provided in C.P.R. Tariff C.R.C. no. W. 2190, it is ordered that order 25082, suspending proposed cancellation of rates on copper commodities from Smelter, Grand Forks and Greenwood, B.C., to points in Eastern Canada, as shown in C.P.R. Tariff C.R.C. no. W. 2147, effective June 15, 1916, and requiring the C.P.R. to continue in force the rates on the said commodities to points in Eastern Canada as contained in its Tariff C.R.C. no. W. 2056, until further order, be rescinded.

Essex Terminal Railway Tariffs.

25903, Re application of Essex Terminal Ry., under sec. 327 of the Railway Act, for approval of its Standard Freight Tariff C.R.C. no. 361, cancelling Standard Tariff C.R.C. no. 37, approved by order 10016, Mar. 30, 1910. Upon the report and recommendation of the Chief Traffic Officer of the board, it is ordered that the company's Standard Tariff C. R. C. no. 361 be approved; and it is further ordered that order 10016, approving the company's Standard Freight Tariff C. R. C. 37, be rescinded.

Milling in Transit Arrangements at Montreal.

25904, Feb. 26. Re application of Montreal Board of Trade Transportation Bureau, on behalf of Dominion Flour Mills, Ogilvie Flour Mills, and St. Lawrence Flour Mills, for an order disallowing the portion of C.P.R. Supplement 33 to Tariff C.R.C. no. E. 1196, Supplement 6 to C.R.C. no. E. 3120, Supplement 1 to C.R.C. no. E. 3137, and Supplement 1 to C.R.C. no. E. 3214, cancelling milling-in-transit arrangements on grain milled at Montreal and reshipped to points on Canadian Government Railways, also to Halifax, N.S., for export: It is ordered as follows, pending judgment on the application, that the clause in the following C.P.R. schedules purporting to cancel on and after Mar. 3, the existing milling-in-transit arrangement at Montreal, with respect to destinations on the Canadian Government Railways, be suspended, viz.: Supplement 6 to C.R.C. no. E. 3120 and Supplement 33 to C.R.C. no. E. 1186; and that, commencing Mar. 10, there be added to the company's Tariff C.R.C. no. E. 3261, rates to Halifax, that with respect to the rates to St. John, N.B., therein shown, shall preserve the pre-ex-

isting relationship; and it is further ordered that Supplement 1 to company's Tariff C.R.C. no. E. 3137 and Supplement 1 to C.R.C. no. E. 3214, be suspended until and including Mar. 9.

Canadian Northern Passenger Tariff.

25944, Mar. 16. Approving application of Canadian Northern Ry. Co., under sec. 331 of the Railway Act, for approval of Supplement 1 to its Tariff C.R.C. no. W-1283, providing for a maximum passenger fare of 4c a mile west of Tannis, Alta.

Switching Dispute at Winnipeg.

25951, Mar. 19. Re dispute between Grand Trunk Pacific and Canadian Northern Railways regarding reparation claimed by G.T.P.R. on account of Canadian Northern interswitching to Canada Cement Co.'s spur, Winnipeg. Upon hearing the matter at Winnipeg, Mar. 16, in the presence of counsel for the railway companies, it is ordered that the same be dismissed.

Lining Cars for Flax Seed.

25956, Mar. 22. Re order 23894, June 22, 1915, disallowing conditions with respect to shipment of flax seed in bulk, effective Oct. 12, 1914; and the C.P.R. application for leave to charge \$3 a car for lining cars for the carriage of flax seed. Upon hearing the matter at Winnipeg, Mar. 16, the Northwest Grain Dealers' Association and the Canadian Pacific, Canadian Northern, and Grand Trunk Pacific Railways being represented, and upon reading the protest filed by the Northwest Grain Dealers' Association against the said charge, it is ordered that the said railway companies be authorized to charge \$3 a car for lining cars for carriage of flax seed in bulk, subject to conditions set out in order 23894.

Filing of Express Tariffs.

General order 183, Feb. 24. Re general order 14 (order 5117), July 30, 1908, and the application of the Express Traffic Association of Canada for an order providing that the same arrangement be accorded to the express companies: Upon reading what is filed by the Express Traffic Association of Canada, on behalf of express companies, and the report and recommendation of the Chief Traffic Officer of the Board, it is ordered that the arrangement whereby certain tariffs of freight or passenger tolls may be filed with the board by agents, other than officials of the companies, acting jointly for two or more railway companies, subject to the legislative authority of the Dominion Parliament, provided that the said joint agents be duly authorized to act for the several companies by power of attorney, as set forth in the said general order 14, be extended to express companies subject to the Board's jurisdiction.

Allowance for Grain Doors.

General order 184, Mar. 22. Re application of D. D. Campbell, of Winnipeg, for an order increasing the allowance for grain doors supplied by shippers to \$1.50 for the lower door, and 75c for the upper part; also that the bill therefor, when agent, be accepted by him and credited on account of freight charges. Upon hearing the application at Winnipeg, Mar. 16, the Northwest Grain Growers' Association and the Canadian Pacific, Canadian Northern, and Grand Trunk Pacific Railways being represented, the applicant appearing in person, it is or-

dered that order 8860, Dec. 10, 1909, requiring that where shippers upon railways are compelled to furnish car doors to enable cars to be used for traffic, allowance therefor to such shippers be made upon the following basis: At and west of Fort William, lower car door, \$1; upper car door, 50c; east of Fort William, upper or lower car door, each, 50c; be amended to provide that the allowance for grain doors be increased from \$1 to \$1.50 for the lower door and from 50c to 75c for the upper door, in all \$4.50 a car, the said allowance to be made at and west of Port Arthur, Ont.

Canadian Northern Ry. Lake and Rail Rates.

The Assistant Chief Commissioner, D'Arcy Scott, gave the following judgment, Feb. 26, Commissioner McLean concurring: J. P. H. Stevenson, customs broker, Toronto, complains that while the C.N.R. has lake and rail rates from Orono and Yarker, noncompetitive points on the C.N.R. east of Toronto via lake boats from Toronto Port Arthur thence C.N.R. to western points, the company's Eastern Lines lake and rail tariff C.R.C. no. E 771, does not show any rates from Toronto, the point where the lake movement begins. The clause of the Railway Act known as the long and short haul clause is subsec. 3 of sec. 326, which reads in part as follows: "And greater tolls shall not be charged therein (in a special freight tariff) for a shorter than a longer distance over the same line in the same direction, if such shorter distance is included in the longer."

The tariff in question shows arbitraries from Port Arthur to the principal points west, to be added to the rates to Port Arthur in order to arrive at the through rates. The arbitraries are the local tariff rates of the C.N.R. Western Lines. The C.N.R. (Western Lines) is therefore a party to through lake and rail rates from Toronto, the other party being the steamship company, and this being so, under the clause of the Railway Act above quoted, which in my opinion applies in this case, the through rates from Toronto cannot be greater than the through rates from Orono, Yarker, and other C.N.R. points east via Toronto. It may be noted also that the tariff itself is a publication of the C.N.R. (Eastern Lines) and is filed with the board by that company.

Steam Railway Track Laid in 1916.—

In an article on this subject appearing in Canadian Railway and Marine World for Feb., pg. 56, estimates of the track laid in 1916 were used in reference to the Alberta & Great Waterways Ry., the Central Canada Ry., and the Edmonton, Dunvegan & British Columbia Ry., crediting them with having laid 110.50 miles of new track, viz.: 40 miles, 1.96 miles and 68.60 miles respectively. We have now been officially advised of the exact new trackage laid, which is as follows: Alberta & Great Waterways Ry., mileage 174.20 to 202.12 in the direction of McMurray, 27.92 miles. Central Canada Ry., to Peace River Crossing, 1 mile, and an industrial spur of 0.63 of a mile. Edmonton, Dunvegan & British Columbia Ry., Spirit River to Grande Prairie (Grande Prairie Branch), 50.2 miles; main line mileage 334.7 to 356.9, or 22.2 miles; total 72.6 miles. This makes a total of new main and branch line track of 101.32 miles and 0.63 of a mile of a spur track. This reduces the total mileage of new track laid in Canada in 1916 from 285.94 miles to 276.76 miles.

Mainly About Railway People Throughout Canada.

Mrs. Webster, wife of James Webster, President and General Manager, Caranquet Ry., died at her home in Toronto, Mar. 20.

David Pottinger, I. S. O., who was General Manager of the Intercolonial Ry. for many years, is visiting Toronto, accompanied by Mrs. Pottinger.

M. J. MacAndrew, Road Foreman of Locomotives, Michigan Central Rd., St. Thomas, Ont., died suddenly, while on duty, at Victoria Park, Ont., Mar. 19.

Lord Shaughnessy was announced to address the Royal Colonial Institute in England on April 3, on Canada, but circumstances have made it impossible for him to go overseas at present.

F. Ronaldson, Master Mechanic, Ontario District, C.P.R., Toronto, had an arm broken and a shoulder injured, when a portion of a C.P.R. eastbound train left the rails near Belleville, Ont., Mar. 6.

Sir John Kennedy, Consulting Engineer, Montreal Harbor Commission, and **Hiram A. Calvin**, formerly a Kingston, Ont., ship owner, have been elected fellows of the Royal Colonial Institute.

W. Woollatt, Vice President and General Manager, Essex Terminal Ry., Walkerville, Ont., has been appointed a member of the Provincial Resources Committee, constituted under the Ontario Legislature's authority.

Sir Henry Drayton, Chief Commissioner, Board of Railway Commissioners, has been elected President of the Ottawa Vacant Lots Association, and has given \$500 to be distributed by the association in prizes.

T. F. Savage, who has been appointed Special Agent, Guelph Jct. Ry., Guelph, Ont., was for 47 years with the Great Western Ry., the G.T.R. and C.P.R., and retired under the C.P.R. pension rules, Jan. 1. He will look after the solicitation of traffic in Guelph and points west to Goderich.

Alexander Avery, whose appointment as Livestock Agent, Canadian Northern Ry., Winnipeg, was announced in our last issue, was born at Sharbot Lake, Ont., May 30, 1880, and from May 1902 to Oct. 16, 1916, was station agent at various points, latterly for the C.N.R. at Arcola, Sask.

H. A. Woods, Assistant Chief Engineer, Grand Trunk Pacific Ry., Winnipeg, who, as mentioned in Canadian Railway and Marine World for February, was granted leave of absence for three months, and who, it was reported, would resign on the expiration of his leave, is at Mountain Lakes, N.J., with his family.

George Bury, Vice President, C.P.R., who left Montreal on Jan. 23 for England, whence he accompanied Lord Milner on a mission to Russia, was still in Petrograd early in March, and up to Mar. 22 no information had been received at C.P.R. headquarters in Montreal as to his movements. It is expected that he will return to Canada via London.

F. M. Black, who has been appointed one of the Public Utility Commissioners for Alberta, in place of the late John Stocks, has been connected with P. Burns & Co., Calgary, Alta., for the past 15 years, latterly as Treasurer. He was President of the Calgary Board of Trade for the past year, and also served on Alberta Red Cross Society's finance committee.

G. A. Delacherois, whose appointment as Roadmaster, Shuswap and Okanagan Subdivisions, British Columbia District, Revelstoke, was announced in our last



M. K. McQuarrie
Engineer, Dominion Atlantic Railway



D. J. England
Trainmaster, Canadian Pacific Railway,
Calgary, Alta.

issue, was from Dec. 1909 to June 1915, Resident Engineer, C.P.R., Saskatoon, Sask.; June 1915 to Feb. 1916, Resident Engineer, Regina, Sask.; Feb. 1916 to Feb. 1917, Resident Engineer, Winnipeg.

Frederick McDowell, who has been appointed Storekeeper, Canadian Northern Ry., Winnipeg, was born there, Oct. 22, 1883, and entered C.N.R. service, Nov. 5, 1902, since when he has been, to May 1, 1905, storeman; May 1, 1905 to July 1, 1908, shipper; July 1, 1908 to Aug. 1, 1912, store foreman; Aug. 1, 1912 to Mar. 1, 1917, General Foreman, all at Winnipeg.

Fred C. Jackson, a civil engineer on the Hudson Bay Ry., is reported to be the discoverer of the Flin-Flon Lake copper district, 650 miles northwest of Winnipeg. He had never been on a prospecting expedition before Oct., 1915, when he staked out the present Mandy claim. The Tonopah Mining Co. of Nevada bought the claim from him, agreeing to develop it and to give the original finder a 15% interest. There is said to be nearly \$15,000,000 in chalcopryrite ore in sight.

Maurice B. Helston, who has been appointed Superintendent, District 4, Western Division, Canadian Northern Ry., Calgary, Alta., was born at Michigan City, Ind., Aug. 24, 1896, and entered railway service in 1885, since when he has been, to 1890, operator, Michigan Central Rd.; 1890 to 1898, dispatcher, same road; 1898 to 1909, dispatcher, and chief dispatcher, Northern Pacific Ry.; 1909 to 1914, chief dispatcher, Canadian Northern Ry.; 1914 to Feb. 1, 1917, Superintendent, Duluth, Winnipeg & Pacific Ry., Virginia, Minn.

J. G. Macklin, M.Can.Soc.C.E., for many years Engineer of the G.T.R. Midland Division, at Peterborough, Ont., died recently in England, where he had lived for some time. He was born in England and came to Canada as a young man. His first engineering experience here was on the construction of the cantilever bridge over the Niagara River, below the Falls. His last important engineering work was the planning and construction of the dam on the Richelieu River at Chambly, Que. He is survived by a son, Lieut. F. C. A. Macklin, of the Royal Engineers.

Donald John England, who has been appointed Terminal Trainmaster, C.P.R., Moose Jaw, Sask., was born at Glen Roy, Ont., July 23, 1880, and entered C.P.R. service, Sept. 6, 1903, since when he has been, to Oct. 21, 1905, switchman, Winnipeg; Oct. 21, 1905, to Apr. 1, 1906, Yard Foreman, Winnipeg; Apr. 1, 1906, to Nov. 27, 1907, Assistant Yardmaster, Winnipeg; Nov. 27, 1907, to Dec. 10, 1910, Night Yardmaster, Winnipeg; Dec. 10, 1910, to June 19, 1913, General Yardmaster, Winnipeg; June 19, 1913, to Apr. 5, 1916, Trainmaster, Winnipeg; Apr. 5, 1916, to Feb. 20, 1917, Trainmaster, Calgary, Alta.

Geo. H. Frost, founder and for many years publisher of the Engineering News, New York, died at Plainfield, N.J., recently of paralysis. He was born in Ontario and graduated from McGill University in 1860. He went to Chicago in 1863. He was a land surveyor, and for several years an engineer on the Chicago & Northwestern Rd. He founded the Engineering News in 1874 and published it until 1911. He was president of the Courier News Publishing Co. of Plainfield, and a member of the American and Canadian Societies of Civil Engineers and honorary member of engineering societies in several States.

Daniel Francis Coyle, whose appointment as Industrial Commissioner, Canadian Northern Ry., Toronto, was announced in our last issue, was born at Stayner, Ont., June 13, 1875, and entered railway service, Aug. 15, 1892, since when he has been, to Sept., 1896, stenographer, General Superintendent's office, Western Division, C.P.R., Winnipeg; Sept., 1896, to Aug. 15, 1901, private secretary to Manager, Western Lines, C.P.R., Winnipeg; Aug. 15, 1901, to Jan. 2, 1917, assistant to R. J. Mackenzie, who was in charge of the construction of all Canadian Northern Ry. lines west of the Great Lakes, for Mackenzie, Mann & Co., the general contractors.

Malcolm Keith McQuarrie, who was appointed Resident Engineer, Dominion Atlantic Ry., Kentville, N.S., recently, was born at Sault Ste. Marie, Ont., Aug. 17, 1884, and graduated from the University of Toronto in 1907. He entered C.P.R. service in 1905, and was, to 1908, transit man, Vancouver, B.C.; 1908 to 1909, Assistant Engineer revising location of the Alberni Branch, Esquimalt & Nanaimo Ry., Vancouver Island; 1909 to 1910, Engineer on construction, Hartford Jct. Branch, C.P.R., to Wellington Camp, B.C.; 1910, Assistant Engineer, Vancouver Terminals, C.P.R.; 1911 to 1916, Resident Engineer, Field to Kamloops, Revelstoke Division, C.P.R.

J. Harry Chown, whose appointment as Superintendent, Regina Division, Saskatchewan District, C.P.R., was announced in our last issue, was born at West Flamboro, Ont., Aug. 21, 1882, and entered C.P.R. service, Nov. 28, 1904, since when he has been, to Dec. 31, 1905, clerk in General Superintendent's office, Winnipeg; Jan. 1 to Dec. 16, 1906, chief clerk, Superintendent's office, Brandon, Man.; Dec. 16, 1906, to June 30, 1910, chief clerk, Superintendent's office, Kenora, Ont.; July 1, 1910, to June 17, 1912, chief clerk to General Superintendent, Moose Jaw, Sask.; June 17, 1912, to Feb. 28, 1914, Trainmaster, Kerrobert, Sask.; Mar. 1, 1914, to Jan. 25, 1917, Trainmaster, Moose Jaw, Sask.

Peter Siems, railway contractor, St. Paul, Minn., and founder of the Siems-Carey Co., died at Daytona, Fla., Mar. 3, aged 75. He was born in Holstein, Germany and emigrated to the United States in 1865, going to St. Paul in 1870. After laying out the public highways between Black Hills and Minneapolis, he entered railway contract work in 1884 with D. C. Shepherd and Co., which later became Shepherd, Siems & Co. In 1908 the company was reorganized under the name of Siems & Co., with Mr. Siems' sons as partners. He retired six years ago and F. W. Carey became identified with the concern. Last October this company concluded a contract to build 1,100 miles of railway for the Chinese Government. Mr. Carey is now in China as resident manager of the work.

Thos. B. Townsend, who died at Aldershot, Ont., Mar. 8, was born in England in 1834, and came to Canada in 1857. He was a civil engineer, and was for many years with the old Great Western Ry. of Canada. He had charge of the rebuilding of the Desjardins Canal bridge at Hamilton, which replaced the one destroyed in the serious accident many years ago. In 1860, he designed and supervised the building of a private car used by the then Prince of Wales, afterwards King Edward VII., during his tour in Canada. In 1872 he received an appointment in the Dominion Railway and principally on the Welland Canal, until

1881. A few years later he retired from professional work and farmed at Aldershot.

Thomas Francis Rahilly, who has been appointed Superintendent, Algoma Eastern Ry., Sudbury, Ont., was born at Dior-



J. G. Sullivan, M. Can. Soc. C. E.
Chief Engineer, Western Lines, C. P. R., and
President, American Railway Engineering Association.



D. F. Coyle
Industrial Commissioner, Canadian Northern Ry.

ite, Mich., Oct. 6, 1892, and entered railway service, June 22, 1908, since when he has been, to July 20, 1908, section hand, Chicago & North Western Ry., Michigan, Mich.; July 23, 1908, to May 11, 1913, freight clerk, Duluth,

South Shore & Atlantic Ry., St. Ignace, Mich.; May 12 to Aug. 27, 1913, clerk in Audit Office, same road, Marquette, Mich.; Aug. 28 to Nov. 2, 1913, chief clerk to Yardmaster, Sault Terminals, same road, Sault Ste. Marie, Ont.; Nov. 3, 1913, to Nov. 30, 1914, clerk in Comptroller's Office, Algoma Central & Hudson Bay Ry. and Algoma Eastern Ry., Sault Ste. Marie, Ont.; Dec. 1, 1914, to Apr. 15, 1916, Travelling Auditor, same companies; Apr. 15 to Dec. 1, 1916, Trainmaster, A.C. & H.B.R., Sault Ste. Marie, Ont.; Dec. 1, 1916, to Mar. 1, 1917, Comptroller, Algoma Eastern Ry., Sudbury, Ont.

John G. Sullivan, M. Can. Soc. C. E., who has been elected President, American Railway Engineering Association for the current year, was born at Bushnell's Basin, N.Y., Jan. 11, 1863, and graduated C.E. from Cornell University in June, 1888. He entered railway service in July, 1888, since when he has been, to Mar., 1889, rodman, Great Northern Ry.; Apr., 1889, to Aug., 1890, rodman, instrument man and assistant engineer, Spokane Falls & Northern Ry.; Aug., 1890, to May, 1893, Assistant Engineer, Great Northern Ry. coast lines; July, 1893, to Feb., 1894, Assistant Engineer, Alberta Ry. & Coal Co.; July to Oct., 1894, section foreman, Northern Pacific Ry.; Oct., 1894, to Apr., 1895, Locating Engineer, Butte Anaconda & Pacific Ry.; Apr. to Dec., 1895, Division Engineer, Kaslo & Slocan Ry.; Dec., 1895, to Feb., 1901, Locating and Reconnaissance Engineer, and Engineer in charge of construction, Columbia & Western Ry.; Feb., 1901, to Sept., 1905, Division Engineer of Construction, Western Lines, C.P.R.; Sept., 1905, to Feb., 1907, Assistant Chief Engineer, Panama Canal; Feb., 1907, to Sept. 15, 1908, Manager of Construction, Eastern Lines, C. P. R., Toronto; Sept. 15, 1908, to Jan. 1, 1911, Assistant Chief Engineer, Eastern Lines, C.P.R., Montreal; Jan. 1 to Oct. 9, 1911, Assistant Chief Engineer, Western Lines, C.P.R., Winnipeg, and from the latter date, Chief Engineer, Western Lines, C.P.R., Winnipeg.

Guy Tombs, whose appointment as Assistant Freight Traffic Manager, Eastern Lines, Canadian Northern Ry., Montreal, was announced in our last issue, was born near Lachute, Que., Nov. 22, 1877, and entered transportation service in Sept., 1892, since when he has been, to Apr., 1895, junior import clerk, C.P.R., Montreal; Apr., 1895, to Aug., 1897, secretary to General Manager and Secretary, United Counties Ry., St. Hyacinthe, Que.; Sept., 1897, to May, 1899, chief clerk to Canadian Agent, Central Vermont Ry., Montreal; June, 1899, to June, 1900, rate clerk, Division Freight office, G.T.R., Montreal; June, 1900, to Apr., 1901, Travelling Freight Agent, Central Vermont Ry., St. Johns, Que., and St. Albans, Vt.; May, 1901, to Dec., 1903, General Freight and Passenger Agent, Great Northern Ry. of Canada, Quebec; in May, 1903, this road was acquired by Canadian Northern Ry. interests and the office removed to Montreal in Jan., 1904, and shortly afterwards the name was changed to Canadian Northern Quebec Ry., and the jurisdiction extended to cover the Quebec & Lake St. John Ry., Apr. 1, 1908; June, 1912, to Nov., 1916, General Freight Agent, Quebec Division, C.N.R., Montreal; Nov., 1916, to Feb., 1917, General Freight Agent, Eastern Lines, C.N.R., Montreal. From the inauguration of the Canadian Northern Steamships, Ltd., to the recent absorption of that company by the Cunard Steamship Co., he was also Montreal Representative, C.N.S., Ltd.

Canadian Railway AND Marine World

ESTABLISHED 1898.

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

Official Organ of various Canadian Transportation
Associations.

Published on the first of each month.

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

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

AUBREY ACTON BURROWS - Secretary and
Business Manager.

Associate Editors

JOHN KEIR AND DONALD F. KEIR

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

Member of
Canadian Press Association Inc.,
Associated Business Papers Inc.

Authorized by the Postmaster General for Canada,
for transmission as second class matter.
Entered as second class matter, July 25, 1913, at the
Postoffice at Buffalo, N. Y., under the Act of Congress
of March 3, 1879.

SUBSCRIPTION PRICE, including postage any-
where, \$2 a year.

SINGLE COPIES, 20 cents each, including postage.
The best and safest way to remit is by express money
order. Where one cannot be obtained, a post office
money order, or bank draft, payable at par in Toronto,
may be sent. Cheques or drafts not payable at par in
Toronto cannot be accepted. Remittances should be
made payable to Canadian Railway and Marine World.

NOTICE TO ADVERTISERS.

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

TORONTO, CANADA, APRIL, 1917.

PRINCIPAL CONTENTS.

Appointments, Transportation	149
Birthdays of Transportation Men	132
Board of Railway Commissioners,—	
Orders by, Summaries of	134
Traffic Orders	144
Canadian Northern Ry., Construction	143
Lines under Dominion Control	147
Canadian Pacific Ry., Construction	142
Double Deck Automobile Cars	139
Electrically Heated Solder Pan	130
Honor Roll	133
Hospital Cars	140
Snow Fighting Equipment	131
Standard Steel Locomotive Pilots	129
Canadian Railways Situation Enquiry	150
Chilled Iron Car Wheel, The	137
Engineers at the Front in the War	127
Electric Railway Department	151 to 156
Answers to Questions	152
Brantford Municipal Ry. Report	156
British Columbia Electric Ry. Route Maps	152
Finance, Meetings, etc.	156
Jitney Traffic Notes	153
Personal	153
Postmen's Transportation in Regina	152
Projects, Construction, Etc.	155
St. John Ry. Sale	153
Toronto and Its Electric Railways	151
Toronto Ry. Overcrowding Case	153
Express Companies, Among the	167
Freight and Passenger Traffic Notes	139
Grain Inspection at Western Points	142
Grain in Store at Terminal Elevators	162
Marine Department	157 to 167
British Columbia Shipping Report	167
Canada Steamship Lines' Report	157
Coast, Lake and River Officers for 1917	159
Personal	166
Shipbuilding in Canada	161
Shipping Federation of Canada	160
Water Supply Regulations in U. S.	163
Mainly About Railway People	145
Ontario Railway and Municipal Board Act	
Amendments	138
Pacific Great Eastern Ry. Investigation	140
Railway Development	135
Railway Earnings	136
Railway Finance, Meetings, Etc.	141
Railway Rolling Stock Notes	141
St. Martins Ry. Repairs	132
Telegraph, Telephone and Cable Matters	167
Transportation Conference at Ottawa	138
Transportation Men in the War	149

Soaking Ties in a Strong Solution of
crude sea salt is practised by southern
Russian railways to preserve them.

Canadian Northern Railway Lines Brought Under Dominion Control.

By a proclamation issued Feb. 20, and appearing in a special issue of the Canada Gazette, Feb. 28, sub-sections 2, 3 and 4 of the act granting aid to the extent of \$45,000,000 to the Canadian Northern Ry. System, passed in 1914, were declared to be in effect from and after Mar. 1. This brings into force the only part of the act which has not hitherto been in effect, and so brings within the Board of Railway Commissioners' jurisdiction the Canadian Northern Saskatchewan Ry., the Canadian Northern Western Ry. and the Canadian Northern Pacific Ry. lines by declaring them to be works for the general advantage of Canada. Sec. 15 of chap. 25 of the statutes of 1914 dealt with the various lines of the C.N.R. System which were not, at the time of the making of the agreement, confirmed by the act, works for the general advantage of Canada. The first sub-section of section 15 declared the C. N. Manitoba Ry., the Irondale, Bancroft & Ottawa Ry., the Marmora Ry. & Mining Co., and the Quebec & Lake St. John Ry., which had been built under Manitoba, Ontario and Quebec charters, respectively, to be works for the general advantage of Canada; subsec. 2 declared the C. N. Western Ry. subsec. 3 declared the C. N. Saskatchewan Ry., and subsec. 4 declared the C. N. Pacific Ry. to be works for the general advantage of Canada, and subsec. 5 set out that the three latter sub-sections should become operative on the proclamation of the Governor in Council, upon a declaration by order in Council that the lines of the companies had been constructed and were being operated over.

The Saskatchewan Legislature, by chap. 11 of the statutes of 1912, as amended by chap. 11 of the statutes of 1913, arranged to guarantee the bonds of a railway to be incorporated under C.N.R. control, to build a number of branch lines in the province, and by chap. 43 of the statutes of 1912, did incorporate the C. N. Saskatchewan Ry. Under the provisions of these acts the Saskatchewan Government entered into a contract with the C. N. Saskatchewan Ry. to build the following lines: Luck Lake line, 35 miles; Wroxton westerly, 45 miles; Shellbrook westerly, 45 miles; Kipling to New Warren, 35 miles; Lampman northerly, 45 miles; Aylesbury westerly, 50 miles; a total of 225 miles. Surveys have been made for all these lines except that from Kipling to New Warren, and construction was proceeded with on the line from Wroxton westerly and the line from Aylesbury westerly. At the end of 1915, track had been laid for 41.01 miles on the line from Wroxeter and for 8.66 miles on the line from Aylesbury. The first of these two lines extends from Wroxeter, on the Rosburn branch, through Yorkville to Willowbrook, and the second starts from Aylesbury, on the Regina-Saskatoon line, but only the first named appears to be in operation.

The C. N. Western Ry. was incorporated by the Alberta Legislature in 1910, with power to build the Peace River branch, through Whitecourt and Grande Prairie, to the western boundary of the province; and a line northeasterly following the Saskatchewan River to the eastern boundary of the province, which is known as the St. Paul de Metis line, and some other lines. Under the provisions of an act to aid the construction of

railways, the Alberta Government entered into a contract for the construction of certain of these lines, under a guarantee of bonds. In reply to a question in the Legislature recently, the Premier stated that 153.16 miles of the guaranteed lines were in operation; track had been laid on an additional 16 miles, and 161.2 miles further grading had been done.

The C. N. Pacific Ry. was incorporated by the British Columbia Legislature under agreement to build a railway, under guarantee of bonds, from the Alberta-B.C. boundary to Vancouver, 500 miles; a line of 100 miles from Victoria to Barkley Sound, and other lines as authorized by the Lieutenant Governor in Council. Section 8 of the agreement, which was confirmed by the act of incorporation, provides: "In consideration of the guarantee of the securities, the C.N.R. covenants that the C.N.P.R. will agree that the Lieutenant Governor in Council may make rates for the carrying of freight and passengers on the line within the province, having regard to the fact that freight may be shipped into or out of the province from or to other places in Canada," and concludes: "The C.N.R. undertakes that it will not, and that the Pacific Co. will not, bring or promote any appeal to the Railway Commissioners for Canada from any order made under and pursuant to this section, and in the event of any such appeal being brought by others, that the C.N.R. and the Pacific Co. will represent to the commission on such appeal that it is satisfied with the rates the subject of such appeal in so far as they have been established within the provisions of this section." The existence of this section in the agreement was used as an argument by the Premier in the House of Commons in 1912, upon which an amendment proposed by Sir Wilfrid Laurier to bring the whole system under Federal jurisdiction at that time was defeated and it was also used when a similar motion was made during the consideration of the act of 1914.

The Minister of Railways for British Columbia has referred the matter to the Provincial Attorney General for an opinion on the scope of the order, and the Dominion Government has been asked for a statement as to what the order is intended to cover. Pending the receipt of further information, the B. C. Government declines to make any statement on the matter.

The Railway Club of Edmonton, Alta., was organized at a meeting held there, Mar. 2, when the following officers were appointed: President, W. A. Brown, General Superintendent, Canadian Northern Ry.; Vice Presidents, J. A. MacGregor, Superintendent, C.P.R.; M. Walton, Superintendent, Grand Trunk Pacific Ry.; Secretary, J. H. Cummings, local representative, Baltimore & Ohio Rd. The purpose of the club is to enable men engaged in transportation work to get together for the exchange of ideas and to enable them to give fitting reception to prominent railway men visiting the city.

The Railway Y. M. C. A.—At a recent meeting of directors, the International Secretary requested on behalf of the National Council, the release of David Thomson, Secretary, Railway Y. M. C. A., Kenora, Ont., to organize a new department of work for returned soldiers.

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

The 256th Overseas Railway Construction Battalion, which left Toronto Mar. 21, about 1,000 strong, on its way to an eastern training ground, under command of Lt. Col. W. A. McConnell, is composed largely of civil engineers, surveyors, contractors and railway construction men.

Railway Battalions Arrive.—It was officially announced in Ottawa, Feb. 28, that the 228th Railway Construction Battalion, St. John; the 257th Railway Construction Battalion, Toronto, Ottawa, and the Maritime Provinces; the 143rd Railway Construction Battalion, Victoria, and the 218th Railway Construction Battalion, Edmonton, had arrived safely in England.

Sections of Skilled Railway Employees—Canadian Railway and Marine World for February contained particulars about No. 1 Section Skilled Railway Employees, being recruited under Capt. A. H. Kendall, formerly Master Mechanic, C.P.R., Toronto. No. 2 section is now being organized under Capt. R. McKillop, formerly Superintendent, Laurentian Division, C.P.R., Montreal. Each section will consist of 3 officers and 266 other ranks, the headquarters in each case being at Montreal. They will comprise station agents, yardmasters, locomotive men, locomotive firemen, conductors, brakemen and locomotive house mechanics. Their duties in France will be to operate military trains, conveying troops, guns, munitions, supplies, etc., to the rail heads, and it is quite possible that they will be assigned to work on one of the permanent French railways. The extra working pay allowed ranges from 60c to \$1 a day. All information can be obtained at the recruiting stations in Moncton, Quebec, Montreal, Ottawa, Toronto and Winnipeg. The companies are being filled up rapidly, and it is expected that they will go overseas at a very early date.

C.P.R.'s Contribution of Men.

The C.P.R. is credited with giving more men to the British Army than any other organization in Canada. On Jan. 1, 7,114 employes of the railway had enlisted, 176 had been killed and 415 had been wounded. In April, 1916, Lord Shaughnessy's elder son, Capt. the Hon. Alfred Shaughnessy, was killed in action, and his younger son, Capt. the Hon. W. J. Shaughnessy, is now overseas with the Irish Rangers from Montreal. Jas. McNaught, one of the company's solicitors in Montreal, was killed in action recently.

The company's western lines have done magnificently, 3,814 employes having enlisted, of whom 74 have been killed and 256 wounded. In the enlistments from the western lines, clerks head the list with a total of 778, Winnipeg shops are second with 362, the wipers are third with 287, firemen are fourth with 277, and brakemen are fifth, having 275. The police department has given 76 constables to the army. Many of these are veterans of other wars. The majority of them passed through the South African campaign and are winners of both the King's and Queen's medals.

Following is a classification of western lines employes who have enlisted: Surveyors, 1; assistant engineers, 2; resident engineers, 3; locomotive men, 41; locomotive firemen, 277; wipers, 287; conductors, 23; brakemen, 275; yardmen, 82; Winnipeg shops, 362; Ogden shops, 174; various shops, 293; clerks, 778; checkers, 122; porters, 179; foremen, 16; section-

men, 113; janitors and cleaners, 11; hotel, 25; agents and operators, 161; constables, 76; British Columbia coast steamships, British Columbia lake and river service, 98; bridge and building men, 83; construction department, 32; miscellaneous, 300.

Personal Notes.

W. E. Wilford, Commissary Agent, C.P.R., Calgary, Alta, has enlisted for active military service.

Harold Brown, formerly Dock Agent, Grand Trunk Pacific Ry., Vancouver, who left there for England on Jan. 18, has received a commission in the Royal Engineers' Inland Water Service.

Capt. the Hon. W. J. Shaughnessy, younger and only surviving son of Lord Shaughnessy, has been transferred from the Irish Rangers of Montreal to the Canadian Corps Staff in France.

F. L. C. Bond, A.M.Can.Soc. C.E., Division Engineer, Eastern Lines, G.T.R., Montreal, is major in the 256th Overseas Railway Construction Battalion, which left Toronto, Mar. 21, on its way to an eastern training ground.

Lieut. F. G. English, Essex Regiment, reported missing on the Somme on Nov. 14, and now reported, through the Netherland Red Cross Society, as killed, was General Agent, Freight and Express Department, G.T.R., London, Eng.

Major D. D. Parker, in addressing the Canadian Society of Civil Engineers, electrical section, at Montreal, Mar. 15, on the co-operation of the engineer and the infantryman in trench warfare, exhibited a working model of a front line trench.

Lt. Col. J. J. Creelman, of the Canadian Artillery, son of the late A. R. Creelman, K.C., General Counsel and director, C.P.R., Montreal, was decorated with the Distinguished Service Order, by the King, at Buckingham Palace, Mar. 5.

Flight Lieut. T. S. G. Pepler, of Toronto, previously reported missing, Mar. 6, was on Mar. 27 reported killed. He was a graduate of the Faculty of Applied Science, Toronto University, and was an assistant engineer for the Toronto Harbor Board before enlisting.

Lt. Col. G. D. Fearman, Chief Accountant, Dominion Power & Transmission Co., Hamilton, Ont., who went overseas some time ago in command of a battalion, has been appointed to command the regimental depot of the first Central Ontario Battalion at Shorncliffe, Eng.

Major Jas. McGregor, formerly Superintending Engineer, Halifax Ocean Terminals, Canadian Government Railways, who went overseas with the 239th Battalion, Overseas Railway Construction Corps, C.E.F., is now in the 3rd Battalion, Canadian Railway Corps, his address being Army Post Office, London, England.

Lt. Col. F. M. McRobie, General Manager and Secretary, Canadian Transfer Co. Ltd., is in command of the 244th Kitcheners' Own Overseas Battalion, C.E.F., which completed its training in Canada recently. Its headquarters were in Montreal, but it was recruited all over Canada, having had the same privilege in this respect as the Princess Patricia's.

Private Leo Clarke (acting corporal), who was awarded the Victoria Cross some time ago, and died in hospital before the award was announced, was for several years engaged in the Canadian Northern Ry. Survey Department at Toronto. The other officials of the company who have won distinction on the field are

Major H. B. Harstone, formerly of Edmonton, Alta., having been given the D.S.O., and Corporal James Rodgers, of Winnipeg, being awarded the Military Cross.

Lieut. C. R. Needs, of the Aviation Service, who was killed overseas in an aeroplane, Feb. 27, was born at Bristol, Eng., Mar. 14, 1886. He entered Canadian Northern Ry. service as a draughtsman in Oct. 1910, became rod man April 1, 1911, and instrument man May 1, 1911, his work being on the Toronto-Ottawa line. On Aug. 14, 1911, he was appointed Resident Engineer on the Sudbury-Port Arthur line, leaving the service Nov. 21, 1913, when the work was completed. After the outbreak of war he was engaged for a time as inspector of munitions at Galt, Ont.

R. McKillop, heretofore Superintendent, Laurentian Division, C.P.R., Montreal, who has been appointed officer commanding No. 2 section, Skilled Railway Employees, with rank of captain, was born in Scotland, Dec. 26, 1884, and entered C.P.R. service, July 23, 1905, since when he was, to Feb. 9, 1915, Assistant Engineer and Chief Draughtsman, Engineering Department, Montreal; Feb. 5 to Dec. 13, 1915, Division Engineer, Eastern Division, Montreal; Dec. 13, 1915, to July, 1916, Superintendent, District 2, Atlantic Division, Woodstock, N.B.; July, 1916, to Feb., 1917, Superintendent, Laurentian Division, Quebec District, Montreal.

Brevet Lt. Col. Wm. Beaumont Anderson, of the Royal Canadian Engineers, who has been appointed a member of the Distinguished Service Order, is a son of Lt. Col. W. P. Anderson, C.M.G., Reserve of Officers, Chief Engineer, Marine and Fisheries Department, Ottawa. He was born Sept. 9, 1877, and graduated from the Royal Military College, Kingston, Ont., in 1897. After serving at Halifax, he was for some time General Staff Officer, with headquarters at Montreal. He is now A.Q.M.G., at the Canadian Corps headquarters in France. His father served in the Fenian raids in 1866 and 1870, and has the General Service Medal with two clasps.

E. W. Du Val, Superintendent, Saskatoon Division, Saskatchewan District, C.P.R., Saskatoon, who has been given leave of absence for overseas duty, and biographical information about whom was published in our last issue, after taking an officer's training course at Regina, for a has qualified as a lieutenant and has been appointed to take the Saskatchewan University draft overseas, to reinforce the University Battalion in France. He is now at Saskatoon, enlisting, equipping and training the draft, and will probably go overseas in May. He has two brothers overseas, one in England after being wounded, the other on the Bulgarian front, having gone in from Salonica.

Sapper Wm. Reece (504,225), of Vancouver, of the 12th Field Company, Canadian Engineers, 4th Canadian Division, British Expeditionary Force, who was reported in the casualty lists of Mar. 10 as having been killed in action, was one of the party of seven who volunteered, on the night of Nov. 25, to carry out, under heavy fire, and at the imminent risk of their lives, the body of Lieut. Bruce H. A. Burrows, of Toronto, when the latter was killed by a high explosive shell, on the East Miraumont Road, about 50 yards

north of the Regina Trench, as he was going in at the head of a detachment of his men, to put up barbed wire, at what the commanding officer reported as a very important strategical point.

Lt. Col. J. W. Stewart, of Foley Bros. Welch & Stewart, railway contractors, Vancouver, B.C., who went overseas in command of the 239th Battalion, Canadian Overseas Railway Construction Corps, is reported in a London cable as being "in charge practically of all the railway construction forces in the war zone." Another cable says he has made a great success of railway construction in France, where he has now been given the widest responsibilities. One job which the authorities wanted done in a hurry would require six weeks, according to an official estimate, but Stewart said if they would give him 2,000 Canadians he would do it in a week. He actually completed it in four days. An Ottawa dispatch of Mar. 27 says he has been promoted to Brigadier General.

Major Geo. P. MacLaren, of the 256th Railway Construction Battalion, was presented on Mar. 20 by his former associates on the Canadian Northern Ry. with an address and a pair of prism binoculars prior to leaving for overseas. The address was read by H. K. Wicksteed, M.Can.Soc. C.E., Chief Engineer of Surveys, C.N.R., and many of the old guard who worked on the railway in its construction days were represented. Major MacLaren was with the C.N.R. for many years, having started on the surveys of the Halifax & South Western Ry., one of the now tributaries, in 1903 and having been with the company continuously since that time until his enrolment for overseas service. Latterly he was District Engineer in charge of construction between Pembroke and Capreol, Ont., 220 miles.

Lt. Col. W. A. McConnell, who has raised, and is commanding, the 256th Overseas Railway Construction Battalion, C.E.F., was born in Monck Tp., Ont., in 1878. At the age of 15 he started work on the construction of highways

and bridges with his father, who was a road and bridge builder. Later for a number of years he worked on railway construction as foreman of grading and track laying on the Canadian Pacific, Canadian Northern and Grand Trunk Pacific Railways. Previous to 1907 he spent some time at Toronto University, studying constructional engineering, but did not wait to graduate. Since 1907 he has been engaged in building construction-houses, stores, and factories in Toronto. He joined the Governor General's Body Guard in 1894 and while at Toronto University was a member of the engineering corps. When war started he joined the 109th Regiment as a private. In Jan. 1916 he was appointed a provisional lieutenant. In April, 1916, he attended an officers training class and qualified. On July 10, 1916, he was appointed captain in No. 2 Construction Battalion and later second in command of that battalion. On January 17, he was appointed lieutenant colonel to organize and command the 256th Railway Construction Battalion.

Transportation Appointments Throughout Canada.

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

Algoma Eastern Ry.—**A. L. SMITH**, heretofore Superintendent, London Division, Ontario District, C.P.R., has been appointed President, A.E.R., vice W. C. Franz, and has also been appointed General Manager, vice D. F. Thomas. Office, Sudbury, Ont.

T. F. RAHILLY, heretofore Comptroller, has been appointed Superintendent, vice A. J. Donegan, resigned. Office, Sudbury, Ont.

M. J. CONNOR, heretofore Travelling Auditor, has been appointed Comptroller, vice T. F. Rahilly, transferred. Office, Sudbury, Ont.

Canadian Government Railways.—**J. D. McNUTT**, heretofore chief dispatcher, Truro, N.S., has been appointed Inspector of Train Dispatching, and will perform such other duties as may be assigned to him. Office, Moncton, N.B.

J. E. LeBLANC, heretofore Travelling Passenger Agent, Montreal, has been appointed District Passenger Agent, Montreal, vice J. A. Everell, who will devote his entire time to the Quebec & Saguenay Ry. for the coming summer.

J. H. COTE, heretofore ticket agent, Riviere du Loup, Que., has been appointed Travelling Passenger Agent, Montreal, vice J. E. LeBlanc, promoted.

T. SAMSON, heretofore ticket agent, Carrier station, Que., has been appointed Travelling Passenger Agent, Montreal, vice T. Coulombe, resigned.

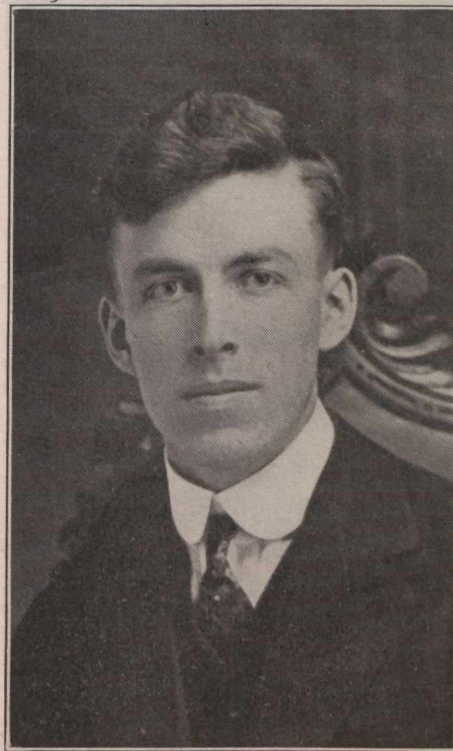
Canadian Northern Railway.—**W. A. CUNNINGHAM**, formerly General Agent, Passenger Department, Canadian Northern Steamships, Ltd., Montreal, has been appointed City Ticket Agent, C.N.R., Montreal.

F. McDOWELL, heretofore General Foreman, Winnipeg Stores, has been appointed Storekeeper, with jurisdiction over all matters regarding Winnipeg stores, and responsible for the stock. He has charge of the staff and reports to the General Storekeeper. Office, Winnipeg.

M. B. HELSTON, heretofore Superintendent, Duluth, Winnipeg & Pacific Ry., Virginia, Minn., has been appointed Superintendent, District 4, Western Division, vice M. B. Murphy, resigned on his

appointment as Manager, Winnipeg Joint Terminals. Office, Calgary, Alta. Owing to typographical errors, this appointment was incorrectly announced in our last issue.

H. B. WOLLEN, Chief Inspector, Sleeping, Dining and Parlor Car, Hotel and News Department, Western Lines,



T. F. Rahilly
Superintendent, Algoma Eastern Railway

has been placed in charge of the department's office recently opened at Calgary, Alta.

Canadian Pacific Ry.—The position of Assistant to the President, heretofore occupied by J. S. DENNIS, has been abolished. He will hereafter be known as Chief Commissioner of Colonization and Development. Office, Montreal.

W. H. CURLE, heretofore Administrator under the Manitoba Workmen's Compensation Act, Winnipeg, has been ap-

pointed General Solicitor, C.P.R. Office, Montreal.

E. P. FLINTOFT, heretofore Solicitor, has been appointed Assistant General Solicitor, Montreal.

G. JACKSON has been appointed General Yardmaster, West Toronto, Ont., vice J. Miles.

J. L. JAMIESON, heretofore Road Foreman of Locomotives, Medicine Hat, Alta., has been appointed Road Foreman of Locomotives, Ignace, Ont.

A. E. TASKER, heretofore Car Foreman, Field, B.C., has been appointed Car Foreman, Winnipeg.

J. R. C. MACREDIE, heretofore Resident Engineer, Connaught Tunnel, has been appointed Resident Engineer, Moose Jaw, Sask., vice T. C. McNabb, whose appointment as Superintendent, Revelstoke Division, British Columbia District, was announced in our last issue.

W. E. CLINE, heretofore Trainmaster, Lethbridge, Alta., has been appointed Trainmaster, Medicine Hat, Alta., vice H. M. Smith, transferred to Lethbridge, Alta.

S. G. DENMAN, heretofore Assistant Purchasing Agent, Vancouver, B.C., has been appointed Assistant Purchasing Agent, Calgary, Alta., vice J. T. H. Ferguson, transferred to Vancouver.

J. D. FRAINE, heretofore Trainmaster, Nelson, B.C., has been appointed Trainmaster, Calgary, Alta., vice D. J. England, transferred.

G. MOTH has been appointed Division Master Mechanic, Edmonton, Alta., vice A. E. Dales, transferred.

D. M. SMITH, heretofore Road Foreman of Locomotives, Kenora, Ont., has been appointed Road Foreman of Locomotives, Medicine Hat, Alta., vice J. L. Jamieson, transferred.

H. M. SMITH, heretofore Trainmaster, Medicine Hat, Alta., has been appointed Trainmaster, Lethbridge, Alta., vice W. E. Cline, transferred to Medicine Hat, Alta.

C. W. McCLEAR, heretofore coach carpenter, Vancouver, B.C., has been appointed Car Foreman, Crowsnest, B.C., vice A. E. Chesterman, transferred.

A. E. CHESTERMAN, heretofore Car Foreman, Crowsnest, B.C., has been appointed Car Foreman, Field, B.C., vice A. E. Tasker, transferred.

C. E. LEGG, heretofore General Agent,

Fort William, Ont., has been appointed Trainmaster, Nelson, B.C., vice J. D. Fraine, transferred.

J. T. H. FERGUSON, heretofore Assistant Purchasing Agent, Calgary, Alta., has been appointed Assistant Purchasing Agent, Vancouver, B.C., vice S. G. Denman, transferred to Calgary, Alta.

Grand Trunk Ry.—F. NEALON has been appointed acting dock agent, Vancouver, B.C., vice H. Brown, who has received a commission in the Royal Engineers' Inland Water Service.

W. WALKER, heretofore Assistant Land Commissioner, Montreal, has been appointed acting Division Engineer, Eastern Lines, vice F. L. C. Bond, who has enlisted for overseas military service. Office, Montreal.

H. PALMER has been appointed Assistant Land Commissioner, vice W. Walker, transferred. Office, Montreal.

E. C. POTTER has been appointed Chief Dispatcher, Richmond, Que., vice T. H. Mason, who has been employed as a dispatcher there.

D. J. McCUAIG has been appointed acting Master Mechanic, Ontario Lines, vice W. G. Sealey, assigned to other duties. Office, Toronto.

New York Central Rd.—F. H. HARDIN has been appointed Master Mechanic, Adirondack Division, Utica, N.Y., vice C. F. Deaner, assigned to other duties.

War Loan Subscriptions.

Among the largest subscribers to the Canadian War Loan bonds, offered for public subscription in March, were the following companies and persons connected with transportation and allied interests:—Steel Co. of Canada, \$2,000,000; Canadian Pacific Ry. Co., \$1,500,000; Imperial Oil Co., \$1,000,000; Bell Telephone Co., \$700,000; Canadian General Electric Co., \$500,000; J. K. L. Ross, director, C.P.R., \$500,000; Jas. Caruthers, President, Canada Steamship Lines, \$200,000; Elder, Dempster & Co., \$200,000; Sir Herbert Holt, director, C.P.R., \$200,000; M. J. Haney, director, Canada Steamship Lines, \$200,000; R. W. Leonard, ex chairman, National Transcontinental Ry. Commission, \$100,000; J. P. Steedman, director, Canada Steamship Lines, \$100,000; Victoria Rolling Stock & Realty Co., \$100,000; E. R. Wood, director, Canadian Northern Ry., \$100,000; Lord Shaughnessy, \$80,000; Canadian Iron Foundries, \$50,000; W. D. Matthews, director, C.P.R., \$50,000; Montreal Warehousing Co., \$50,000; Sir Edmund Osler, director, C.P.R., \$50,000; W. G. Ross, President, Montreal Harbor Commission, \$50,000; Senator J. M. Wilson, director, Montreal Tramways Co., \$50,000; Senator Curry, President, Canada Car & Foundry Co., \$25,000; H. Paton, President, Shedden Forwarding Co., \$25,000; Yarrows Limited, shipbuilders, Victoria, B.C., \$25,000; Mackay Companies, \$1,250,000; Montreal Light, Heat & Power Co., \$250,000; John Bertram & Sons Co., Dundas, Ont., \$800,000; Canadian Steel Foundries, Ltd., Montreal, \$250,000; Southern Canada Power Co., Montreal, \$50,000; Shedden Forwarding Co., Montreal, \$25,000; J. W. Norcross, Vice President and Managing Director, Canada Steamship Lines, Ltd., Montreal, \$100,000; J. W. Pyke, J. W. Pyke & Co., Montreal, \$25,000; C. F. Sise, Bell Telephone Co., Montreal, \$20,000.

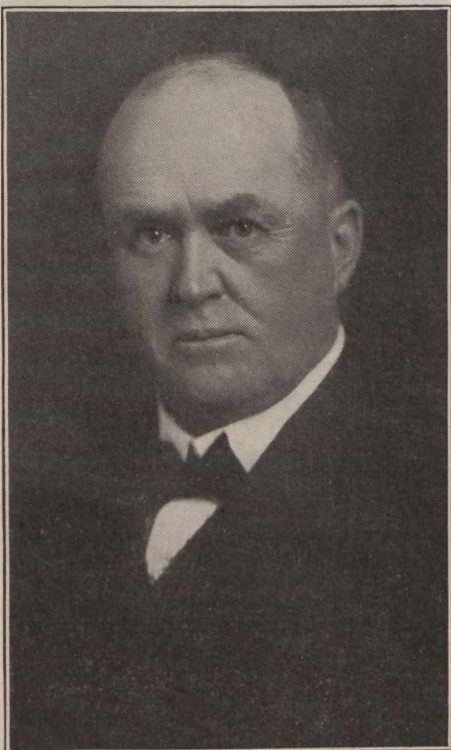
For an alleged violation of the hours of service act in the State of Vermont, the G.T.R. is being proceeded against in the District Court at Rutland.

The Enquiry into the Canadian Railways' Situation.

The Toronto Globe's Ottawa staff correspondent sent the following on Mar. 26: "That, in connection with the Canadian Northern and Grand Trunk Ry. systems,



M. B. Murphy
Manager, Winnipeg Joint Terminals



M. B. Helston
Superintendent, District 4, Western Division,
Canadian Northern Railway

the country is faced with two alternatives: either to continue for several years more the system of subsidies and loans in vogue for the past few years, or to nationalize the roads—is said to be the outstanding conclusion to be drawn from

a majority report of the commission appointed to make a survey of the whole railway situation of the Dominion. The report, it is understood, favors nationalization. A minority report, on the other hand, favors the retention of the roads under corporation control.

"In connection with the Grand Trunk, the majority report finds that while more than \$36,000,000 has been declared in dividends to the shareholders, little provision has been made for depreciation sinking fund. The members of the commission venture the opinion that a board of directors 3,000 miles away cannot be expected to effectively manage a Canadian railway. It is stated that the life of a car is only 20 years, and that as a result of the lack of provision for depreciation the G.T.R. is running only one car for every seven run by the C.P.R. The majority report is of the opinion that an expenditure of \$51,000,000 would be required to put the road on an economic earning basis. This would include the Grand Trunk Pacific. The amount estimated as necessary to put the Canadian Northern on a running basis is \$50,000,000."

Another Ottawa press dispatch credits Sir Henry Drayton, one of the commissioners, with stating Mar. 27 that the report was not finished and that nothing about it had been given out. The same dispatch says it is reported there that the chairman of the commission, A. H. Smith, President, New York Central Rd., favors the continuance of private ownership, with such financial adjustments as may be necessary to meet the exigencies of the situation, and that the two other commissioners, Sir Henry Drayton and W. M. Acworth, are in favor of nationalization.

Liquor Selling on U. S. Trains.—New York press despatch, Mar. 24.—W. H. Anderson, State Superintendent of the Anti Saloon League, states that he has sworn out, in Schenectady County, a complaint as the basis for a warrant for the arrest of A. H. Smith, President of the New York Central Rd., the particular alleged offence being the sale of two bottles of intoxicants, which, it is said, were carried off in the original packages. The object of the league is to stop the violation of the law, and the selling of liquor on trains, and to secure the settlement of the legal questions involved.

Canadian Government Railways' Employs' Provident Fund. Bliss A. Bourgeois, Assistant Comptroller and Treasurer, and W. P. Hutchinson, dispatcher, Moncton, N.B., have been elected members of the Provident Fund Board for the year ending Mar. 31, 1918. The other members are F. P. Gutelius, General Manager, Chairman; S. L. Shannon, Comptroller and Treasurer; H. H. Melanson, General Passenger Agent; C. B. Trites, Secretary.

Guelph Railway Matters.—The Ontario Legislature has struck out of the bill promoted by the City of Guelph, Ont., the sections providing for a change in the method of electing the city council, dissolving the boards of directors of the Guelph Junction Ry. and of the Guelph Radial Ry., and declaring that the new council shall have all the powers of the dissolved boards.

American Institute of Electrical Engineers.—H. W. Fisher, Chief Electrical Engineer, Standard Underground Cable Co., Perth Amboy, N.J., addressed the Toronto section, Mar. 16, on the manufacture of underground cables and their use under modern practice.

Electric Railway Department

The City of Toronto and its Electric Railways.

Three electric railway companies operate within the limits of the City of Toronto, in addition to the Toronto Civic Ry., which is, at present, in about four sections, with no physical connection with each other, or with any of the companies' lines. For several years past there has been considerable friction between the city and the various companies as to interpretation of agreements, franchises, etc. The Toronto civic lines were built in several districts, which had, at various times, been incorporated in the city, but only after strenuous efforts had been made to compel the Toronto Ry. Co. to build such lines, which the city held it was compelled to do under the terms of its franchise. After some litigation, the courts held that the company was not so compelled, and the civic lines resulted. The three companies operating in the city are the Toronto Ry., its subsidiary, the Toronto & York Radial Ry., and the Toronto Suburban Ry., the lines of the two latter being in portions annexed to the city subsequent to the granting of the franchise to the Toronto Ry. Co. The Toronto & York Radial Ry. is in three sections, north, east and west of the city, and these sections have no physical connection. The section to the north was originally the Metropolitan St. Ry., operating on Yonge St., passengers making connection with the Toronto Ry. near the C.P.R. North Toronto station. About two years ago, a portion of the franchise granted to the Metropolitan Ry., by York Tp., expired, and the City of Toronto, having in the meantime extended its limits, declined to renew that portion of the franchise on any terms and removed the track. There was for a considerable time after no track connecting the Toronto Ry. with the Toronto & York Radial Ry., which then had its southern terminus at Farnham Ave. The city declined the Toronto Ry.'s offer to lay the track and operate it under its franchise, which expires in 1921, maintaining that the company had no rights on that portion of the street. Litigation followed, with the result that the company laid the track and operates its cars over it. Another section runs from Sunnyside, on the southern water front, west to Port Credit, the first portion being originally one Toronto & Mimico Ry. This franchise within the city expired some few years ago, and the city nominally acquired the property and rights under arbitration proceedings, but has made no payment for the property. That portion is now being operated by the T. & Y.R.R. by arrangement with the city. The third section, on the eastern side of the city, runs along Kingston Road from Queen St., and on east to West Hill, 11½ miles. The first portion of the line was originally the Toronto & Scarborough Electric Ry., and on the expiry of the franchise for that section, the city acquired the portion within the extended city limits to Main St., East Toronto. This is still being operated by the company under arrangement with the city.

The Toronto Suburban Ry. operates west of the city, and along certain streets in West Toronto, now part of Toronto. Under the terms of its franchise the company has exclusive rights on certain streets in West Toronto, some of which

have never been exercised, and the company has recently practically completed its line to Guelph. There have been a number of disputes regarding the interpretation of agreements, as to the laying of pavement, etc., which have generally resulted in the company's favor.

The Toronto Ry. operates on the streets within the city, and its franchise expires in March, 1921. It appears to be the city's intention to take over the lines, etc., on the expiry of the franchise according to the original agreement, but for several years there has been considerable jockeying by both sides as to the improvements and additions which the city demands, and which, with an expiring franchise, the company is not anxious to grant. The City of Toronto is promoting a bill in the Ontario Legislature in an attempt to clear up several of these disputes, and which is, at the time of writing, being dealt with in committee.

Toronto & York Radial Ry.

Sec. 5 of the bill provides for the expropriation of the Metropolitan Division, within the city limits, and all the real and personal property used in connection with it and necessary for the operation, and including all franchises, rights and privileges which the company may have respecting the construction and operation of railway lines within the city limits, upon paying such compensation therefor as may be agreed upon between the company and the city, and in the event of disagreement, the compensation to be fixed by the Ontario Railway and Municipal Board. It also provides for the construction of a double track on Yonge St., North Toronto, from the southern terminus of the T. & Y.R.R. to the northern city limits, and for the granting of running rights over same to the T. & Y.R.R., on terms to be mutually agreed upon. A subcommittee of the legislature was appointed to go into the whole question of expropriation, and after some discussion and the hearing of a variety of opinions, the section was reported with amendments that the city must take proceedings to expropriate within three months after the passing of the bill, and that each party has the right of one appeal to the Appellate Division of the Supreme Court of Ontario, to be made within ten days of the arbitration award. In the event of an agreement, the city is to grant running rights on terms to be mutually agreed upon, or to be decided by the Ontario Railway and Municipal Board, and should the city not accept the board's award, it is to pay the company's costs and any damages resulting from the proceedings. Any bylaw must be passed by the city within three months of the passing of the act, and the city will have three months from the making of the award, or from the date of any judgment of the Appellate Court on any appeal, in which to accept it. The subsection relating to the laying of double tracks on Yonge St. was also amended by providing that the track is to be of standard gauge.

Toronto Suburban Ry.

Sec. 4 of the city's bill provides that notwithstanding any agreement, statute, order or decision of any court, board or committee to the contrary, the company

shall from time to time construct and maintain a pavement upon that portion of Davenport Road within the city limits, occupied by the railway, of a character and quality similar to that constructed and maintained from time to time by the city on the remaining portion of the highway. This matter has been fought through the local and Dominion courts, and before the Judicial Committee of the Privy Council, resulting in final decision in favor of the company, and the object of the present proposed legislation is evidently to obtain and validate a different interpretation of the original agreement between the company and York Tp., than has been given by the courts. The private bills committee has held the question over for the present and suggested that the company and the city should get together on a joint scheme, and has suggested that the city should lay the pavement and the company pay the cost of maintenance, and the portion of the cost they would have to pay for a pavement laid under the old agreement.

A separate bill respecting the Toronto Suburban Ry. was also dealt with by the committee, providing that notwithstanding anything contained in the company's act of incorporation and amending acts, the extensions and branches authorized shall be commenced within two years of the passing of this act and shall be completed and put into operation within five years of the passing of this act, or be void respecting so much of the said extensions and branches as may then remain uncompleted. This clause refers to the construction of certain lines to the south of Dundas St., which the company was originally authorized to build. Under the agreement with the city, the company can be ordered to build the lines within six months of the date of notice, and, failing to comply, the charter reverts to the municipality. It is probable that all the lines which the company is authorized to build within the city limits may be included in the bill before it gets through the legislature.

Toronto Railway.

Sec. 8 provides that the Toronto Ry. shall build and place in operation 100 new cars during 1917, and 100 additional cars during 1918, and in default shall pay to the city \$100 a day for each and every car less than these numbers. The committee struck this section out of the bill, on the ground that it was a matter for the Ontario Railway and Municipal Board to deal with. This is a second attempt to obtain by legislation what the city has failed to obtain by any other means. The chief object sought in this regard seems to be the elimination of overcrowding, but apart from the question as to whether overcrowding can be cured by adding cars alone to a system, it is an admitted impossibility to obtain deliveries of cars or of materials for their manufacture within the time stated, under existing conditions. The passing of such a measure at such a time would reduce legislation to an absurdity.

Since the foregoing paragraph was put into type, the matter was reopened in committee Mar. 27, when the question of validating an order of the Ontario Railway and Municipal Board respecting ad-

ditional cars, which is given on another page, came up. There is a clause in the agreement between the city and the company, to the effect that cars utilized on the street railway must be built in Toronto, and all the company's cars have been so built. Under existing circumstances, the city is prepared to waive that, and claims that there is no difficulty in obtaining cars or material for their construction. It was therefore proposed that the city be compelled to purchase 100 cars in 1917, and a further 100 in 1918, and sell them to the company at a reasonable price. This was carried by 22 votes to 8, and the Board's order was validated by 19 votes to 9. The Chairman of the committee, Hon. I. B. Lucas, Attorney General, in referring to the first named proposal, is reported to have said, "I won't report such a foolish clause as responsible chairman of this committee. The city absolutely declines to be bound by this." As there appeared to be no sign of agreement, the committee adjourned on the understanding that a new clause would be drafted, which it was said would prove satisfactory.

Toronto Civic Ry.

Sec. 10 authorizes the city to pass certain bylaws for the creation of debts and for issue of Toronto consolidated loan debentures, without submitting them to a vote of the ratepayers. Among the items included are: \$140,000 to cover overdrafts and to complete work on the civic lines; \$17,000 for purchase of cars; \$125,000 to cover amount already spent and to complete work on the Bloor St. line.

Transportation of Postmen in Regina.

The question of the rate to be paid by the Post Office Department for carrying postmen on the Regina Municipal Railway has been in dispute for some time. Under the old arrangement the rate paid was \$25 a man per year, which it was found gave the railway only a little over 1c a ride. The management refused to continue the arrangement and asked an increase to \$50. The Post Office Department then offered \$35, and this was accepted by a majority vote at a city council meeting recently, though it was strongly opposed by Commissioner Thornton, under whom the railway is operated, and who showed that it costs slightly over 6c a ride for each person using the cars. The Mayor and three other councillors also opposed it, but were outvoted, the supporters of the \$35 rate advancing the hackneyed argument that the cars had to be run any way and that the city might as well have the revenue, overlooking the fact that the Post Office Act empowers the Postmaster General to make an allowance of \$50 a year to postmen in lieu of electric railway transportation. The new contract is for one year only and the postmen are to ride on the cars, without paying fares, only when on duty and not after 6 p.m.

Sunday Service Asked.—The Galt, Preston & Hespeler St. Ry. has been asked by a committee, representing farmers and other residents in the Freeport and Centreville districts, between Preston and Kitchener, Ont., to take steps to secure power to operate a Sunday service, the residents referred to desiring better facilities to attend church services in Preston or Kitchener.

The Port Arthur Civic Ry. has bought 2 miles of trolley wire recently.

Electric Route Maps on British Columbia Electric Railway.

The British Columbia Electric Ry. has placed two large electrically lighted route maps outside the entrance of its interurban station at Carroll and Hastings Sts., Vancouver, with the object of showing the layout of the company's city and interurban line, and as a part of its policy of publicity in the interests of the public as well as of the company. These maps are painted on plate glass, each in three sections, separated by copper beading. The map on the west side shows the city lines, and the one on the east, the interurban lines. In each case the lines are shown in red, names in white, parks in green, water in light blue, all transparent, and land in opaque black. The company's stations are shown by red dots,

Answers to Questions on Electric Railway Topics.

Following are questions sent to the American Electric Railway Association's question box, with answers by A. Gaborouy, Superintendent, Montreal Tramways Co.:

Are waiting rooms justified in city traffic, where the headway is less than 15 minutes?

Do not consider them necessary, unless as adjuncts to ticket offices necessary for the company's interests.

On interurbans running through sparsely settled territory, is the lighting of waiting room or shelters necessary?

Think waiting rooms should be lighted from trolley wire, in the interests of public propriety.

In the training in a limited time of



Entrance to British Columbia Electric Railway's Interurban Station, Vancouver.

and the head office by a large red dot. The frames containing the maps measure 10 ft. 1 in. long by 5 ft. 1 in high, and are 6 ins. deep, made of angle steel frame 1½ by 1½ by 14 in., with back and sides of 22 gauge galvanized iron rivetted and soldered to angle frame with 3 in. copper strip round outer edge of glass. The frames are wired in three divisions, each carrying four 40 watt lamps, and the divisions are so arranged that the lamps can readily be removed for replacement.

Similar maps are utilized on the underground electric railways in London, Eng., but it is believed that these are the first to be used on this continent.

The Tractive Resistance on Curves of a 28 ton electric car has been made the subject of a study by the Railway Department of the Engineering Experiment Station of the University of Illinois. The results which are set forth in bulletin 92 establish, for this car, the relation between curve resistance and speed, and between curve resistance and rate of curvature; the ratio in both cases is direct. Tests were conducted upon each of seven curves on the Illinois Traction system, the curvature of which varied from 2 to 14½ degrees. Test runs were also made over tangent track adjacent to the curves. Copies of the bulletin may be obtained gratis by writing the Director of the Engineering Experiment Station, Urbana, Illinois.

technical graduates for executive positions, say as department heads, is it better to give them a brief tour of duty in all departments or keep them continuously in one department, and thereby give them a thorough training in that particular branch?

An experience in all departments tends to broaden a man's views, with a subsequent benefit to himself and his company.

What is the most practical and economical way to safeguard operation over bridges with draw spans?

Our drawbridges over canals are protected by derails at each side and cars must be brought to a dead stop before reaching derail switch.

Do you provide open or closed automobiles for the use of your executive officers?

Open autos.

Interurban Motors Limited has been organized by St. Thomas, Ont., businessmen, with a capital stock of \$100,000, the Managing Director being W. N. Warburton, General Manager, Secretary-Treasurer and Purchasing Agent, London and Lake Erie Ry. and Transportation Co., London, Ont., to carry freight and passengers, in connection with the electric railway mentioned, over short distances tributary to its line. Large passenger cars have been purchased and it is expected to begin operation in May.

The St. John Railway's Sale.

The New Brunswick Investment Co., which bought out the St. John Ry. Co.'s property recently, was incorporated Feb. 2, 1917, for the purpose of carrying out the transfer, its members all being in the employ of Wm. Thomson & Co., steamship owners and fire and marine insurance brokers, St. John, N.B. The terms of the sale were fully detailed in a circular issued to the railway company's shareholders, and published in Canadian Railway and Marine World for March, pg. 113.

The property has since been transferred to the New Brunswick Power Co., which controls water powers at Magaguadavic and Lepreaux. Its capitalization is as follows: First preference stock authorized, \$3,500,000, issued \$1,000,000; second preference stock authorized \$1,500,000, issued \$350,000; common stock authorized and issued \$2,000,000; first mortgage 5% bonds authorized, \$5,000,000; issued \$1,750,000.

L. R. Ross, Terminal Agent, Intercolonial Ry., St. John, is President; G. M. O. Peters, Treasurer, and H. M. Hopper, General Manager and Secretary. Messrs. Peters and Hopper held similar positions in the St. John Ry. Co. The Boston Safe Deposit and Trust Co., Boston, Mass., and the Royal Trust Co., St. John, N.B., are trustees for the bonds, the Boston Safe Deposit and Trust Co. being also registrar of the bonds.

Overcrowding on the Toronto Railway.

Canadian Railway and Marine World for March contained some information regarding the city's proceedings relative to the overcrowding of passengers on the Toronto Ry. cars. At that time a case was pending in the local police court, charging the company with maintaining a public nuisance. The proceedings were taken at the instance of the Medical Health Officer, under the local health act, and on behalf of the company it was maintained that the City Health Department had no jurisdiction in the matter, and that, in any case, a nuisance, as described under the health act, did not apply to a street car carrying passengers beyond its capacity. The magistrate eventually adopted this view, and the case was dismissed. A similar case, under a prior conviction by another magistrate, is now the subject of an appeal to the Judicial Committee of the Privy Council, and judgment has been reserved pending a reference to the Provincial Attorney General as to the jurisdiction in such matters. The company maintains that in regard to its operation as a public utility, it is under the Ontario Railway and Municipal Board's jurisdiction.

In 1914, the Ontario Railway and Municipal Board ordered the company, upon application of the city, to place additional cars in service, but these orders the company expresses itself as, owing to a variety of circumstances, unable to comply with. A further application made by the city recently has resulted in the board issuing orders, first, that the company shall place in operation on its system the remainder of 50 motor cars ordered by the board Nov. 6, 1914, 28 only having been so placed in operation by May 1, and further it orders as follows:

Upon the application of the City of Toronto for a reopening and a reconsideration of the board's order, Nov. 6, 1914, in respect of the number of addi-

tional cars to be furnished by the Toronto Ry. Co. to accommodate reasonably the passengers offered for transportation, and upon hearing the evidence adduced and counsel for the city and the company, it appearing that the equipment, appliances and service of the company in respect to the transportation of passengers are inadequate in that the company does not operate a sufficient number of cars; the board orders that the company place in operation 100 additional double truck motor cars by Jan. 1, 1918, and a further 100 additional double truck motor cars by Jan. 1, 1919; and to ensure the faithful and punctual performance of this order, the company shall from time to time on the request of the city inform the city of the things done by the company in and about the performance of this order, and that R. C. Harris, City Engineer, or his authorized representatives, shall from time to time have access to the company's premises, works and records in order that the city may verify the information so given, and may be fully advised as to the progress and efforts made in carrying out this order.

At the same time as this application was before the board, the city was applying to the Ontario Legislature on similar lines, but the section in the city's omnibus bill was struck out by the committee.

Owing to the recent fire at the company's car barn at King St. East, there is a considerable shortage of available cars for heavy traffic, and it is reported that the mayor stated recently that it was his intention to press for an addition of 500 cars immediately.

Jitney Traffic Notes.

A jitney bus service is being operated between the Post Office at Ottawa, Ont., and Hull, Que.

The Winnipeg Jitney Owners' and Drivers' Association started operating over some new routes Mar. 12.

Complaints have been made recently that jitney drivers in Hamilton, Ont., are charging higher fares, particularly in the late hours of the night.

After considering the appeal of the jitney men to amend the bylaw regulating the traffic passed recently, Vancouver City Council decided not to re-open the matter.

Several jitneys are being operated on Yonge St., North Toronto, to the point where the Toronto Ry. and the Toronto and York Radial Ry., Metropolitan Division, services end.

The California Railroad Commission has under a Supreme Court decision, taken complete jurisdiction over all jitney lines in the state operating outside incorporated municipalities. All jitney lines had to file schedules of service and rates by Mar. 1. The commission has asked the legislature to define clearly its power over jitneys.

Winnipeg jitneymen appeared before the city council's license committee, Mar. 15, and asked for amendments in the bylaw regulating jitney traffic. They desire to have stricter control exercised among other things in the direction of preventing "casuals" entering the field at busy seasons and then dropping out when the rush is over, etc.

The City of Edmonton is asking the Alberta Legislature to authorize it to make special bylaws as to motor vehicles carrying passengers, particularly in the direction of limiting the number of passengers and the weight of freight to be

carried, defining how passengers and freight shall be carried on the vehicles; defining the routes upon which they may run; limiting the hours within which they may operate and providing for the giving of bonds by owners or lessees.

Mainly About Electric Railway People.

J. B. Hardy has been appointed Chairman of the Public Utilities Committee of the Fort William, Ont., City Council, which operates the Fort William Electric Ry., succeeding A. E. Wodeman, resigned.

Charles A. Drummond has been appointed Assistant Publicity Agent, Detroit United Ry., and assistant editor of Electric Railway Service, the company publication, succeeding A. H. Sarvis, resigned.

The Hon. James Leitch, K.C., a judge of the Supreme Court of Ontario, and formerly Chairman, Ontario Railway and Municipal Board, who died recently, left an estate of \$19,903, to be divided amongst his widow, son and four daughters.

Martin N. Todd, President, Galt, Preston & Hespeler St. Ry., and General Manager, Lake Erie & Northern Ry., returned to Galt, Ont., early in March, much improved in health, after spending some weeks in New Orleans and other southern points.

Leonard Tait, whose appointment as Secretary Treasurer, London St. Ry., London, Ont., was announced in our last issue, was born at Hamilton, Ont., Aug. 9, 1882, an entered transportation service, Nov. 1, 1899, since when he has been, to May 9, 1900, clerk, Freight Department, Michigan Central Rd., London, Ont.; May 10, 1900, to July 21, 1901, clerk, Freight Department, G.T.R., London, Ont.; July 22, 1901, to Nov. 14, 1904, clerk and telegraph operator, Freight Department, M.C.R., London, Ont.; Feb. 16, 1905, to Sept. 16, 1912, chief clerk and cashier, Freight Department, same road, London, Ont.; Sept. 17, to Nov. 15, 1912, Travelling Freight Agent, New York Central Lines, Toronto; Nov. 16, 1912, to Feb. 14, 1917, Secretary Treasurer, London & Lake Erie Ry. & Transportation Co., London, Ont.

F. X. Couture, whose appointment as Superintendent, Railway Department, Sherbrooke Ry. and Power Co., Sherbrooke, Que., was announced in our last issue, was born at Quebec, Que., in 1875, and from an early age to 1895, was engaged on a farm, receiving only six months of school instruction. He entered the Sherbrooke St. Ry. Co.'s service in 1897 as a laborer, during the construction of the line, and later served as motorman and conductor. From 1900 to 1904, he was in Quebec Central Ry. service, as carpenter, and in the locomotive department, returning to the Sherbrooke Ry. service in 1904, as General Foreman of rolling stock and electric lines, and in 1910 when the property was taken over by the Sherbrooke Ry. and Power Co., was retained as General Foreman of Rolling Stock, and promoted to Superintendent of Transportation in 1912.

The City of Vancouver received \$2,029.25 as percentage on the earnings in the city, for February, an increase of \$375.05 over that for Feb. 1916. During February, 2,441,792 passengers were carried on the city and suburban lines, compared with 2,334,233 for Feb. 1916.

Electric Railway Notes.

The Moncton Tramways, Electricity & Gas Co. has applied to the New Brunswick Public Utilities Commission for approval of its traffic rates.

The Port Arthur, Ont., Public Utilities Commission is reported to be considering the possibility of employing women conductors on the civic railway.

The Quebec Ry., Light & Power Co. has closed a contract for the supply of electric power to the legislative and other provincial buildings in Quebec City.

The female members of the British Columbia Electric Ry.'s office staff at Vancouver, held a dance Mar. 16, to raise funds for the Returned Soldiers' Club.

Plans for this second track work, so far as they affect the city of Toronto, have been filed at the city hall. The council is being asked for leave for grade crossings at McLennan and Summerhill Avenues.

The special commission appointed by the Quebec Legislation to prepare a new franchise for the Montreal Tramway's Co. is holding regular public meetings, at which the views of any person interested are heard.

The International Transit Co., Sault Ste. Marie, Ont., is in the market for a good second hand double truck, double end, controlled car, with a seating capacity for 44, and preferably arranged for p.a.y.e. operation.

It was stated in Winnipeg, Mar. 1, that there were no men eligible for military service employed on the Winnipeg Electric Ry., and that it might be necessary to employ women as conductors in order to maintain the staff.

The Montreal Tramways Co. has ordered 50 car bodies and trucks in the U. S., and the necessary equipment from the Canadian Westinghouse Co. An additional 50 similar cars were to be ordered by the end of March.

The British Columbia Electric Ry. has offered the city the free use of its park property, of five acres, on Twenty-first St., North Vancouver, in connection with the wartime thrift vegetable growing campaign now being promoted.

The Montreal Stock Exchange has listed the Ottawa Car Manufacturing Co.'s stock, consisting of 11,779 shares of \$100 each, and the Ottawa Traction Co.'s stock, consisting of 56,307 shares of \$100 each, for trading on the exchange.

The actual cost of the Lethbridge, Alta., Municipal Ry., to the city, during 1916, was \$27,924.89. The council has put \$30,905.46 in the estimates for this year, as the amount which the city will have to contribute to meet interest charges, etc.

The Brantford, Ont., City Council has passed a resolution recommending the employes on the city's electric railway to complete their term with the railway at the present rate of wages and recommending the commission to establish a minimum of 25c an hour at the expiration of the present agreement.

The Vancouver City Council railways and bridges committee has recommended the council to investigate all the street car lines operated by the B.C.E.R. and ascertain whether or not they were covered by proper operating agreements with the city.

G. Moir, formerly of Aberdeen, Scotland, in addressing the Grandview Rate-

payers' Association, Mar. 11, advocated the taking over by the City of Vancouver, of the British Columbia Electric Ry.'s entire city plant when the franchise expires in 1919.

The Alberta Legislature is being asked to amend the City of Calgary's charter, authorizing it to pass a bylaw regulating and governing the method or manner whereby passengers on the municipal railway shall pay their fares or whereby such fares may be collected by the city.

The Montreal Tramways Co. has secured a verdict of \$104 against the St. Francois Salane School Board. This amount was collected as taxes upon land which the board assessed as belonging to the Montreal Park & Island Ry. The company had only a right of way over the land and could not be assessed.

Superintendent Moir of the Edmonton Radial Ry. has instituted a regular weekly meeting of the heads of departments to discuss matters that may tend to the advancement of the interests of the line. This system has already been found to work to advantage in connection with the city's telephone plant.

The London, Ont., City Council has authorized the inclusion in a bill being presented in the Ontario Legislature of provision for the erection by the London Railway Commission of a grain elevator at Port Stanley, to be operated in conjunction with the London & Port Stanley Ry. The approximate cost of the elevator is \$100,000.

London, Ont., Street Ry. conductors and motormen have organized as a branch of the Amalgamated Association of Street and Electric Railway Employes of America. The men have applied to the company for an increase in wages. The present scale is from 21c to 26c an hour, and the men ask for a scale starting at 25c, and increasing to 30c.

Some months ago there was a collision between a jitney and a British Columbia Electric Ry. car at the Central Park crossing, Vancouver in which several persons were injured. They sought to recover damages from the B.C.E.R., and at the trial of the action recently the judge dismissed the action and held the driver of the jitney, in which the injured persons, were sitting, to have been responsible for the accident.

The report of P. A. Macdonald, Manitoba Public Utilities Commissioner, was submitted to the Legislature, Jan. 30. It covers the first year of his work as Commissioner, and outlines the work done during the year, reference being particularly made to the power possibilities of the province. These were investigated by the Commissioner and G. T. Guy, electrical engineer, the latter of whom makes a special report, which is included.

The International Ry., operating in Buffalo and Niagara Falls, N.Y., and Niagara Falls and Queenston, Ont., was recently compelled to suspend its services temporarily for some hours a day, owing to shortage of electrical power. The company takes power from the Niagara Falls Power Co. to operate its Niagara Falls local lines, and from the Niagara, St. Catharines & Toronto Ry., for its line between Queenston and Chippawa, Ont.

Following are officials of the Trans St. Marys Traction Co. for the current year: W. C. Franz, President; Jas. Hawson, Vice President; J. F. Taylor, Vice President, Toronto; A. Taylor, Secretary; E.

W. Shell, Treasurer; P. B. Nash, Comptroller; C. H. Speer, Purchasing Agent; J. H. Stewart, Superintendent, Sault Ste. Marie, Mich. All have offices at Sault Ste. Marie, Ont., except where otherwise mentioned. The electric railway is in Sault Ste. Marie, Mich.

The City of Vancouver is proposing to redraft its charter so as to give it power to supply light and power to the citizens. At present the British Columbia Electric Ry. is supplying light and power in the city, and there appears to be some clauses in the existing charter which forbids the city competing with the company. The City Solicitor said the company had no rights against the city except in regard to its tram system, but he pointed out that the company had other and vested rights which would have to be respected. The company might have these rights irrespective of any agreement with the city. A special committee was appointed by the Council Mar. 13, to redraft the parts of the charter affecting this matter.

The Port Arthur Public Utilities Commission has granted increases of wages to the following employes of the civic railway for the current year: Master mechanic, from \$125 to \$130 a month; armature winder, \$90 to \$100 a month; machinist, blacksmith and carpenter, 35c to 37½c an hour; painter, 32c to 34c an hour; pitman, first class, 30c to 33c an hour; pitman, second class, 25c to 30c an hour; laborers and car washers, 25c to 27½c an hour; night foreman, from 30c an hour to \$100 a month; track foreman, \$90 to \$100 a month; boundary office clerk (half paid by Fort William), \$60 to \$80 a month; street railway cashier, \$50 to \$55 a month. The motormen and conductors received an increase of pay last summer.

Nipissing Central Ry. Fire.—The car barn at North Cobalt, Ont., was partially destroyed by fire, Mar. 4. The fire started at the north end of the building, which includes the car barn, shop, sub station and offices, and destroyed the car shed and offices, the shop, sub station and boiler plant, at the south end, being saved. Five cars in the shed were completely destroyed. Additional rolling stock is to be purchased as soon as possible, and the building will also be repaired. A partial service is being maintained with the cars that were in the shop and outside the building and not injured by the fire. The railway is operated by the Timiskaming and Northern Ontario Ry. Commission, for the Ontario Government. S. B. Clement, North Bay, Ont., Chief Engineer and Superintendent of Maintenance.

Dominion Power & Transmission Co.'s Wages.—The Dominion Power & Transmission Co., Hamilton, Ont., operating the Hamilton St. Ry., Hamilton & Dundas Radial Electric Ry., Hamilton, Grimsby & Beamsville Electric Ry., and Hamilton & Brantford Ry., announced on Mar. 9 a war bonus of 2c an hour to conductors and motormen, applying on all the lines. This is in addition to the amounts provided for in the agreement between the company and the men on Mar. 21, 1916, and is for an indefinite period, the advance having been entirely voluntary on the company's part.

Winnipeg Electric Ry. conductors and motormen met Mar. 31 to discuss wages, etc. The present wage schedule expires May 1st, and under its terms it may be continued from year to year, unless either party gives 30 days notice of any change desired.

Electric Railway Projects, Construction, Betterments, Etc.

Lacombe & Blindman Valley Electric Ry.—The Alberta Premier stated in the Legislature, Mar. 9, that 35 miles of grading had been completed from Lacombe along the valley of the Blindman River to Rimbey. The government had paid out of the funds realized by the sale of the guaranteed securities \$128,647.07. In default of the company paying interest on the bonds, the government paid to Nov. 6, 1916, \$20,517.16. The government holds a first mortgage on the railway property and franchise. (May, 1916, pg. 189, and Apr., 1916, pg. 158.)

London & Port Stanley Ry.—The City of London is applying to the Ontario Legislature for authority to pass bylaws without obtaining the consent of the ratepayers to issue \$25,000 of debentures to provide a freight motor car for the railway, and to confirm bylaw 5439 providing for the issue of \$75,000 of debentures for the London Railway Commission.

A suggestion has been made that the London Railway Commission's project to build a grain elevator at Port Stanley should be abandoned, and that 100 freight cars should be bought instead. P. Pockock, Chairman of the Commission, is reported to have said, Mar. 6: "We could use more freight cars, and perhaps that will be the next thing we will go after, when we have an elevator—an elevator is the need of the moment." The city council, on Mar. 5, decided to issue \$100,000 of debentures for the erection of the elevator and has applied to the Ontario Legislature to grant it the necessary authority to do so without a vote of the ratepayers. (Feb., pg. 73.)

Lake Erie and Northern Ry.—The new Union Station in Brantford, Ont., of which an illustrated description was given in Canadian Railway and Marine World, Aug. 1916, pg. 240, was opened for use Mar. 12. It is being used by the Brantford and Hamilton Ry., as well as by the L. E. and N. Ry.

Negotiations are still in progress between the company and the G. T. R. with reference to the route of the electric railway entry into Port Dover, Ont. It is desired to secure an entry over the tracks of the G.T.R., but in the event of this not being possible, the company will build its own line on St. Patrick St. (Mar. 1916, pg. 46.)

Ottawa Electric Ry.—The Ottawa Board of Control has received a letter from the company refusing to operate its cars over the Pretoria Ave. bridge and to extend its service to Ottawa East. The company stated that the location of the bridge and its type was decided upon without consultation with it, but apart from that the company says it is not prepared, owing to the short time which its franchise has to run to make extensions of its lines. The city council has appointed a committee to interview the company's officers with regard to this and a number of other matters in connection with the operation of the railway. (Dec., 1916, pg. 502.)

Peterborough Radial Ry.—The City of Peterborough is applying to the Ontario Legislature to authorize its Utilities Commission to have the control and management of the plant, property, business and assets of the Peterborough Radial Ry., in the event of the same being acquired by the city; that it shall have power to issue debentures to pay for the

same without the assent of the ratepayers, and that the commission shall have all the powers in regard to the railway which the council may confer upon it by bylaw. (Feb., pg. 73.)

Toronto, Barrie & Orillia Ry.—The Ontario Legislature in 1915 passed an act extending the time within which the company could build its projected railway between Toronto and Orillia, and providing that the section of line from Barrie to Utopia, on the C.P.R., was to be the first section to be built. Section seven of the act declared that the act was only to come into force upon proclamation by the Lieutenant Governor in Council. In adding this section the Legislature overlooked the fact that the extension of time was to run from the passing of the act, and therefore that it might run out before the act came into force. The Legislature is being asked to amend the act by substituting the words, "coming into force" for "passing" in sec. 3 of chap. 83, statutes of 1915. (Feb., 1916, pg. 115.)

Toronto Ry.—Plans for the Pape Ave. line have been submitted to the Ontario Railway and Municipal Board. The company is ready to go ahead with construction as soon as the board approves the plans. Under the board's order, the company had to start construction by April 1. (Feb., pg. 73.)

Transcona Electric Ry.—The Manitoba Legislature is being asked to incorporate a company with this title to build, and to operate with any power except steam, a line in the town of Transcona and in the rural municipalities of Springfield and East Kildonan to a point or points in Winnipeg or St. Boniface; to connect with any lines in operation or to be built by the Winnipeg Electric Ry., and to build branch lines to any other points in the municipalities named or elsewhere in the province, subject always to the Winnipeg Electric Ry.'s rights. The capital of the company is fixed at \$1,000,000, and the office is to be in Winnipeg. The provisional directors are: E. P. Garland, E. Frith, C. W. Chappell, R. Siderfin, L. Palk, Winnipeg. Mr. Palk is Assistant to the Manager, Winnipeg Electric Ry. (Mar., pg. 113.)

London and Lake Erie Railway and Transportation Co's Officials.

On account of his many other duties, the President, W. K. George, of Toronto, has resigned, and has been succeeded by G. B. Woods, of Toronto, heretofore Vice President, and the latter position has not been filled. The directors in addition to the President, are: W. K. George, J. B. Holden, Sydney Jones, Toronto; T. H. Purdom, K.C., Jno. Purdom, Jno. Milne, London, and J. W. Scott, Listowel.

W. N. Warburton, General Manager, has also been appointed Secretary Treasurer, and has appointed the other officials, as follows: Accountant, C. G. Newton, London; Chief Dispatcher, H. L. MacDonald, St. Thomas; Electrical and Line Superintendent, E. Rapson, St. Thomas; Mechanical Superintendent, F. Morley, St. Thomas; Roadmaster, William Evans, Lambeth.

The International Transit Co., Sault Ste. Marie, Ont., is considering changing its cars for p.a.y.e operation.

Three Rivers Traction Co's Operations.

The Shawinigan Water & Power Co.'s report for 1916 has the following reference to two of its subsidiary companies: "The directors are gratified with the healthy development of the city and district of Three Rivers. The North Shore Power Co., your subsidiary in that district, has extended its field of operation so as to include the principal manufacturing towns between Three Rivers and Quebec, and the expenditure made this year in new transmission lines will result in a largely increased revenue for this company.

"The Three Rivers Traction Co. during the year obtained a franchise from the Municipality of Cap de la Madeleine, on the east side of the St. Maurice River, and during the summer 3½ miles of new track were laid to connect that town with the city of Three Rivers. The expenditure has resulted in a satisfactory increase in revenue. The additions to the St. Maurice River Co.'s plant at the terminus of the Three Rivers Traction Co.'s line, are nearing completion. The increased capacity of the works will add materially to the labor required, and thus becomes a factor in the growth of the earnings of both of your company's subsidiaries doing business in the district."

Fares on Port Arthur and Fort William Civic Railways.

The Public Utilities Commission of Port Arthur and the Utilities Commission of Fort William, Ont., met in joint session, Mar. 1, and adopted a new schedule of fares for the civic railways, which is expected to be made effective early in April, as follows:

One fare in each city. This means that after crossing the boundary line on a car another fare will be collected.

Ordinary fare, 5c; 6 tickets for 25c, good from 6 a.m. to 12 p.m.

Workmen's fare, 5c, or 8 tickets for 25c, good from 5.30 to 8 a.m. and from 5.30 to 7 p.m., from Monday to Saturday inclusive. Sunday tickets, 8 for 25c, good from 5.30 a.m. to 12 p.m.

Children's fares, under 14 years of age, 10 tickets for 25c, bona fide students to be allowed this rate between 8 a.m. and 5 p.m. on school days; no double fare for children on main line on Sunday.

Night car fares, from 12 midnight to 5.30 a.m., 10c, good for a through ride.

The new schedule was discussed at a meeting of the Port Arthur Board of Trade, Mar. 6. Chairman Wideman and Secretary Rapsey, of the Utilities Commission, outlined the conditions existing on the street railway and the necessity for a change in fares. Discussion arose over the latter, the general consensus of opinion being that the fares should be raised high enough to make the road pay for itself, even if a 10c fare for all classes in each city be necessary. Mayor Cowan intimated that he would support at the meeting of the commission the resolution adopted by the joint committee from the Twin Cities, although it was hardly high enough in his estimation. A. W. Roberts suggested that a straight 5c fare for all might be a feasible solution. No resolutions were passed.

The City Council of Fort William passed a resolution Mar. 13, approving of the new fare schedule as recommended by the commission of both cities meeting in joint session.

Vancouver's Electric Railway Service and the Jitneys.

C. A. Abraham, who went from Winnipeg recently to manage the Vancouver Sun, has written home impressions of the latter city, in the course of which he says: "A very striking feature is the street car service and the jitneys. The street car service leaves little to be desired. It is, in fact, one of the best in the Dominion and far surpasses the transportation provided in most of the other large cities. The company has invested capital of \$48,000,000 on the mainland and on Vancouver Island. Probably it gets less for it and gives more than any other traction concern having a similar investment. In Vancouver the service is rapid and seems to meet the requirements of the people. The jitneys, at the same time, practically control the situation. They run where they like and when they like and into whom they like. Rarely anyone protests. A reverend gentleman did protest against their immorality in being unlighted, and the city has passed bylaws and restrictions—but the jitneys go on as ever. They take passengers from the street cars in fine weather, and then leave the whole business to the company when the weather is not good enough for a delicate auto driver to venture out. The street car company pays a percentage of its earnings to the city. It has to provide a certain service—which it does; it has to keep up streets and tracks and a hundred and one other things, while the jitney merely pays an auto license and gathers up passengers and takes in the money, apparently without restriction.

Brantford Municipal Ry's Report.

The Brantford, Ont., Railways Commission presented the following report to the City Council recently:

On Jan. 26, 1916, service ceased over the Paris-Galt section of the Grand Valley line, consequent upon the sale by the city to the Lake Erie & Northern Ry. Co., but notwithstanding that about 14 miles less line were under operation by the Commission during 1916 than in 1915, the revenue increased from \$95,898.76 in 1915 to \$97,737.98 in 1916, the shrinkage on the Grand Valley Line being more than offset by the gain on the city lines. The passenger earnings per mile run increased on the city lines from 16.3c in 1915 to 20.7c in 1916, and on the Valley line from 25.9c in 1916 to 29.6c in 1916. The operating expenses on the other hand decreased from \$74,467.57 in 1915 to \$68,369.35 in 1916. The surplus of operating profit, being the revenue less all operating expenses, was, in 1915, \$21,431.19, and in 1916, \$29,368.63.

The interest and sinking fund required to be met was \$24,564 in 1916, against \$22,980.75 in 1915, the increase being caused by all the debentures having been disposed of and interest paid thereon. A new charge appears in the accounts of 1916 by reason of an agreement made by the commissioners with the council, and adopted Mar. 6, 1916, whereby they undertook to provide thereafter from revenue the annual sums necessary to meet the railway share of pavement instalments payable in the first instance by the city, such sums to be considered and treated as depreciation. This year \$6,000 was thus assumed. The net result of the year's operations is therefore a deficit of \$1,195.37, compared with

\$1,549.56 in 1915, notwithstanding the increased sinking fund and the assumption of the \$6,000 as above stated. The full amount of the interest and sinking fund has been paid over to the City Treasurer, and the full amount of the interest on the \$125,000 bonded debt has been promptly met. The city lines have been extended during the year to the new munition plant; a new snow sweeper has been procured and other minor improvement effected.

The special attention of council is called to the following matters arising from the commission's financial position: The sum invested by the city for property and the necessary supplies, stores, etc., for its operation, was on Dec. 31, 1916, \$435,549.57. The capital liability by way of bonds, debentures and maturing pavement instalments was, at the same date, \$422,897.47, leaving a balance, not covered by bonds or debentures, of \$12,652.10. The accumulated deficit of the operation since the commission took charge is \$2,739.93. These two sums aggregate \$15,392.03, and the council should provide funds for same in order to allow the commission to discharge its liability to the city treasury of \$10,328.83 and to the general public of \$5,068.20. Provision should be made by the council for funding the \$12,652.10, either at once, or by including it in any vote submitted to the people for further extensions or improvements to the railway system. The deficit might be allowed to stand for the present the commissioners hope the property is now on a self-sustaining basis.

OPERATING ACCOUNT FOR 1916.

Earnings—	
Passenger, City lines	\$63,916.38
Passenger, Grand Valley line	28,802.09
Freight	2,930.57
	\$92,718.47
Miscellaneous	2,088.94
	\$97,737.98
Expenditures—	
Power	\$19,839.68
Operating wages, maintenance and general expense	48,529.67
	68,369.35
Gross operating profit	\$29,368.63
Bond and debenture interest	\$19,750.00
Sinking fund	4,814.00
Instalment on pavement indebtedness, to be applied in lieu of depreciation*	6,000.00
	30,564.00
Deficit	\$ 1,195.37

*At the time of making this agreement it was confidently thought by the commission that the operating profit for the year would allow of the assumption of this item, but this expectation has not been realized, consequent upon the abnormal cost of supplies, increased wages paid car men and other employes, etc.

Passengers carried, city lines, 1,421,298; Grand Valley line, 180,011; total, 1,601,309. Earnings, city lines, \$92,718.47. Car miles run, city lines, 308,645; Grand Valley line, 97,376; total, 406,021. Earnings per car mile, city lines, 20.7c; Grand Valley line, 29.6c. Expenditure, exclusive of interest, sinking fund or depreciation, per cent. of earnings, all lines, 69.9, against 77.6 in 1915.

Guelph Radial Ry.—The auditor's report on the corporation finances for 1916 shows that the profits for the year received by the city from the operation of the G.R.R. were \$664.18.

The erection of a high level bridge between Windsor, Ont., and Detroit, Mich., is being advocated in those cities; the bridge to be used for foot passengers, vehicle and electric railway purposes.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:

	July 31, 1916,	July 31, 1916,	Jan. 1917	Jan. 1916	Jan. 1917	Jan. 1916
	to Jan. 31, 1916	to Jan. 31, 1916				
Gross . . .	\$627,130	\$591,949	\$4,065,920	\$3,832,095		
Expenses . . .	496,651	477,927	3,395,735	3,363,229		
Net . . .	130,479	114,022	670,185	468,866		

Cape Breton Electric Co.:

	Jan. 1917	Jan. 1916
Gross earnings	\$38,581.01	\$34,120.37
Expenses	23,208.99	19,189.56
Net earnings	15,372.02	14,930.81

London & Port Stanley Ry.—Comparative statement for 6 months ended Dec. 31, 1916, and Dec. 31, 1915:

	1916.	1915.
Gross earnings	\$95,490.10	\$64,407.67
Passenger	74,999.71	69,534.63
Freight	7,721.94	5,228.70
Miscellaneous		
	\$178,211.75	\$139,171.00
Operating expenses	103,633.65	98,396.72
Gross income	74,578.10	40,774.28
Fixed charges	42,687.42	36,444.94
Net income	\$31,890.68	\$4,329.34

Toronto Civic Ry.—Total revenue for February, \$19,768.52, against \$16,714.38 for February, 1916. Car mileage for February, 105,639; revenue passengers, 1,174,585.

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

	Jan. 1917	Jan. 1916.
Gross earnings	\$1,002,469	\$906,350
Expenses	531,568	472,293
Net earnings	470,901	434,057

Winnipeg Electric Ry.:

	Jan. 1917	Jan. 1916.
Gross earnings	\$319,945	\$297,560
Expenses	231,423	189,085
Net earnings	88,522	108,475

The Ontario West Shore Railway Fiasco.

A request was made in the Ontario Legislature, Mar. 5, for a return of correspondence in the government's possession, relative to the Ontario West Shore Ry., and the enquiry made on behalf of the municipalities concerned, and also as to what steps the government had taken to arrest J. W. Moyes, against whom charges of fraud had been made. The railway was to have been built between Goderich and Kincardine, and four municipalities guaranteed about \$100,000 worth of bonds, with the idea that the trust company looking after the financial end of the transaction would see that the funds were not mishandled. They discovered later that about \$126,000 had been misappropriated, and it was stated that after the matter had been taken up with the Attorney General, J. W. Moyes had gone north from Toronto, apparently for his health, and had since disappeared. The Attorney General stated that to bring down the papers asked for would defeat the purpose in sight—the arrest of the person concerned. In his opinion there was no doubt that the money was obtained by fraud. The government had not been notified until Moyes had been away from Toronto for three days. He claimed that the parties interested should have moved sooner, and stated that they had been trying to get back the money from Moyes. Three days after that Moyes had left Toronto, the government was asked to keep him under observation, but that his arrest was not desired until the Ontario Railway and Municipal Board had reported on the investigation.

Marine Department

Canada Steamship Lines, Ltd., Annual Report and Meeting.

The following report was presented at the annual meeting in Montreal Mar. 7: The improvement in the company's business noted in our last annual report has continued in a gratifying manner. Unprecedented developments in the world's affairs, as a result of the war, have given rise to many new and difficult problems in the management of your company. The high cost of fuel, food-stuffs and insurance, the difficulty in obtaining new tonnage and the scarcity of labor, not to mention the changing aspect of world politics, are matters which have caused grave concern. The management, however, has successfully met each situation as it arose and has brought about a result which your directors feel confident will meet with your approval. The balance sheet, operating and surplus accounts presented herewith will convey to you in a concise manner the result of your company's operations for the year under review and its present financial position.

Incidental to the operation of so large a fleet, your company suffered some losses from fire, stress of weather and the King's enemies, all of which were covered by insurance. Additional new tonnage has, however, been acquired and the position of your company in this respect is stronger than at our last annual report. Care has been taken to maintain in the highest state of efficiency, vessels, docks and other properties, and many improvements and betterments have been added. The work of consolidating the various units which were brought together when your company was formed has been completed, and your Vice President and Managing Director has reported that his efforts are being seconded by an efficient and loyal organization. During the year three payments of 1 3/4% were made in respect to deferred dividends on the preference shares, and a further payment on Mar. 1 of this year of 7% will leave a balance of 5 1/4% due, which, when paid, will wipe out all arrears to Dec. 31st, 1916.

Assets.	
Vessels, as at Dec. 31, 1915.....	\$17,628,237.32
Net additions for year, being excess of additions to fleet over vessels lost and sold	1,169,682.98
	<u>\$18,797,920.30</u>
Real estate, buildings, docks and wharves, as at Dec. 31, 1915	\$5,285,491.25
Net additions for year	95,623.28
	<u>5,381,114.53</u>
Other fixed assets, as at Dec. 31, 1915	\$ 536,645.53
Net additions for year	73,788.89
	<u>610,434.42</u>
Less depreciation reserve	\$24,739,469.25
	<u>1,680,811.60</u>
	<u>\$23,058,657.65</u>
Cash in banks and on hand	\$ 612,535.45
Notes receivable	\$426,943.72
Less proportion payable to trustees for deb. stock in respect of vessel sold	138,090.96
	<u>288,852.76</u>
Accounts receivable, less reserve for doubtful accounts	1,413,169.86
Adjusted partial losses due by underwriters	224,285.32
Insurance and other claims — estimated amount recoverable ..	565,677.13

Interest receivable accrued	821.92
Inventories of stores and supplies	326,777.52
	<u>3,432,119.96</u>
Insurance unexpired	\$ 508,111.00
Repairs, etc., applicable to 1917 season	127,052.37
Reclassification expenses of s.s. parima and Guiana, less proportion written off	67,248.80
Miscellaneous	4,721.53
	<u>707,133.70</u>
Investments at cost	93,738.50
Funds deposited with trustees for mortgage bonds and debenture stock	\$1,307,387.56
Adjusted losses due by underwriters payable to trustees	101,598.00
Notes receivable payable to trustees in respect of vessel sold ..	138,090.96
	<u>1,547,076.52</u>
Sinking fund—debenture stock at par and cash held by trustees	290,048.14
Organization expenses, less proportion written off	172,772.30
Discount on debenture stock, less proportion written off	27,765.19
	<u>\$29,329,311.96</u>
Leases, contracts and goodwill	8,589,646.79
	<u>\$37,918,958.75</u>
Liabilities.	
Capital Stock—	
125,000 shares 7% cumulative preference stock	\$12,500,000.00
120,000 shares common stock	12,000,000.00
	<u>\$24,500,000.00</u>
Funded debt—	
First mortgage bonds	\$2,205,706.67
5% debenture stock	\$7,045,506.66
Less amount deposited as security for loan	649,200.00
	<u>6,396,306.66</u>
Loan secured by debenture stock and investments	600,000.00
	<u>9,202,013.33</u>
Notes payable	\$ 421,032.41
Accounts payable	1,298,914.30
Bond and other interest accrued	140,516.91
Business profits war tax	404,545.58
	<u>2,265,009.20</u>
Reserves—	
For freight and other claims	\$ 20,000.00
For premium on redemption of Richelieu & Ontario Navigation Co. bonds	21,048.74
Surplus arising from sinking fund purchases of debenture stock	62,662.21
	<u>103,710.95</u>
Surplus	1,848,225.27
	<u>\$37,918,958.75</u>
Note—Cumulative preference stock dividends in arrear, \$1,531,250.00.	
Operating Account for year 1916.	
Operating Revenue—	
Vessels	\$11,819,539.09
Docks and wharves	172,472.36
Miscellaneous	65,239.90
	<u>\$12,057,251.35</u>
Other revenue	64,877.26
	<u>\$12,122,128.61</u>
Total revenue	\$12,122,128.61
Expenses	8,062,583.64
	<u>\$ 4,059,544.97</u>
Net earnings	\$ 4,059,544.97
Interest on mortgage bonds	\$ 125,051.30
Interest on debenture stock	317,993.02
Other interest	15,319.73
Special bonus to employees	40,140.07
Reserve for depreciation	805,309.76
Reserved for doubtful debts and claims	27,500.00
Directors' fees	15,156.62
Reserve for business profits war tax	322,046.88
	<u>1,668,517.38</u>
Profit for year	\$ 2,391,027.59

Surplus Account, Dec. 31, 1916.	
Balance at Dec. 31, 1915	\$ 20,883.59
Profit for year 1916	\$2,391,027.59
Net profit on sales, etc., of fixed assets	179,979.79
	<u>\$2,571,007.38</u>
Deduct proportion of following charges:—	
Organization expenses	\$86,387.36
Discount on debenture stock	1,028.34
	<u>\$87,415.70</u>
Dividends 3, 4 and 5 paid on cumulative preference stock	656,250.00
	<u>743,665.70</u>
	<u>1,827,341.68</u>
Surplus as per balance sheet	\$1,848,225.27

James Carruthers, President, in moving the report's adoption, said: I might be pardoned if I mention the fact that the faith of those who have stood by our undertaking in the past has been amply justified. You who have furnished the capital, and your directors and management, who have devoted themselves to the welfare of our company, may well feel satisfied with the results so far accomplished. There is much, however, still to be done in developing existing trade routes and establishing new ones. The increased earnings are made up from nearly all branches of the service, but particularly from the operation of vessels on the high seas, and this field of development is practically unlimited. The proportion of expenses to earnings continues to decrease steadily, showing that overhead expenses and operating costs are being kept down. The figures for the past three years are as follows: 1914, 80 1/2%; 1915, 71%; 1916, 67%. This decrease in operation has not been made by allowing the fleet to run down. We have kept our vessels, docks, etc., in good shape and have spent considerable amounts on same.

In the balance sheet there is an entry showing the amount of dividend arrears, in respect to the preference shares, viz., \$1,531,250. Of this \$875,000 has since been paid off, and I fully expect that the balance still due will be paid off at an early date. It is the intention of your directors to endeavor to build up a reasonable reserve, and also to provide for as much working capital as possible. This latter is a necessity caused by the expansion of the company's business. There seems to be no good reason why present conditions in our business should not continue for a long time to come. For 1917 I feel confident that we will do at least as well as we did in 1916. The quantities of ore, coal and other commodities to be moved are enormous and the amount of grain at the head of the lakes, waiting for the opening of navigation, is larger by several million bushels than it was at the same time last year. The general crops in the northwest, and wheat in particular, were largely underestimated. Instead of between 150,000,000 and 200,000,000 bush. of wheat, it is now known that the yield was approximately 225,000,000 bush. This, even at the price of \$1.50 a bush., means over \$100,000,000 more to our western farmers than was anticipated. Owing to the high prices all over the world for food-

stuffs of every description, and the enormous demand from Europe, there is the greatest possible incentive to our farmers in the east, as well as in the west, to produce as much as possible of everything in the way of staple foodstuffs: I do not doubt that our farmers will take the fullest advantage of the situation, benefiting themselves and the country at the same time, and I feel confident that, with favorable weather conditions, Canada should, in 1917, raise the largest crop in her history. During the year the number of shareholders in the company increased by over 33%. I have found the spirit of co-operation and devotion to the company's interests most marked among all the officers and employes.

J. W. Norcross, Vice President and Managing Director, in seconding the motion, said: It is hardly necessary for me to elaborate on the conditions which made it possible for us show the earnings set forth in the annual statement. The conditions which had to be met and overcome would require considerable detailed explanation. I will, therefore, simply pass over all detail and give a resume of the business done by the company for the past year. The inland freight service showed considerable improvement and the rates held fairly steady throughout the entire season. While the operating costs were higher than in 1915, our net earnings were considerably higher, and altogether showed very satisfactory results. This portion of the fleet is in excellent physical condition, and when putting these vessels into winter quarters, we took the opportunity to fit them out ready for business in the spring, so that no matter what date navigation opens our fleet will be ready for work. The passenger branch of the service showed a gross increase over the year previous, and, notwithstanding the difficulties and increased expenditures in the cost of operating, through the scarcity of labor, food and fuel, the net earnings have proved larger in proportion than in 1913, which was considered the banner year of the old Richelieu & Ontario Navigation Co.

Our ocean service, including the Bermuda and West India service, has shared in the general prosperity of ocean carriers, with the exception of the s.s. Bermudian. We did not make the enormous profits in this service that were made by Trans-Atlantic liners, for the reason that ours is a regular service, and during a portion of the year the ships came north with very little cargo, and the rates have only been increased as necessity required. During the off sugar season, our vessels could have made larger profits by trading in the Trans-Atlantic service, but I am sure that the conservative policy of keeping them on the route will, in the future, give us better earnings for a longer period than if we had deserted the route during the short season that north-bound cargoes were scarce. The portion of our fleet which formerly operated on the lakes, and which we fitted out for ocean service, has done well, and while, for the first two years, we paid a very high marine risk insurance on these ships, in some cases three times the regular rate, we now feel that with the money laid out as suggested to us by classification societies, we are about to largely improved physical condition of the vessels. Every vessel which we have at sea is in first class condition, and unless lost through war risks, will no doubt return handsome profits for the coming year. During 1916 we lost the s.s. Empress of Fort William and the s.s. Em-

press of Midland through hitting mines in the English Channel, but there were no lives lost. These ships were fully covered with war risk insurance and have been replaced with no loss to the company.

I do not think it advisable to forecast the possible earnings of the company for 1917, except to say that, up to the present, they have fulfilled our expectations. The company's financial condition and the physical condition of its property is excellent. I wish to thank the heads of the departments and their staffs for the excellent work and co-operation which they have shown during the past year, as this, to a large extent, has made it possible for us to put before you such a statement as was shown you today.

The directors were re-elected, except Sir H. Montagu Allan and Æmilius Jarvis, of Toronto, both of whom retired. Sir Montagu Allan, who has been in England for the past two years, will act as one of the London advisory committee. W. E. Burke, Assistant Manager, and F. S. Isard, Comptroller, were elected to fill the vacancies on the board, which is now constituted as follows: James Caruthers, President; J. W. Norcross, Vice President and Managing Director; C. A. Barnard, K.C., R. M. Wolvin, J. C. Newman, H. B. Smith, M. J. Haney, Hon. J. P. B. Casgrain, J. E. Dalrymple, G. H. Smithers, D. B. Hanna, J. P. Steedman.

Alaskan Fishing Fleet.—Owing to the automatic adjournment of the U. S. Congress, Mar. 3, a bill dealing with fisheries questions off the British Columbia-Alaska coast, and affecting the fish shipping industry at Prince Rupert, and the transportation of fish through Canada to the U. S., was not dealt with. It is stated in Washington, D.C., that it is believed the effect of the Canadian laws, if not offset, will be to bring the Alaskan fishing fleet, operating off Ketchikan, under Canadian registry. The U. S. Shipping Board has refused an application to transfer the motor driven fishing vessel Venture from the U. S. to the Canadian register, stating that while the Canadian regulations apparently offer tempting inducements for such transfers, they do not in reality give U. S. citizens an opportunity for free competition in the fisheries trade, but rather subject consumers of fish in U. S. territory through Canadian ports to the possibility of monopolistic price manipulation.

Salvage Claim Against Lloyd's.—The Larder Bros. Wrecking Co., Halifax, N.S., is claiming, in the Nova Scotia Supreme Court, from the committee of Lloyd's, and the individual members thereof, £20,000, being balance of money deposited with the committee under a salvage agreement between Lloyd's, the master of the s.s. Arachne, and the wrecking company. The s.s. Arachne, a British vessel, stranded near Point Plate, Miquelon Island, June 20, 1916, the master being censured and reprimanded severely for the non-accomplishment of simple navigation principles, which, although ordinary, are necessary.

Classification of Vessels.—U. S. Underwriters have decided that all wooden and composite vessels are to be reclassified after inspection by the American Bureau of Shipping, prior to loading of the first grain cargo, and inspected again prior to Aug. 31, and prior to loading after an accident to a vessel. The season for wooden vessels will be from May 1 to Oct. 31. No change has been made the tariff rates.

U.S. Shipping on the Great Lakes.

The executive order of the United States prohibiting the transfer of U. S. ships to foreign registry came a trifle late. It is but another illustration of locking the door after the horse has been stolen. Following the passage of the Seamen's Act, the Trans-Pacific fleet of U. S. bottoms was sold, and in compliance with the Panama Canal Act, Great Lakes shipping was greatly decimated. In the latter case many vessels were sold by U. S. owners to British companies, the vessels being changed to British registry. Notwithstanding the fact that Canada has given nearly 100,000 tons of Great Lakes shipping to ocean services of the United Kingdom, the Dominion still has 218,019 tons of registered steel vessels on the Great Lakes, and is building many more vessels. The decline in U. S. tonnage on the Great Lakes is particularly unfortunate when bulk cargo was offering in great quantities on every pier and the freight rate per ton advanced all the way from 50 to 75%. It has been estimated that U. S. laws have been responsible for driving from the Great Lakes many thousand tons of steel ships badly needed at the present moment. While the attractive prices offered for tonnage has drawn an additional large number of vessels from that service, as far as the law and its effect are concerned, not one individual shipper, either farmer, manufacturer, merchant or middleman, has been helped to the value of a postage stamp, and under the new conditions freight rates as shown have more than doubled, but the controlling rate making power can disregard any ruling of any U. S. regulating commission. — Railway and Marine News, Seattle, Wash.

The Timiskaming Navigation Co.'s property, including four steamboats, Jubilee, Meteor, Silverland and Temiscamingue, and wharf and dock accommodation at Haileybury, has been sold by Jas. Hardy, Toronto, liquidator, to T. A. Simard, Ville Marie, Que. The company assigned about two years ago, and since then the property has been managed by P. Gibbons, on behalf of the liquidator. The Jubilee is a screw driven vessel with engine of 10 n.h.p., built at Kingston in 1897; length 84.2 ft., breadth 15.4 ft., depth 5 ft.; tonnage, 117 gross, 78 register; the Meteor is screw driven by engine of 165 n.h.p., and was built at Opemican, Que., in 1897; length 130.5 ft., breadth 27 ft., depth 7.4 ft.; tonnage, 299 gross; 204 register; Silverland is screw driven by engine of 13 n.h.p., and was built at Haileybury in 1909; length 85.4 ft., breadth, 17 ft., depth 6.7 ft.; tonnage, 92 gross, 52 register; the Temiscamingue is screw driven by engine of 21 n.h.p., and was built at Timiskaming, Que., in 1898; length 133 ft., breadth 22.5 ft., depth 6.5 ft.; tonnage, 295 gross, 213 register.

The Shipmasters and Officers Association of Canada has been organized in Vancouver, B.C., to promote the welfare and interests of masters and officers in the mercantile marine service. Law fees will be paid by the association in the event of any member requiring legal assistance in collision and other marine cases in which he is involved. The entrance fee is, for masters \$10 and for officers \$8, in addition to which there is a monthly fee of \$1. Commander C. Unwin, R.N.R., 539 Pender St. West, Vancouver, is the Secretary.

Coast, Lake and River Steamship Officers for 1917.

The following appointments made by navigation companies, engaged in Canadian navigation, for their various steamships and tugs, have been reported to Canadian Railway and Marine World. The first column gives the names of the vessels, the second, those of the captains, and the third, those of the chief engineers.

ALGOMA CENTRAL STEAMSHIP LINE, LTD., SAULT STE. MARIE, ONT.
 Agawa A. McIntyre J. L. Smith
 J. Frater Taylor R. H. Boyle L. B. Cronk
 Thos. J. Drummond J. D. Montgomery W. T. Rennie
 W. C. Franz W. C. Jordan G. Sylvester

BASSETT STEAMSHIP CO. LTD., TORONTO
 Mariska Jas. Woolner W. C. Spencer

BATHURST LUMBER CO. LTD., BATHURST, N. B.
 Betty D. A. Hains R. Kane
 Nipisiguit F. Curwin L. Sprague

BAY OF FUNDY AND MINAS BASIN STEAMSHIP CO., LTD., MARGARETVILLE, N.S.
 Brunswick H. W. Moore A. Harris
 Margaretville S. Baker L. Harris
 Ruby L. C. D. Baker A. B. Dorman

BOWRING BROS., ST. JOHN'S Nfld.
 Eagle C. C. Couch A. McKinlay
 Florizel W. J. Martin J. V. Reader
 Hawk F. Smith J. Fitzgerald
 Portia J. W. Kean A. Smith
 Prospero A. Kean J. McKinlay
 Ranger W. James E. Perez
 Terra Nova N. J. Kennedy A. F. Osmond
 Viking C. F. Taylor C. N. Lewis
 Zelda W. White W. Squires

BUFFALO AND FORT ERIE STEAMSHIP CO., NIAGARA FERRY AND TRANSPORTATION CO., BUFFALO, N.Y.
 O. Bedell W. H. Delaney C. Beach
 Orleans E. H. O'Neill R. J. Ward H. Shuldice

BURNHAM, MORRILL AND CO., HALIFAX, N.S.
 Robie M. R. A. Hines

CANADA ATLANTIC AND PLANT LINE STEAMSHIP CO., HALIFAX, N.S.
 Halifax H. Doyle R. McKay

CANADA ATLANTIC TRANSIT CO., LTD., MONTREAL
 Arthur Orr J. H. Fleming D. Mance
 George N. Orr J. Simons J. B. Wellman
 Kearsarge H. Jaenke F. Wilks

CANADA SHIPPING CO. LTD., MONTREAL
 Cabotia R. Laing J. R. Ferguson
 Compton B. Bowen L. Smith
 Florence V. Gendron S. Legendre
 J. H. Hackett J. Thibault A. Legendre
 James W. Follette C. A. Mahoney M. J. McFaul
 John B. Ketchum II W. J. Jewitt J. Walker
 Margaret Hackett M. Allison O. Croteau
 Robert R. Rhodes W. H. Ransome F. A. Collier

CANADIAN NORTHWEST STEAMSHIP CO. LTD., TORONTO
 Atikokan W. J. Brown J. H. Louden
 George A. Graham J. A. Ewart J. B. Polding
 Paipongo P. McIntyre H. H. Moore
 Thunder Bay H. Finn C. Kent

CANADA STEAMSHIP LINES LTD., MONTREAL
 America R. H. Carnegie
 Belleville W. Bloomfield
 Bickerdike T. H. Johnston
 Boucherville A. Lavolette
 Cadillac W. Beatty
 Calgarian A. Pyyette
 Cayuga C. J. Smith
 Chippewa W. Malcolm
 City of Hamilton O. Patenaude
 City of Ottawa J. L. Baxter
 Corona B. A. Bongard
 Doric R. McIntyre
 E. B. Osler C. E. Robinson
 Empress J. F. Davis
 Fairfax M. Hefferhan
 Haddington R. J. Wilson
 Hamiltonian
 Ionic
 Iroquois O. Wing
 J. H. G. Hagarty J. H. Hudson
 Kingston G. W. Pearson
 Louis Philippe E. Booth
 Macassa H. Mandeville
 Magnolia J. Henderson
 Martian A. B. McIntyre
 Midland King P. McKay
 Midland Prince W. H. Anderson
 Montreal F. X. LaFrance
 Pierrepont J. E. Ouellette
 Quebec J. Rinfret
 Ramona E. M. Charlebois
 St. Irene
 St. Lawrence John Bertrand
 Saguenay J. Simard
 Sarnian D. W. Burke
 Seguin
 Sir Trevor Dawson H. Hinslea
 Stadacona G. H. Page
 Syracuse L. Legendre
 Tadousac
 Thousand Island O. H. Kendall
 Three Rivers A. Mondor
 Toronto J. J. Jarrell
 W. D. Matthews A. E. Stinson
 W. M. Egan N. Hudgins

W. Grant Morden N. Campbell R. Chalmers
 Wyoming H. L. Beauvais E. Meek

CANADIAN PACIFIC CAR AND PASSENGER TRANSFER CO. LTD., PRESCOTT, ONT.
 Charles Lyon W. Henry L. Black

C. P. R. BAY OF FUNDY SERVICE, ST. JOHN, N.B.
 Empress A. MacDonald J. M. Pendrigh

C. P. R. DETROIT RIVER CAR FERRIES, WINDSOR, ONT.
 Michigan H. Farrow F. Merrill
 Ontario R. Brown C. A. Sullivan

C. P. R. GREAT LAKES SERVICE, PORT MCNICOLL, ONT.
 Alberta F. J. Davis C. Butterworth
 Assiniboia J. McCannel A. Cameron
 Athabasca M. McKay G. D. Adam
 Keewatin M. McPhee W. Lewis
 Manitoba J. McIntyre R. Sinclair

CANADIAN TOWING AND WRECKING CO. LTD., PORT ARTHUR, ONT.
 A. B. Conmee W. Nuttall Lloyd Williams
 A. F. Bowman H. Gehl D. Moore
 James Whalen A. Morrison H. Cross
 Sarnia A. Fader J. Farquharson
 Siskiwit W. Grick W. Faloua

HUGH CANN AND SONS LTD., YARMOUTH, N. B.
 Bruce Cann I. A. Banks H. Goodwin
 Hugh D. E. Smith H. Doane
 John L. Cann A. L. McKinnon J. Nixon
 Latour F. E. Smith C. R. Weddleton
 Mary H. Cann F. L. Nickerson W. Amiro
 Percy Cann J. R. Durkee D. E. Read
 Robert G. Cann W. E. Morris B. Lumsden
 Wanda U. J. d'Entremont A. Rogers

CAPE BRETON ELECTRIC CO. LTD., SYDNEY, N.S.
 Electronic I. H. Lewis B. Dickson
 Hygeia A. McLeod
 Peerless G. Dicks J. B. Weeks

CENTRAL CANADA COAL CO. LTD., BROCKVILLE, ONT.
 Samuel Marshall W. A. Tulloch W. H. Keir

CHATHAM NAVIGATION CO. LTD., CHATHAM, ONT.
 Ossifrage T. J. Stockwell G. Peel

CHICAGO, DULUTH AND GEORGIAN BAY TRANSIT CO. CHICAGO, ILL.
 North American E. Taylor J. F. Buritz
 South American G. M. Cummings W. F. Johnson

CLEVELAND AND BUFFALO TRANSIT CO., CLEVELAND, OHIO.
 City of Buffalo W. H. Smith D. Donaldson
 City of Erie E. S. Pickell G. Turnbull
 Seandbee H. McAlpine C. Lorimer
 State of Ohio A. H. MacLachlan A. Greb

COASTWISE STEAMSHIP AND BARGE CO., VANCOUVER, B.C.
 Amur S. Snoddy R. Middlemass
 British Columbia J. M. Hewison J. Ellison
 Henriette O. Buchholz A. Hewitt
 Turret Crown J. Park J. McG. White

FARRAR TRANSPORTATION CO. LTD., TORONTO
 Collingwood John Ewart Duncan McLeod
 Meaford J. Lewis T. W. Verity

G. T. R. CAR FERRIES, WINDSOR, ONT.
 Great Western O. Lalonde J. Ladds
 Huron M. Bausette A. Cook
 Lansdowne H. Oldenberg W. Belsom

G. T. R.-WABASH RY. CAR FERRIES, WINDSOR, ONT.
 Detroit F. A. Hutton H. Lowry
 Transfer G. Honner W. Taylor
 Transport W. Norvell F. Robinson

GRAND TRUNK PACIFIC COAST STEAMSHIP CO., LTD., VANCOUVER, B.C.
 Prince Albert W. S. Morehouse A. S. Munro
 Prince George D. Donald I. C. Handy
 Prince John A. M. Davies R. Know
 Prince Rupert D. Mackenzie R. Bell

GREAT LAKES TRANSPORTATION CO. LTD., MIDLAND ONT.
 America A. Monck C. Doctrine
 Breezit W. Lenton C. A. McWilliams
 Glenfinnan A. R. McLeod W. J. Holmes
 Glenlivet F. Burke G. Price
 Glenlyon A. Hudson D. Sinclair
 Glenushee W. A. Lavigne F. Goodwin
 Mack W. Ferguson
 Major S. Corson P. Eagles
 Stewart J. G. McCarthy Jas. Wilson

HALIFAX AND CANSO STEAMSHIP CO. LTD., HALIFAX, N.S.
 Scotia Jas. Schmeisser Jos. Clark

HALIFAX AND INVERNESS STEAMSHIP CO. LTD. Strathlorne
 J. Munro J. Latham

HALIFAX AND SHEET HARBOR STEAMSHIP CO. LTD. HALIFAX, N.S.
 Margaret W. Cooper J. Jackson

GEORGE HALL COAL CO., OGDENSBURG, N.Y.
 Geo. L. Eaton W. B. Russell W. J. Brown
 Hecla T. Lago
 Iselin D. Hourigan E. B. Barker
 Jones H. M. Russell W. Thomson
 Kendall J. A. Woods
 MacTier S. V. Anderson J. W. Estes
 Mercur S. LeBeau B. Manwaring
 Robinson John Powers R. J. Jardin
 Rugee H. M. Russell John Cline
 Sherman G. Abbott

HUDSON'S BAY CO. WINNIPEG, MAN.
 Athabasca - Haight T. Sutherland
 Fort McMurray - Mills W. Johnson
 Inewew - Redfean
 McKenzie River - Patton G. A. King

IMPERIAL OIL CO. LTD. TORONTO
 Imperial H. C. Mimms G. E. Down
 Imperoyal John Wilkie J. F. Smith
 Iocolite R. Flack A. Fleming
 Iocoma G. T. Cross C. Arnberg
 Royalite N. Scott J. F. A. Pryszyk
 Sarnolite R. T. Jones J. Spencer

INTERNATIONAL TRANSIT CO. LTD., SAULT STE. MARIE ONT.
 Algoma F. Frech C. H. Innes

ISLAND TUG CO. LTD., CHARLOTTETOWN, P.E.I.
 Harland J. T. McLaine A. Roebuck

KEYSTONE TRANSPORTATION CO. LTD., MONTREAL
 Keybell G. Bunting W. H. Jennison
 Keynor Jas. Martin John Robertson
 Keyport John Mullen R. J. Muchmore
 Keyvive L. Beaupre Jas. Boak
 Keywest A. Barrett R. Knight

LAKE COMMERCE LTD., TORONTO
 Arabian H. A. Leaney D. S. Crawford

LAKE ERIE NAVIGATION CO. LTD., WALKERVILLE, ONT.
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MAGNETAWAN RIVER AND LAKE STEAMBOAT CO. LTD., BURKS FALLS, ONT.
 Armour E. Pinch R. Johnston
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 Gravenhurst S. Carswell J. Stoner
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LA CIE. MARITIME ET INDUSTRIELLE DE LEVIS LTD LEVIS, QUE.
 Champion D. Lemay C. Barras
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MONTREAL AND CORNWALL NAVIGATION CO. LTD., CORNWALL, ONT.
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NEWCASTLE STEAMBOAT CO. LTD., NEWCASTLE, B. N.
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NIAGARA ST. CATHARINES AND TORONTO NAVIGATION CO. LTD., ST. CATHARINES, ONT.
 Dalhousie City G. Blanchard J. H. Brown
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ONTARIO CAR FERRY CO. LTD. MONTREAL
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OTTAWA RIVER NAVIGATION CO. LTD., MONTREAL
 Duchess of York N. Chartier
 Empress A. Plondin A. L. deMartigny

OTTAWA TRANSPORTATION CO. LTD., OTTAWA, ONT.
 Dolphin Z. Lavigne D. Moranville
 Florence E. Lefebvre A. Madore
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 Hall J. Barclay J. Drury
 Ottawa A. Malette N. Lavigne
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PAWNEE BOAT CO., PORT HURON, MICH
 Pawnee Jas. Cassin M. Jamieson

PEACE RIVER NAVIGATION CO. LTD., EDMONTON, ALTA
 Northland Call S. J. Coolen

PEMBROKE TRANSPORTATION CO. LTD., PEMBROKE, ONT.
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 PENINSULA TUG AND TOWING CO. LTD., WIARTON, ONT

CRAWFORD W. D. Bain R. H. Isbester
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PENNSYLVANIA-ONTARIO TRANSPORTATION CO., CLEVELAND, OHIO
 Ashtabula C. F. Meyers S. M. Sylvester

RIVER LIEVRE NAVIGATION CO. LTD., BUCKINGHAM, QUE.
 George Bothwell G. N. Bothwell G. Bothwell
 J. F. Sowards, KINGSTON, ONT.

H. N. Jex M. Shaw W. McCabe
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 Shanly J. F. Sowards John Maloney

SPARROW LAKE STEAMER LINE, SPARROW LAKE, ONT
 Glympse A. F. Stanton G. T. Stanton

CITY OF THREE RIVERS, QUE.
 Le Progres W. W. Lewis A. Frenette

TORONTO, HAMILTON AND BUFFALO NAVIGATION CO., HAMILTON, ONT.
 Maitland No. 1 B. T. Haagensohn C. E. Sylvester

VICTORIA NAVIGATION CO. LTD., THURSO, QUE.
 Victoria F. Elliott P. Belanger

Shipping Federation of Canada's Annual Meeting.

At the annual meeting in Montreal recently, John Torrance, Chairman of the Executive Council, presided, in the absence of the President, A. A. Allan. The report showed that the regular line tonnage entered with the federation showed a decrease owing to the exigencies of war service, but the tramp tonnage entered showed an increase, which more than made up the loss of regular line tonnage, as follows:

	1915.	1916.
Regular line tonnage	510,070	474,636
Tramp tonnage	299,627	499,313
Tramp tonnage increase	199,686 tons	
Regular line tonnage decrease.....	35,434 tons	
Net increase in tonnage	164,252 tons	

Following are extracts from the President's report: The first steam vessel to arrive from the sea was the Italian s.s. Bayern, on May 1, three days later than the first arrival in 1915. The last ocean vessel to depart was the Norwegian s.s. Begna with a full cargo of grain for the Belgian Relief Commission, which cleared on the morning of Dec. 3. Vessels from the upper lakes passed through the harbor, eastward bound, as late as the middle of December. The number of ocean vessels which arrived at Montreal during the season was 685, a decrease of 130 from 1915. The number of trans-Atlantic vessels which arrived showed an increase over 1915, but a serious falling off is recored in the coasting trade vessels, this being principally due to the scarcity of ocean tonnage, and vessels which formerly plied on the coasting trade have for the greater part left for other trades where higher rates are prevailing.

The passenger trade, both eastbound and westbound, was as good as could be expected, in fact, most of the passenger vessels on the route were at times overbooked on their eastbound voyages. High freight rates continued to be a factor, but taking the season as a whole, it may be recorded as a most erratic one for the lines trading to the port. Owing to the congestion of the ports in the United Kingdom and France, there was all through the season an uncertainty as to sailing dates. The volume of freight offering at times was more than bottoms could be procured to transport, and several lines had to charter outside steamers at abnormal charter rates to meet the demand of the exporters. Notwithstanding the volume of trade carried on during the season, speedy dispatch was given to all vessels entering the harbor, and no detention or congestion for any length of time occurred. Exports from Montreal showed abnormal increases in certain articles as compared with other years. Increases are noted in the following commodities: Grain, 28,422,275 bush.; flour, 2,962,775 sacks; eggs, 93,416 cases; cheese, 290,968 boxes; butter, 122,964 boxes. On the other hand, decreases in exports are noted in hay shipments of 740,434 bales, and apples, 19,187 barrels.

The standard of the pilotage district below Quebec has improved considerably during the past year. This is no doubt due to the energetic measures taken by the government to put the district on a sound footing, and it is our earnest hope that they will keep up this good work and help to efface the black marks which this district has placed on the route. The list of accidents on this route seem very large as compared with former years, but, with the exception of

one or two cases, they were not of a serious nature, most of the vessels only suffering minor damages.

Various improvements in Montreal harbor were progressed with during the season. The high level quay at Victoria Pier was completed and formally opened to ocean traffic. The contract for the improvements proposed to be carried out at St. John, N.B., has been cancelled by the government, and there is very little prospect of it being renewed for some time. When the contract is renewed it is estimated that three years will be required to complete the work. The Quebec Harbor Commissioners are making considerable progress with the new works for the improvement of the harbor, and the two new sheds which are under construction are expected to be completed this spring. Satisfactory progress has been made on the government graving dock at Lauzon, Que., and the government has given an assurance that, barring any unforeseen incident, they expect to have the dock in operation at the opening of navigation, 1918.

The report made by the commission appointed by the Canadian Government on the water levels of the River St. Lawrence proposed to dam the river at certain points, with a view to increasing the levels. The shipping interests did not look very favorably on this project, and, at considerable expense, obtained the opinion of three prominent engineers, who have had considerable experience in river hydraulics. They were of the unanimous opinion that damming the river would not increase the levels of the river to the extent proposed. Our engineers were also of the opinion that if these dams were constructed they would render navigation in the river extremely dangerous. Copies of the engineers' reports were forwarded to the government for their favorable consideration, and they have advised us that the proposed improvements as suggested by the Water Level Commissioners would not be proceeded with until the matter had again been further considered. I have lately come across an important report issued by the Chief of Engineers of the United States Army, regarding the diversion of water from Lake Michigan through the Chicago Drainage Canal. He points out that the volume of water which the State of Illinois is permitted to take from Lake Michigan is not to exceed 4,167 cu. ft. per second, but it is a well known fact that the sanitary district authorities have for years past been withdrawing a much larger amount. This represents a daily average flow of water from Lake Michigan of more than 690,000,000 cu. ft. a day, which is about equal to the entire low water flow of the Mississippi River at St. Paul. The continuous withdrawal of this volume of water, he estimates, will result in the lowering of Lakes Michigan and Huron to the extent of 5 in. or more, and of Lake Erie to nearly the same extent. To lower the levels of the lakes, as claimed above, would reduce the permissible load by 300 to 550 tons for lake vessels, and a great deal more for ocean vessels, and the International Waterways Commission places the loss to navigation interests at \$1,500,000 a year. You will see the serious position we are in.

The following officers were elected for the current year: President, A. A. Allan; Chairman, Executive Council, John Torrance; Treasurer, J. R. Binning; other

members of Executive Council: W. R. Eakin, R. W. Reford, A. Mackenzie, A. M. Irvine, D. W. Campbell. Assistant Treasurer, E. W. Foulds. Manager and Secretary, Thos. Robb. Bill of Lading Committee: W. I. Gear, John Torrance, J. R. Binning and D. A. Watt. Harbor Equipment Committee: A. A. Allan, W. I. Gear and John Torrance. Quebec District Committee: W. M. Macpherson, Chairman; Harold Kennedy, D. Barrow, and G. B. Ramsay, Secretary.

Prince Rupert-Cleeve Collision Investigated.

An investigation was held recently at Victoria by Capt. J. D. Macpherson, Wreck Commissioner for British Columbia, assisted by Capt. W. Wingate and J. R. Stewart, as nautical assessors, into the cause of the collision between the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert and the steam tug Cleeve in Vancouver harbor, Dec. 28, 1916. The judgment declares that the cause of the collision was an error of judgment on the part of W. N. Coughlin, master of the Cleeve, in putting his helm hard a starboard just a few minutes before the impact, this action being, in the court's opinion, the initial cause of the casualty, and, secondly, to an entirely mistaken idea on the part of the Cleeve's master that his vessel had the right of way. The court, however, while imputing the sole blame for the collision on the master of the Cleeve, does not in any sense mean to reflect on his character and ability as a seaman, and under the circumstances thinks that a warning to be more careful in future will meet the requirements. No blame can in any sense be attached to Duncan Mackenzie, master of the Prince Rupert, nor to any of her officers or crew.

Capt. J. R. Stewart, in dissenting from this judgment, stated that he could come to no other conclusion than that the position of the vessels some time before the collision was that of passing vessels, and the onus of preventing such a crossing rested with the Prince Rupert, as she had the Cleeve on her starboard bow. The master of the Cleeve, on seeing that a collision was inevitable, reversed his engines and threw his helm hard a starboard, which was contrary to rule 21 of the regulations for preventing collisions at sea, and as his action failed to show that he in any way lessened the disaster, Capt. Stewart considered both vessels to blame for the collision.

A press dispatch from Victoria stated, Mar. 13, that the master of the Cleeve had appealed, and that a rehearing of the case had been ordered to be held by Capt. Chas. Eddie, Examiner of Masters and Mates, Vancouver.

The Safest Route to America.—Since the diplomatic break between the United States and Germany, a number of U. S. citizens in Germany have been thoughtfully considering what is the safest way to return home. The Trans-Siberian is conducting a special advertising campaign in Copenhagen, with a view of attracting a number of travelers to take the longest way round as the safest way home. After the war, this means of traveling will doubtless be very much developed, and a complete chain established round the world, and there is also very little doubt that the C.P.R. will be a considerable factor both in its development and operation.

Shipbuilding in Canada for the British and Canadian Governments.

The activity in Canadian shipbuilding yards, which has been very marked for the past two years, has been greatly increased by the action of the British and Canadian Governments, which have both taken steps to secure vessels to replace losses of cargo carriers, incurred through German submarine warfare and also to add materially to the number of steam fishing vessels, which are being so largely used for scouting and patrol purposes. Jas. P. Esplen, who came out from

be regarded as a certainty that for some time to come, at least, no more licenses for export will be issued. In addition to the above mentioned vessels, the Port Arthur Shipbuilding Co., which has succeeded the Western Drydock & Shipbuilding Co., is building 3 more of the Norwegian type, making 6 in all for that plant.

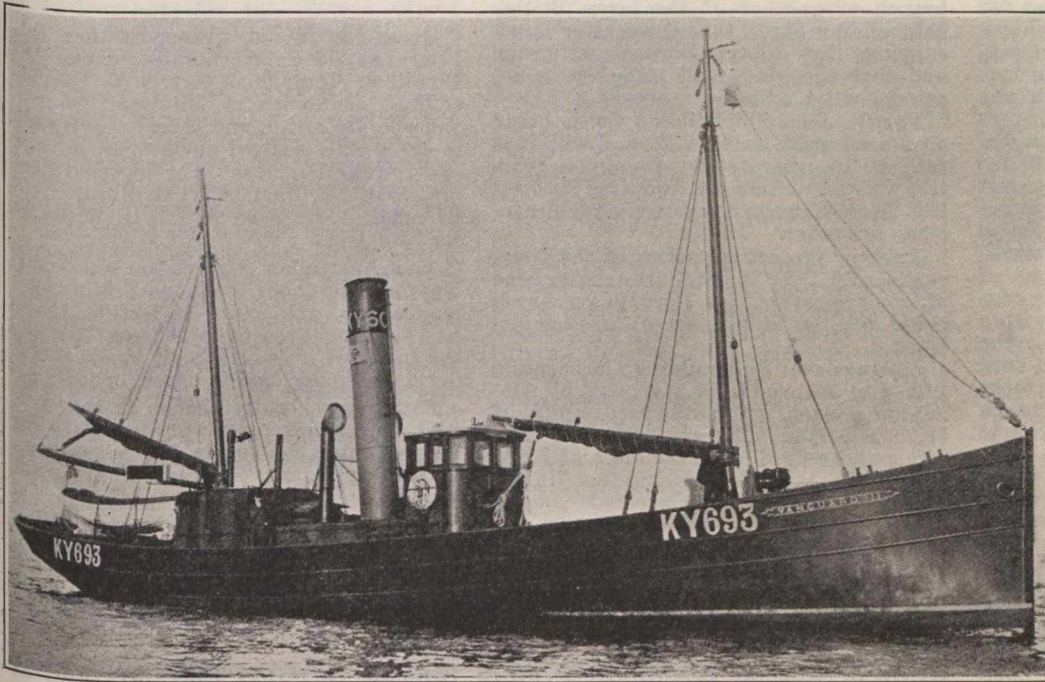
Steam Trawlers and Drifters.

The Dominion Government has undertaken to have built in Canada, 36 steel

troller; and H. W. Cowan, Operating Manager. The orders are being distributed among existing shipbuilding plants from Quebec to Port Arthur, and it is probable that one or more plants which have not been in operation for some time will also be utilized. The materials, including engines and other machinery, are bought by the department and supplied to the builders.

In this connection it is interesting to note that Vice Admiral Sir Charles Coke of the Royal Naval Reserve, has arrived in Ottawa, with a staff of naval officers, to take command of the Canadian Naval Patrol Service on the Atlantic and Pacific. Admiral Coke relinquishes his Royal Navy rank temporarily, and becomes a Commander in the Canadian Naval Reserve, in charge of coast patrol.

The steam trawlers and drifters will, as before stated, be built on typical British lines, which are described as follows: Steam trawlers range from 110 to 150 ft. long, according to the fishing grounds which it is intended to work. The vessel is rigged with two masts and carries mainsail, mizzen-sail and foresail. The larger type of vessel has a raised quarter deck, extending sufficiently forward of the engine casing and wheel house for the trawl winch to be fitted thereon. There is a sunk fore-castle, or a topgallant fore-castle, under which the crew is berthed, while the captain and officers accommodation is aft, and there is a covered wheel house fitted with a telegraph communicating with the engine room. In some vessels accommodation is provided for the captain underneath the wheel house, which serves also as a chart room. Every available space on deck, and below

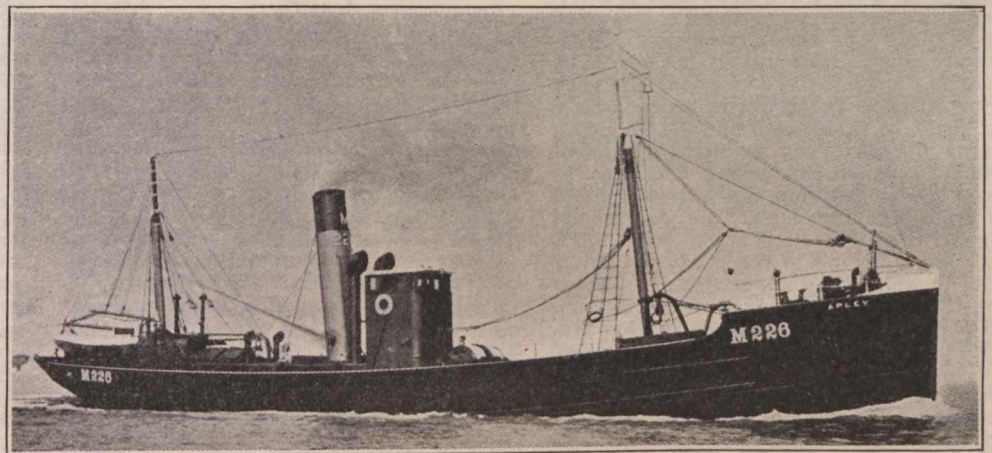


A Steam Trawler, 125 feet long.

Great Britain recently, and who is making his headquarters in New York, as representative of the British Shipping Controller, has arranged with the Imperial Munitions Board, at Ottawa, to secure all cargo vessels that may be available in Canada for delivery by May 31, 1918, and which are now completed, or under construction, or which it may be possible to build before that time. It is said that five vessels have already been arranged for from British Columbia builders and that probably about the same number will be secured from builders in Nova Scotia, Quebec and Ontario. Further orders will doubtless be placed.

Towards the end of last summer, a demand sprang up for freight vessels for Norway. Between Sept. 19 and Nov. 15, 1916, the Dominion Government authorized the exportation to that country on completion, of 18 steel steam steamships, to be built by the following companies: Nova Scotia Steel & Coal Co., New Glasgow, N.S., 2; Canadian Vickers Limited, Montreal, 2; Polson Iron Works, Toronto, 4; Western Drydock & Shipbuilding Company, Port Arthur, 3; Wallace Shipyards, Limited, Vancouver, 4; Coughlan & Sons, Vancouver, 3. In addition to these the Thor Iron Works, Toronto, was authorized to export 2 steel freighters to the United States, on completion. It appears probable that the majority, if not all, of these 20 vessels, for the export of which licenses were granted, will be taken over for the British Government and it may

steam trawlers, and 100 wooden steam drifters, of standard British types. The trawlers will be about 125 ft. long between perpendiculars, 23 ft. beam, and 13½ ft. deep. They will have triple expansion engines of about 500 h.p. The



A Steam Herring Drifter.

work of having these vessels built has been delegated, by the Naval Service Department, to J. W. Norcross, Vice President and Managing Director, Canada Steamship Lines, Ltd., Montreal, who is acting as Director of Naval Construction, and is being assisted by three of the company's other officials, W. E. Burke, Assistant Manager; F. S. Isard, Comp-

deck, of a modern steam trawler is utilized to the greatest advantage, in fact the vessel may be truly termed a multum in parvo. The decks are crowded with contrivances, many of them very ingenious, for the convenient and expeditious working of the trawl gear, while below deck space has to be allotted for carrying the maximum amount of coal, for

storing ice to preserve the catch of fish, and for storing the fish itself. The larger vessels are fitted with a reserve bunker, for use when steaming to distant fishing grounds. On the outward voyage the coal is worked from this bunker, so that the space can be used for storing fish on the homeward voyage. The fish room is divided up into several compartments, both vertically and horizontally, into which the various kinds of fish are carefully packed in ice, which preserves the catch in good condition during the return voyage, the ice being finely crushed before it is deposited in the ice room. In consequence of the vessels frequenting distant fishing grounds, sometimes as far as 1,000 or 1,200 miles from the home port it has been found necessary to adopt a system of insulation for the better preservation of the fish, especially during the summer. The entire structure is of unusual strength, the scantlings being considerably in excess of Lloyd's requirements for their 100 A1 class, while the vessels are double rivetted throughout, these precautions having been found necessary, to enable this class of vessel, not only to withstand all conditions of weather, but also the heavy strains consequent on having to tow or trawl with a maximum weight of gear, with all the contingent risks of fouling obstacles, such as sunken wreckage and protruding rocks at the sea bottom. For the same reason very powerful machinery is fitted, ample boiler power being an important consideration. The engines are of the triple expansion type, and the principal working parts are of excessive dimensions, to provide against the severe and sudden strains the machinery of necessity has to contend with. A very powerful double barrelled steam winch, capable of winding 2 steel warps, varying from 1,000 to 1,500 fathoms in length, is fitted in a convenient position, while, as before mentioned, there are special deck fittings of a most ingenious design, for working the fishing gear, the nature and position of which demand very careful study.

Steam herring drifters are used, round the coast of Great Britain, in the herring fisheries. The modern steam drifter is a smart, sturdy, little craft with two masts, fore and mizzen, the foremast being arranged to lower when the vessel is drifting with the nets, so as to offer less wind resistance. The majority of steam drifters are now built of steel (but those to be built in Canada will be of wood) and vary from 80 to 99 ft. between perpendiculars by about 18 ft. breadth and 9½ ft. depth to top of keel. They are fitted with compound surface condensing engines of from 200 to 250 i.h.p. and attain a speed of from 9 to 10 knots. The general design of these vessels is a somewhat intricate study, owing to the great change of trim to which they are subject. To allow for this they are given a draft of from 10 to 11 ft. aft and only a 4 ft. forward. This deep aft is necessary, on account of the machinery and bunkers being placed abaft the centre line of the vessel, so as to leave sufficient space for fish and net rooms forward and thus prevent the vessel from going down by the head, when returning to market with a heavy load of fish. The fish room is divided off at each side into sections or "pounds," the object of this being to break up the bulk of the fish, which would otherwise be damaged by the vessel's motion. The only deck machinery is a self contained steam capstan, fitted near the bow of the vessel, for hauling in the rope to which the nets are attached. These are very ingenious machines of special design and workmanship. A comfortable cabin is

provided in the after part of the vessel and the crew are berthed under the fore-castle forward, although in some cases the whole of the crew are accommodated in the after cabin. A separate galley is provided on the deck at the after part of the engine room casing.

Additional Shipbuilding Plants.

There are a number of rumors as to the establishment of new shipbuilding plants, probably only a few of which have any foundation in fact.

An Ottawa press dispatch says that negotiations are in progress with a view to the establishment in Canada of a branch of another of the large British shipbuilding firms, that the matter is occupying Sir Robert Borden's attention and that the plant will probably be located on the Atlantic seaboard.

The St. John Shipbuilding Co. is being organized at St. John, N.B., and will, it is said, be incorporated by Dominion charter, with an authorized capital of \$1,000,000. Thos. Nage is mentioned as the principal promoter.

Another project is spoken of for Newcastle, N.B., E. A. McCurdy being one of the promoters, and Lord Beaverbrook being mentioned as one of those interested.

International Shipbuilding Corporation Ltd. was incorporated recently, by Dominion charter, with authorized capital of \$2,000,000, and office in Montreal. The incorporators are all in the office of H. A. Lovett, K.C., there. It is said that United States people are interested among others.

Hamilton Shipbuilding and Ferry Co., a subsidiary of Canada Steamship Lines, Ltd., is said to be contemplating estab-

lishing a plant at Hamilton, Ont., and in this connection has informed the city council that a condition is that it should be given a lease of Wabasso Park, with a right to operate a ferry service.

The Canadian Shipbuilding Co.'s plant, which was established at Bridgeburg, Ont., as a Canadian General Electric Co.'s subsidiary, and which has not been operated for the past 10 years, or so, will it is reported, be started up again.

The National Shipbuilding Co., Ltd., has been incorporated, with an authorized capital of \$100,000, and office at Goderich, Ont., and will, it is said, take over the old Doty plant there.

Ocean & Inland Transportation Co., Ltd., has been incorporated under the Dominion Companies Act, with \$40,000 capital, and office at Montreal, to own and operate steam and other vessels, and to carry on a general navigation, salvage and towage business. The incorporators are: W. R. L. Shanks, F. G. Bush, G. R. Brennan, A. G. Yeoman and H. W. Jackson, Montreal.

The Australian Navigation Co., Ltd., incorporated under the Nova Scotia Companies Act, with office at Halifax, N.S., has been removed from the register and the company dissolved, as it is not carrying on business, and is not in operation.

H. Savigny, bridge tender on the Welland Canal, has been awarded \$300 for injuries sustained when the s.s. Mapleton collided with a bridge at Port Robinson last year.

The s.s. Westmount, which is being built for the Montreal Transportation Co. by the Collingwood Shipbuilding Co., will be launched on Apr. 5.

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

Week ending Mar. 9, 1917.	Wheat.	Oats.	Barley.	Flax.	Totals.
	bushels.	bushels.	bushels.	bushels.	bushels.
Port William—					
C.P.R.	4,558,271	2,126,112	228,587	.....	6,912,970
Consolidated Elevator Co.	1,033,785	238,839	38,772	179,761	1,491,157
Empire Elevator Co.	844,647	299,695	40,390	253,915	1,438,647
Ogilvie Flour Mills Co.	1,174,051	68,793	35,409	.....	1,278,253
Western Terminal Elevator Co.	907,767	296,006	35,367	479,857	1,718,497
G. T. Pacific	3,240,888	2,202,249	132,679	83,986	5,659,802
Grain Growers' Grain Co.	1,234,283	779,649	96,266	.....	2,110,198
Port William Elevator Co.	832,943	456,514	28,425	63,118	1,381,000
Eastern Terminal Elevator Co.	1,038,088	575,238	28,163	.....	1,636,489
Thunder Bay Elevator Co.	675,836	381,238	60,376	66,087	1,383,537
Davidson & Smith	603,989	252,383	12,533	.....	868,905
Port Arthur—					
Port Arthur Elevator Co.	4,690,718	2,559,421	417,452	166,039	7,833,630
D. Horn & Co.	267,784	143,401	29,852	140,473	581,510
Dominion Government Elevator	2,018,539	724,047	87,597	146,029	2,976,212
Grain afloat	89,245	101,331	.....	.....	190,576
Total terminal elevators	23,205,834	11,204,916	1,271,868	1,578,765	37,261,383
Saskatoon Can. Govt. Elevator	2,209,952	666,967	37,132	67,079	2,981,130
Moose Jaw Can. Govt. Elevator	2,072,845	571,857	21,491	97,634	2,768,827
Calgary Can. Govt. Elevator	976,023	1,166,620	99,835	12,379	2,254,857
Vancouver Can. Govt. Elevator	4,758	57,051	.....	.....	61,809
Total interior terminal elevators	5,623,578	2,462,495	158,458	177,092	8,061,623
Depot Harbor . . . . .	.....	264,535	.....	.....	264,535
Midland—					
Aberdeen Elevator Co.	173,166	183,420	.....	.....	356,586
Midland Elevator Co.	17,961	.....	.....	.....	17,961
Tiffin, G.T.P.	459,288	532,971	93,109	.....	985,368
Port McNicol	469,391	834,848	51,104	.....	1,355,343
Collingwood . . . . .	.....	8,450	.....	*17,793	26,243
Goderich	556,201	178,083	.....	.....	734,284
Western Canada Flour Mills Co.	262,260	37,402	.....	.....	299,662
Kingston—					
Montreal Transportation Co. . . . .	.....	144,992	.....	.....	144,992
Commercial Elevator Co.	2,240	58,804	.....	.....	61,044
Port Colborne	606,249	808,668	.....	.....	1,409,917
Montreal—					
Harbor Commissioners no. 1	12,939	135,463	17,886	.....	166,288
Harbor Commissioners no. 2	404,520	103,652	61,767	.....	569,939
Montreal Warehousing Co.	236,261	1,062,223	1,247	.....	1,299,731
Quebec Harbor Commissioners	2,960	245,548	.....	.....	248,508
West St. John, N.B.	111,570	2,957	29,916	.....	144,443
Total public elevators	3,315,006	4,497,016	255,029	*17,793	8,084,844
Total quantity in store	31,784,418	18,164,427	1,685,355	1,755,857	53,407,850

*Rye.

Reinforced Concrete Vessel Building in Norway.

A letter from the United States Consul-General at Christiania describes the application of reinforced concrete at a plant in Moss to the construction of vessels of relatively large displacement—up to 3,000 tons. The following quotations from the letter indicate the extent of the new development in the concrete field in Norway: "The inventor of this new style of vessel is said to be M. N. Fougner, an engineer, who claims to be able to build a ship of any size demanded. He is now building a lighter for a mining company at Sydvaranger for the oversea export of iron ore and the import of coal. The vessel, having a displacement of 3,000 tons, is to be ready before the end of this year. It is stated that these concrete ships can be sailed or engine like other vessels, and experts consider that a new epoch in shipbuilding has arrived. "The ship, which arrived in Christiania last month, resembles a large barge, and is constructed entirely of concrete, with the exception of the ribs, which are of steel. This new method of constructing ships has attracted much attention. The Swedish Minister of Marine, M. Brostrom, one of Sweden's largest ship owners, immediately ordered a lighter of some thousand tons displacement, and he was present when it was launched at Moss. He was accompanied by four experts, all of whom expressed much satisfaction at the result. Two other lighters are on the stocks, and a large slip for a 4,000 ton craft is nearly completed. More than 200 men are working in the new yards, and five lighters have been contracted for in addition to the one completed and the two on the slips."

The Storstad-Empress of Ireland Collision.—The question as to whether the collision between the steamships Storstad and Empress of Ireland, which took place May 29, 1914, off Father Point, in the St. Lawrence, occurred within Canadian coastal waters or on the high seas, was settled by Mr. Justice MacLennan in the Admiralty Court at Montreal, Mar. 17, when he decided that it was more than three miles from the nearest coast line, and therefore on the high seas. This brings the settlement of claims under the Merchants Shipping Act of Great Britain, and the claims for loss of life have preference over all others. These total \$3,069,483. In addition to these there are claims for lost property, and one of \$2,500,000 by the C.P.R. for the loss of the Empress of Ireland and her cargo. The amount available for distribution, resulting from the sale of the Storstad, is \$175,000. The Storstad was engaged in the St. Lawrence coal trade for several years, and subsequent to the Empress of Ireland disaster, and to her sale, she was involved in another collision in the St. Lawrence. Since the commencement of the war she has been chartered for overseas trade, and was torpedoed by Germans, early in March, while en route to Rotterdam with supplies.

British Insurance of Neutral Vessels.—It is reported from England that Great Britain is making arrangements to insure all neutral vessels trading with the United Kingdom, for the purpose of stimulating trade. It is stated that a rate of 2 1/10% will be made, comparing with the 10% flat rate charged by underwriters in New York, for vessels sailing for belligerent countries.

U.S. Water Supply Regulations on Great Lakes Vessels.

The Secretary of the Treasury for the U. S. has issued a circular to owners, agents and masters of vessels operating on the Great Lakes concerning drinking and cooking water on such vessels as follows:

"On and after the official opening of navigation in 1917, any person, firm or corporation operating vessels in interstate traffic on the Great Lakes will be required to furnish on such vessels water for drinking or culinary purposes under one of the following conditions: (a) If water for drinking or culinary purposes is not obtained ashore, it must be treated by an approved method. (b) If water for drinking or culinary purposes is obtained ashore, it must be from an ap-

The Dominion Marine Association Expresses Its Appreciation.

The following is an extract from the Dominion Marine Association's executive committee's annual report, presented at the annual meeting in Toronto, Feb. 15, 1917, over the signatures of the President, W. E. Burke, Assistant Manager, Canada Steamship Lines, Ltd., and the Counsel, Francis King, M.A., of Kingston, Ont., and which was unanimously adopted:

"Canadian Railway and Marine World.

"The proprietor of this publication having formally offered the use of its columns for such items of news as the association would care to publish, your committee gratefully accepted the offer and adopted the following resolution:

"That in view of the thorough manner in which Canadian Railway and Marine World covers the marine field throughout Canada, the care which it exercises to secure accuracy, and the way in which its columns are freely at the Dominion Marine Association's disposal, it is hereby appointed the association's official organ."

proved source. On and after the official opening of navigation in 1917, the piping system on all vessels must be so arranged that no connection can be made between the drinking water system and any other water system. On and after the official opening of navigation in 1917, an approved sign, reading 'Do Not Drink This Water,' must be properly placed at every tap or other outlet not connected with the drinking water system."

A question has arisen as to whether this regulation will apply to any Canadian vessel sailing out of a U. S. port. It would appear that it will apply only to vessels engaged in interstate commerce, and that unless the regulation is extended in its operation, it will not affect Canadian vessels which cannot engage in interstate traffic. The Dominion Marine Association is going into the matter with the U. S. authorities.

St. John Shipbuilding Co.—It is reported that a company of this name, with a capital of \$1,000,000, is in process of organization at St. John, N.B., and will shortly be incorporated under the Dominion Companies Act, to build, own and operate wooden vessels, and later on steel ones.

Stranding of the s.s. Prince John.

Following is the judgment of Capt. C. Eddie, Commissioner, concurred in by Capt. J. McLeod and Commander J. T. Shenton, R.N.R., delivered at Vancouver, B.C., Feb. 28, regarding the stranding of the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince John in Wrangell Narrows, Jan. 26. The court considers that navigation of the Wrangell Narrows must be regarded in the light of pilotage only, and it is quite evident that an intimate knowledge of the tides, buoyage and leading marks is an absolute necessity. From the evidence it would appear that the vessel was navigated with due caution, and the court considers that by keeping in view the water the vessel was drawing, 13 1/2 ft., the state of the tide, and the weather conditions, the master was justified in running the narrows. The immediate cause of the stranding resulted from a slight error of judgment on the master's part in not allowing sufficiently for the strength and set of the tide in negotiating the channel between Green Island and the buoy off Rock Point. The presence of ice in the channel contributed in no small measure towards rendering the aids to navigation ineffective, especially the spar buoys. The conduct of the master and crew, after the stranding, was highly commendable, prompt action being taken to inspire confidence in the passengers and to ensure the vessel's safety. The court considers that there is no ground for dealing with the certificates or the master or first mate and returns them forthwith.

After War Demands on Atlantic Shipping.—A London, Eng., press correspondent cabled recently: "That it will take almost two years to return to Canada, troops and stores across the Atlantic, and possibly longer, if arrangements are not made to get Dominion Government control over sufficient present tonnage or to arrange for the building of a standard Canadian Government fleet, is the estimate of a British shipping man who is not unconnected with the trans-Atlantic trade. In view of this fact, I learn that a committee is being formed in London to look into the matter. Long after peace is declared the tonnage on the Atlantic will be enormous. According to my informant, not only the allied countries will have to be looked after, with millions of pounds of goods now stacked up for want of transportation facilities, but Germany and her dupes will also require a large amount of tonnage. It is stated that the authorities will start a campaign shortly to encourage the wives and families of Canadian soldiers who are now resident in Britain to return home while steamship facilities are still available."

International Shipbuilding Corporation Ltd. has been incorporated under the Dominion Companies Act, with \$2,000,000 capital, and office at Montreal, to build, own and operate steam and other vessels, wharves, dry docks, docks, elevators, tramways, railways, etc., and to engage in a general navigation business. The incorporators are H. A. Lovett, K.C., G. W. Cole, N. Sheach, B. F. Bowler and P. F. Brown, Montreal.

Malahat Motorship Co., Ltd., has been incorporated under the British Columbia Companies Act, with \$100,000 capital, and office at Victoria, to build, own and operate all kinds of vessels, and to carry on a general vessel owning and navigation business.

Atlantic and Pacific Ocean Marine.

The Cunard Steamship Co. is announced to have received from the builders in England an addition to its fleet, named *Aurania*, sister vessel to the *Andania*. It is also reported that the company has placed orders for 4 steamships in the U. S., 2 to be built on the Atlantic coast and 2 on the Pacific coast.

The C.P.R. s.s. *Monteagle* arrived at Victoria, Mar. 6, from Yokohama, Japan, for the first time after her annual overhaul at Hong Kong, China. Several alterations have been made in the passengers' accommodation, chiefly in the addition of a ladies' lounge and the removal of the smoking room.

The Ulster Steamship Co.'s s.s. *Bray Head* was sunk by enemy torpedoes, Mar. 14, whilst en route from St. John, N.B., to Belfast. She sailed from St. John, Mar. 1, with a general cargo. At the time of writing (Mar. 22) the captain and the majority of the crew were reported as missing. The *Bray Head* was built at Belfast, Ireland, in 1894, and was 2,854 tons gross.

The Norwegian Government has decided to remove all so called neutrality markings from Norwegian vessels, as it has been shown that not only do such markings afford no protection from German interference, but actually make them an easy mark for submarine attack, being approached with impunity and attacked at leisure, whilst vessels without such markings are dealt with more warily.

Sir William Mackenzie, President, Canadian Northern Ry., is reported to have stated in Victoria, B.C., recently, in speaking of the projected Pacific Ocean service by the Cunard Steamship Co., which has already been mentioned in previous issues, that the Cunard Steamship Co. has placed orders for steamships to be built at Seattle, Wash., and that he believed they will, when ready, be placed in Pacific Ocean service.

A press report from St. John, N.B., stated recently that it was rumored that that port was to be the main outlet for the C.P.R. Atlantic service during the summer, and that freight from the west would be routed through to St. John for shipment, instead of being shipped from Montreal and Quebec, as heretofore, J. T. Walsh, Marine Superintendent, stated, Mar. 13, that C.P.R. vessels will run, as usual, to Montreal during the summer.

The Cunard Steamship Co.'s s.s. *Folia* was torpedoed and sunk by the enemy, off the Irish coast, Mar. 11. She was originally known as *Principe di Piedmonte*, and was built at Sunderland, Eng., in 1907, and was 6,356 gross tons, 4,044 register tons. She was purchased by Canadian Northern Steamships, Ltd., in Dec., 1913, renamed *Principello*, and leased to the Uranium Steamship Co., in which C.N.S., Ltd., was interested. In May, 1914, *Principello Steamships, Ltd.*, was incorporated to own the vessel, which, from the outbreak of the war to the sale of Canadian Northern Steamships, interests in May, 1916, was operated by Canadian Northern Steamships, Ltd.

A bill is before the Ontario Legislature in the interests of the City of Niagara Falls and Stamford Township, providing for the deepening of the Welland River from where it joins the Welland Ship Canal, to or near Lot 211, Stamford Tp., so that vessels may navigate safely. Amongst the work necessitated

would be the construction of a dam and lock at Lot 211, Stamford Tp., instead of at Port Robinson, as originally designed. It is proposed to create a commission, consisting of the mayor of Niagara Falls and the reeve of Stamford Tp., with powers to acquire land and raise money for the purpose desired, the expense to be borne in the proportion of three-fifths by Niagara Falls and the balance by Stamford Tp.

The American Star Line's s.s. *Algonquin*, which was sunk by a German submarine, Mar. 12, while en route from New York to London, was formerly a Canadian vessel. She was built at Glasgow, Scotland, in 1883, for the Canadian Northwest Steamship Co., Port Arthur, Thos. Marks & Son, managing owners, was purchased some years later by the St. Lawrence & Chicago Steam Navigation Co., and in 1912 was sold to the Port Colborne & St. Lawrence Navigation Co., a subsidiary of the Maple Leaf Milling Co. In 1915 she was purchased by A. B. Mackay, Hamilton, Ont., and subsequently sold to the American Star Line. Her dimensions were: length 245 ft., breadth 40 ft. 1 in., depth 20½ ft.; tonnage, 1,806 gross, 1,172 register.

The s.s. *Dundee* was torpedoed, Jan. 31, while en route from London, Eng., to Swansea, in ballast. The master, 21 men and the pilot were landed at Penzance on the same day, the second engineer was injured, and one fireman was killed. She was built in 1906 at Dundee, Scotland, for R. O. & A. B. Mackay, Hamilton, Ont., and was owned by the Dundee Steamship Co., Ltd., until she, with other of the Mackay vessels, was taken over by Inland Lines, Ltd., which company was eventually absorbed by the Richelieu & Ontario Navigation Co., now Canada Steamship Lines, Ltd. She was built on the channel system, with steel tank top where no wood ceilings are fitted, steel boiler house, two non-water-tight bulkheads, steam pump wells, and was equipped with complete electric light plant. Her motive power consisted of triple expansion engines with cylinders, 17½, 33 and 54 in. diam., by 36 in. stroke, 1,200 i.h.p. at 67 r.p.m., and supplied with steam by two Scotch boilers, 11 by 15 ft., at 180 lbs. The s.s. *Dundee*, with a number of other vessels owned by the company, was chartered for ocean service soon after the commencement of the war.

Great Britain Leases Greek Ships.—It is reported that Great Britain is arranging to lease Greece's merchant shipping on the basis of 30 shillings a ton per month, and insure them to the extent of £30 to £40 a ton. They will be leased for the duration of the war and six months later. Greece is to deposit a quarter of the vessels' value in London as a surety for the carrying out of the terms of the lease, and if it is unwilling to do this, the vessels will be commandeered at the rate of 7 shillings a ton. It is stated that there are about 700,000 tons of such shipping available, now being held in British and allied ports.

Quinte Steamships, Ltd., has been incorporated under the Ontario Companies Act, with \$40,000 capital, and office at Trenton, Ont., to own and operate steam and other vessels of every description, to carry on a general navigation and transportation business, etc. The provisional directors are: H. Dempsey, Ameliasburgh Tp.; H. R. Cory, J. C. Young, G. Alford and J. E. Rathbun, Trenton, Ont.

Maritime Provinces and Newfoundland.

The Reid Newfoundland Co.'s s.s. *Sagona* ran ashore in the Main a Dieu passage, Cape Breton, N.S., early in March. She was reported to be in on danger and the passengers and crew were removed in safety.

The C.P.R. will operate the s.s. *Empress* on its Bay of Fundy service, between St. John, N.B., and Digby, N.S., daily except Sunday, throughout the summer, leaving St. John and Digby at 7.15 a.m. and 2.15 p.m., and arriving at Digby and St. John at 10.15 a.m. and 5.15 p.m.

The Governor in Council has approved the Halifax Pilot Commissioners' amendment to a bylaw, dated Apr. 8, 1910, providing for the payment of \$1,000 instead of \$800 a year, to the Secretary Treasurer of the Commissioners. Payment of \$1,000 a year has been made illegally from Apr. 8, 1910, as the approval of the Governor in Council had not been previously obtained. The approval now given legalizes the payments illegally made.

The sealing fleet which left St. John's, Nfld., early in March, for the sealing grounds on the east coast of the island, and in the Gulf of St. Lawrence, consisted of 10 wooden and 2 small steel vessels. The large steel steamships usually used in this service are engaged at present by the Russian Admiralty in the White Sea.

The Boston & Yarmouth Steamship Co.'s s.s. *Yarmouth* is reported to have been sold to New York parties for service between New York and the West Indies. She is to be overhauled and refitted for that service in New York. She was built at Dumbarton, Scotland, in 1887, for the Dominion Atlantic Ry., and is screw driven by engine of 260 n.h.p. Her dimensions are: length 220.3 ft., breadth 35.2 ft., depth 21 ft.; tonnage, 1,452 gross, 725 register. She was operated, in connection with the Dominion Atlantic Ry., from Yarmouth, N.S., to Boston, Mass.

The National Shipbuilding Co., Ltd., has been incorporated under the Dominion Companies Act, with \$100,000 capital stock, and office at Goderich, Ont., to carry on a general shipbuilding, engineering and boiler making business. The incorporators are: W. H. Hutchinson, St. Catharines, Ont.; R. G. Stewart, E. A. Larmonth, J. D. Cunningham and L. Cote, Ottawa. W. H. Hutchinson, who is chiefly interested in the company, is a member of Baldry, Yerburch & Hutchinson, Ltd., contractors for section 2 of the Welland Ship Canal. It is reported that, on behalf of the company, he has purchased the property formerly operated by the Doty Marine & Engine Co., at Goderich, from the town, which took it over from the old company, in default of payments due. It is stated that the amount paid for the property is about \$30,000.

A dispatch from Cleveland, Ohio, states that there will be an addition of 16 to the number of U. S. vessels on the Great Lakes equipped with wireless telegraphy. In all, 70 vessels will be so equipped, to keep in touch with 15 land stations of the Marconi Co., and with the U. S. station at Great Lakes, Ill. Another Marconi station is under construction at Alpena, and is expected to be ready for operation about May 1.

Province of Quebec Marine.

The Inland Revenue Department received tenders to Mar. 22, for the privilege of ferrying across the Ottawa River between Rockcliffe, Ont., and Gatineau Point, Que.

The Dominion Government is calling for tenders for a steamship service between Quebec and Harrington, to consist of four regular sailings from Quebec to Natashquan, one each month to Harrington Harbor, and one trip each season to Blanc Sablin.

The lightship no. 12, heretofore maintained at the junction of the St. Lawrence River ship channel, and the Ottawa River steamboat channel, near Dorval, has been withdrawn, as also has lightship no. 13, hitherto stationed about a mile above the Dixie front range lighthouse. On the reopening of navigation, gas buoys will be placed.

It is expected that work will be completed during April by Canadian Vickers, Ltd., on two covered shipbuilding berths, which will double the capacity of the plant at Maisonneuve. The dimensions of these sheds are 500 x 128 ft., and 400 x 100 ft., respectively, and they will enable vessels of approximately 12,000 tons to be built there.

The Canadian Government Railways car ferry Leonard, operating across the St. Lawrence, was caught in the ice, towards the end of February, and suffered propeller and other damages. One car of gasoline broke loose and fell overboard, broke through the ice and sank. The Leonard was subsequently towed to the Davie dock at Point Levis, by the Dominion Government s.s. Lady Grey, and the Quebec and Levis Ferry Co.'s s.s. Polaris, where the damage was repaired.

Ontario and the Great Lakes.

Forwarders, Ltd., Kingston, will not operate any steamships on the Great Lakes this year, both of its vessels, Port Colborne and W. H. Dwyer, being in other service overseas.

The Imperial Oil Co. has entered action at Toronto, against Canada Steamship Lines Ltd., for \$100,000 for negligence whereby the s.s. Midland Prince collided with, and damaged the s.s. Imperial.

The Port Huron and Sarnia Ferry Co.'s s.s. Hiawatha is being overhauled, and practically rebuilt prior to entering summer service. The space for automobiles and other vehicles is being considerably increased.

The Ontario Legislature is being asked to confirm a bylaw by the ff SHR ed to confirm a bylaw passed by the ratepayers of Midland, granting aid to the Midland Dry Dock Co. Ltd., for the maintenance of its plant there.

A press dispatch from St. Catharines states that the Department of Railways and Canals is releasing all engineers and office staffs engaged on the construction of the Welland Ship Canal, by Apr. 1. It has already been decided to discontinue the work for the present.

The Dominion Marine Association has recommended the extension of the north-west breakwater at Goderich, by some 400 or 500 ft. farther out in the same line at its western end, thus maintaining the width of the entrance and giving additional protection to the harbor from westerly seas.

The Northern Navigation Co. announce that the s.s. Rochester, owned by Canada

Steamship Lines, Ltd., will be operated Bay ports. The alterations on the steamships Noronic, Hamonic, and Huronic are being pushed forward, and it is expected that the full service will be in operation during the latter half of April. The plan of having a matron on board the company's vessels will be continued.

The U. S. Lake Survey reports the levels of the Great Lakes in feet above mean sea level for February as follows: Superior, 602.42; Michigan and Huron, 580.49; St. Clair, 574.87; Erie, 571.35, and Ontario, 245.08. Compared with the average February levels for the past ten years, Superior was 0.68 ft. above; Michigan and Huron, 0.62 ft. above; Erie, 0.34 ft. below, and Ontario, 0.57 ft. below.

The Canadian Dredging Co., Keen & Millman, and D. Sullivan, Midland, took action recently against the barge Mike Corry, which ran aground near Midland in July, 1916, for services in the salvage operations. The claims are for \$800, \$195 and \$200 respectively. The barge was sold by order of the Admiralty Court, and the proceeds paid into court, but the amount received is not sufficient to meet the claims. Judgment was reserved.

The Welland Board of Trade on Mar. 7 passed a resolution recommending that the Department of Railways and Canals begin at once the necessary surveys for the building of a canal and river system of waterways from the foot of Lake Ontario to Montreal, of a character and capacity to conform to the plans of the Welland Ship Canal, now under construction, so that the work may be undertaken as soon as possible after the termination of the war.

The s.s. G. R. Crowe, which sailed from New York, Mar. 5, for an unnamed destination, ran aground on the east bank of the Ambrose Channel, off Coney Island. She was formerly owned by the St. Lawrence & Chicago Steam Navigation Co., Toronto, and was sold at the end of 1915 to A. B. Mackay, Hamilton, Ont., and was subsequently reported to have been sold to U. S. parties, and it was said that she was to be converted into an oil tank vessel for service to the Gulf of Mexico.

Since Jan. 1, 1916, the Marconi Wireless Telegraph Co. of Canada has equipped the following vessels operating on the Great Lakes, with wireless telegraphy: Charlton and Reginald, Victoria Harbor Lumber Co., Toronto; Glenshee, Great Lakes Transportation Co., Midland, Ont.; Riverton, Mathews Steamship Co., Toronto; James Reid, Reid Wrecking Co., Sarnia, Ont.; Iocolite, Reginald, Sarnolite, Royalite and Talaralite, Imperial Oil Co., Sarnia, Ont.; Turbinia, Rochester, Rapids King, Canada Steamship Lines, Ltd., Montreal; and the steamships Schoolcraft, G. R. Crowe and Luz Blanca.

The Montreal Transportation Co. has bought the s.s. Omega from the Omega Transportation Co., Detroit, Mich., and has renamed her Glenmount. She was first named Fayette Brown and was built at Wyandotte, Mich in 1887 and lengthened in 1896. She is of composite construction with double bottom, three watertight bulkheads, steel boiler house and two cargo compartments with hatches spaced 24 ft. centres. The propelling machinery consists of triple expansion engines with cylinders 19, 30 and 52 ins. diam., by 40 ins. stroke, 700 i.h.p. at 80 r.p.m., driving a propeller, and supplied with steam by two Scotch boilers 11 by 11 ft. at 150 lbs. Her dimensions

are, length 306 ft., breadth 40 ft., depth 21 ft. 5 ins.; tonnage, 2,080 gross, 1,217 register.

Manitoba, Saskatchewan and Alberta.

The Peace River Tramway and Navigation Co. is reported to be planning for the placing of additional steamboats in the Peace River below the Chutes, and also on the Mackenzie River, this year. Last year the company built and placed in operation the s.s. D. A. Thomas. It is controlled by interests associated with Lord Rhondda (D. A. Thomas), who is interested in railway, oil and coal mining companies along the Peace River.

British Columbia and Pacific Coast.

The s.s. Kingsway, owned by the Steamer Kingsway, Ltd., Vancouver, arrived there recently with 20,000 lbs. of halibut from the northern banks.

The C.P.R. s.s. Princess Mary was taken off her run between Vancouver and Victoria, early in March for a general overhaul, and was replaced by the s.s. Princess Alice.

The C.P.R. is having two car floats built for its service between the main land and Vancouver Island. They will be of wood, 150 ft. long, 46 ft. broad, and 12 ft. deep, with capacity for 9 cars each.

H. R. Babington, of Prince Rupert, is reported to be negotiating for the purchase of the s.s. Queen City, formerly owned by the C.P.R. It is stated that he proposes to operate her between Prince Rupert and Queen Charlotte Islands.

The Grand Trunk Pacific Coast Steamship Co. will continue its service to Alaska. This service which was inaugurated last year was, in every way, successful. The steamships Prince George and Prince Rupert will be engaged on the route.

The C.P.R. is reported to have called for tenders for the building of a large freight barge of about 1,200 tons capacity, for bulk freight towage. It is stated that the plans provide suitable accommodation for engines, should it be decided to install them later on.

The Governor in council has approved the Vancouver Harbor Commissioners' bylaws 116 and 117, providing for the rates to be charged for all goods landed on or shipped over any wharf under the Commissioners' jurisdiction, and for storage, unloading and handling.

The repairs to the C.P.R. s.s. Princess Patricia, necessitated by her stranding on the Spanish Banks, while on her run between Vancouver and Nanaimo, were completed at Victoria at the end of February. Eight plates were removed on the starboard side and replaced, and 20 floor beams required straightening.

The Marine Department has established a gas lighted beacon on the outer edge of the Ogden Point breakwater at the entrance to Victoria harbor. It was expected that the light would be placed in operation about April 1, when the gas and bell buoy previously in operation near that point is to be withdrawn.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince John, which stranded in the Wrangell Narrows in January, was repaired at North Vancouver, and was replaced in service, Mar. 3. An investigation into the cause of the casualty was opened Feb. 28, the judgment being given on another page in this issue.

It was reported in Victoria recently that one of the questions which will be

taken up in England, during the visit of the Prime Minister and the Minister of Public Works, is that of constructing a dry dock at Esquimalt. It is stated that should the British Admiralty consider that such work is a necessity, orders will be given at once to make an immediate start on it.

The maintenance of the lights, buoys, and beacons along the coast is being attended to by the Dominion Government steamships Estevan, Leebro, and Newington, this year. The Newington is replacing the s.s. Quadra, which was wrecked last year. As mentioned in our last issue, the Government has placed \$150,000 in the estimates for the current year for the construction of two steamships to take the place of the Quadra, but, such construction is to remain in abeyance for the present.

The second of the auxiliary powered vessels which are under construction at North Vancouver, for the Canada West Coast Navigation Co., was launched Mar. 6, and named Geraldine Wolvin. The previous vessel launched at North Vancouver was named Mabel Brown. Other vessels for the same company are under construction on the Island, the Margaret Haney having been launched there a few weeks ago, and the Laura Whalen on Mar. 19. The fifth vessel to be launched will be the Jessie Norcross at North Vancouver, early in April.

In our last issue mention was made of the Victoria Board of Trade's complaint that vessels built at Victoria for Canada West Coast Navigation Co., were registered at Vancouver. Representations made by the board to the company elicited the statement that it was customary, wherever possible, that all vessels of a fleet be registered at the same port, and the company's financial arrangements had all been made on the basis of a Vancouver registry, where the company's head office is located. It was also stated that the interests managing the company hope to build another two vessels at Victoria, which would not be for Canada West Coast Navigation Co., when Victoria registry would probably be arranged.

The Panama Canal through Culebra Cut is said to be now in better condition than ever before. The cut, which has been dredged through the slides, has a minimum depth of 33 ft. and the least width of a channel of 30 ft. depth is 180 ft. at the point opposite Gibraltar rock. This rock projects into the channel about 110 ft., and extends along the channel about 200 ft. It has been blasted away until it now rises only about 30 ft. above the water. Two dredges are at work on the removal of this rock and are dredging behind it to prevent its being pushed forward. Work of the dredging force of the canal on Sundays and holidays was discontinued on Dec. 3, except for the force engaged in blasting at Gibraltar. Since June 1, 1915, dredging was carried on in the cut continuously with three shifts a day, including Sundays and holidays until Dec. 3.

Lakeside Coal & Transportation, Ltd., has been incorporated under the Dominion Companies Act, with \$50,000 capital, and office at Montreal, to carry on a general coal and navigation business.

The Marine Navigation Co. of Canada, Ltd., has been incorporated under the Dominion Companies Act, with \$50,000 authorized capital, and office at Montreal, to carry on a general steamship and navigation business.

Mainly About Marine People.

Capt. John Bonar, a well known master on the Great Lakes and the Bay of Quinte, died at Cobourg, Mar. 5, aged 83.

F. S. Spence, who was, for some years prior to 1911, member of the Toronto Harbor Commission, died at Toronto, Mar. 7.

James S. Paige, formerly associated with the Fore River Shipbuilding Co., Quincy, Mass., has been appointed General Manager, Port Arthur Shipbuilding Co., Port Arthur, Ont.

Senator H. W. Richardson, Kingston, Ont., Vice President, Great Lakes Transportation Co., has been appointed a member of the Provincial Resources Committee, constituted by the Ontario Legislature's authority.

Lt. Col. W. P. Anderson, C.M.G., Chief Engineer Marine Department, was on a trip of inspection along the British Columbia coast during March and spent some time looking over the various proposals for harbor development at Vancouver.

C. Gregoir, Superintendent of the Port Arthur Shipbuilding Co.'s dry dock, Port Arthur, Ont., was presented with a diamond ring by the employes, Mar. 14, on leaving Port Arthur for Buffalo, N.Y., where he has been appointed Superintendent, Buffalo Dry Dock Co.

Capt. J. N. P. Ritchie, who died at Victoria, B.C., recently, aged 58, was formerly master of the C.P.R. s.s. Princess Patricia. He was born at Yarmouth, N.S., and commenced his sea life in 1875 on Atlantic sailing vessels. He settled in British Columbia in 1893, and was, for some time, master of the s.s. Joan, owned by the Esquimalt & Nanaimo Ry. Subsequently he served with the Canadian Pacific Navigation Co., and remained in the service when that company was taken over by the C.P.R.

Capt. Gilbert Johnston, Consulting Engineer, Canada Steamship Lines, Ltd., Montreal, died there, Mar. 13, aged 64, after a prolonged illness. He was born at Kingston, Ont., the son of Gilbert Johnston, foreman at the Calvin Co.'s shipbuilding yard at Garden Island. He entered the steamboat business at an early age, and was eventually master of the s.s. Hero. In 1894 he was appointed Mechanical Superintendent, Richelieu & Ontario Navigation Co., Montreal, retaining that position on the taking over of the company by Canada Steamship Lines, Ltd., until his practical retirement from active service in Apr., 1916, when he was appointed Consulting Engineer.

W. E. Burke, Assistant Manager, Canada Steamship Lines, Montreal, who has been elected a director of the company, was born at Belleville, Ont., Sept. 23, 1881, and entered steamships service May 1, 1905, since when he has been, to Dec. 1, 1905, purser, s.s. Picton, Richelieu & Ontario Navigation Co., Montreal to Toronto; Dec. 1, 1905, to Dec. 31, 1906, Soliciting Freight Agent, same company, Toronto; Dec. 31, 1906, to Dec. 31, 1907, Travelling Freight Agent, same company, Toronto; Dec. 31, 1907, to Apr. 10, 1909, Travelling Freight Agent, Mutual Steamship Co., Toronto; Apr. 10, 1909, to Apr. 1, 1910, General Freight Agent, Merchants Mutual Line, Toronto; Apr. 1, 1910, to Jan. 1, 1914, Traffic Manager, same company, Toronto; from Jan. 1, 1914, Assistant Manager, Canada Steamship Lines, Ltd., Montreal. He was President, Dominion Marine Association, for 1916.

Denis Murphy, President, Ottawa Transportation Co., died at Ottawa, Mar. 12 after an illness of several months, owing to a growth on the spleen. He was born at Cork, Ireland, Apr. 2, 1842, came to Canada in 1849, and was educated at Chatham, Que. He entered transportation service in 1856 as purser on McPherson & Crane's steamboat plying between Montreal and Kingston and was subsequently master of a steamship on the same route. In 1865 he was engaged by the Montreal & Ottawa Forwarding Co. as master of one of its steamships, and in the following year was appointed Ottawa manager of that company's business. In 1880 he entered the towing and transportation business in partnership with J. W. McRae and A. A. Buel, and traded as D. Murphy & Co. On account of the growth of the business, the Ottawa Transportation Co. was incorporated in 1892, with D. Murphy as President, which position he held to the time of his death. From 1902 to 1906, he was one of the members for Ottawa in the Ontario Legislature, and was a member of the Timiskaming & Northern Ontario Railway Commission from 1905. He was one of the largest shareholders in the Ottawa Electric Ry., and was identified with that company almost from its inception. Amongst other transportation concerns with which he was connected were: Shawinigan Water & Power Co., Montreal Terminal Ry., Chateauguay & Northern Ry., Canadian Railway Accident Insurance Co., etc. Brevet Colonel G. P. Murphy, C.M.G., his only son, formerly Managing Director of the Ottawa Transportation Co., is at home on leave from his military duties.

Shipbuilding Encouragement in Nova Scotia.—The Lieutenant Governor's speech from the throne, at the opening of the Nova Scotia Legislature recently, contained the following paragraph:

"It is most gratifying to observe, in almost every portion of the province, renewed activity in shipbuilding. The adaptability of the people of Nova Scotia to assist in providing ocean transportation is well recognized, and it is confidently hoped that our province will again become a ship building centre. It would be a matter for satisfaction if the present demand for tonnage resulted in the establishment of a permanent steel ship building industry in this province. The question of offering further aid to this end is engaging the government's serious attention."

Government Vessel for Pacific Coast Trade.—Ottawa press dispatch, Mar. 22.—For some time negotiations have been conducted by the Railways Department for the purpose of establishing steamship communication between Atlantic and Pacific ports. A contract has been made with the Wallace Shipyards, Ltd., of North Vancouver, for a vessel, 225 ft. long, with a freight capacity of 2,500 tons, to cost about \$200,000, and to be delivered within the next 10 months. Negotiations are in progress to have a similar vessel built in Victoria.

Requisitioning of Canadian Vessels.—In response to a question in the British House of Commons, Mar. 7, the information was given that the requisitioning of British vessels registered in the Dominions was under discussion with the Dominions' representatives then in England. In the meantime an arrangement had been made with the Canadian Government, under which no Canadian vessels were requisitioned except through or by the Canadian Government.

British Columbia Shipbuilding Commissioners Report.

The Commissioners appointed by the B.C. Government to administer the B.C. Shipping Act, have presented their first report over the signatures of H. P. Thompson, Superintendent, and W. J. Goepel, Deputy Finance Minister, as follows: Under section 53 of the act we have received application for the following ships: 1 Mabel Brown, 2 Geraldine Wolvin, 3 Jessie Norcross, 4 Marie Barnard, 5 Mabel Stewart, 6 Janey Caruthers, 7 Margaret Haney, 8 Laurel Whalen. All of these boats are being built for the Canada West Coast Navigation Co., Ltd., and are of the same standard size and specifications, which are as follows: Five-masted auxiliary schooners, length over all, 260 ft.; beam, 44 ft.; depth of hold, 19 ft. They will be equipped with auxiliary power, using oil-fuel, Bolinder type of engines which will develop 320 h.p. Under normal conditions the ships will make a speed of 7 knots under engine power and will each require a crew of about 15. The cargo-carrying capacity is estimated approximately at 1,500,000 ft. of lumber. The approximate cost of each of these vessels when completely equipped will be about \$200,000. They are informally advised that applications will be made for four additional ships of the same size and specifications, the engines, material and equipment having been purchased for their construction.

They are being constructed according to plans passed and under special survey of Lloyd's, with a view to obtaining the highest class in the register. They are being built under the supervision of Lloyd's surveyor, and when completed will be classed A1 for 12 years.

Ocean Steamships for Dominion Government.—With reference to the announcement made by the Minister of Customs recently, and which was dealt with in Canadian Railway and Marine World for January, as to the building of two steamships for the Dominion Government for service between the Pacific and Atlantic coasts, via the Panama Canal, we are officially advised that it has been decided to build two wooden vessels, and that contracts have been prepared and sent to those who are offering to build them, for consideration and signature. As soon as they are returned signed, the Minister will also sign and the matter will be completed. There is no truth in the reports that the Government is considering the purchase of a fleet of steamships, nor that it has made any purchase of vessels.

The George Hall Coal & Transportation Co. has been incorporated at Ogdensburg, N.Y., with authorized capital of \$1,500,000, to take over the steamships, and terminals at Ogdensburg, Prescott, Ont., and Montreal, heretofore operated by the George Hall Coal Co., and the George Hall Coal Co. of Canada Ltd., and to transport soft coal between Lake Ontario and St. Lawrence River ports.

First Steamship at Toronto.—The Kingston, Ont., Gazette of June 17, 1817, stated that the Frontenac, a steamboat launched at Ernestown in Sept., 1816, had left on her first trip to the head of Lake Ontario on June 5, and would commence a regular service between Kingston and Queenston, calling at York (Toronto), on June 22, 1817.

Telegraph, Telephone and Cable Matters.

G. D. Perry, General Manager, Great Northwestern Telegraph Co., returned to Toronto, Mar. 25, after spending three weeks in Florida.

H. Hulatt, Manager of Telegraphs, G. T. R. and G. T. P. R., addressed the Montreal Electrical Association, Mar. 7, on the position of the inefficient after the war.

John D. Gaines, Superintendent, Commercial Cable Co.'s station at Shanghai, China, and Mrs. Gaines, who have been visiting in Nova Scotia, have returned to China.

C. A. Tinker, who died at Winnipeg, Mar. 13, was for 27 years Eastern Manager, Western Union Telegraph Co., New York, and retired from active service about 15 years ago. He acted as confidential cipher telegrapher to President Lincoln of the U.S. during the civil war.

Dr. A. G. Bell, who invented the telephone at Brantford, Ont., has been awarded the Civic Forum gold medal at New York recently for distinguished public service. He is the third recipient of this medal, the others being General G. W. Goethals and T. A. Edison.

The Great North Western Telegraph Co. has opened offices at Cap Rosier and Port Alfred, Que.; and Arran, Englefield and Wartime, Sask., and has closed its offices at Banning, Bears Pass, Chaffey's Locks, Lake Joseph and Sparrow Lake, Ont., and Grand Beach and Victoria Beach, Man.

John Wilkinson, heretofore Assistant Superintendent, Commercial Cable Co.'s station at Waterville, Ireland, has been appointed Superintendent of the office at London, Eng., vice E. G. Phillips, deceased. He entered the company's service in Oct., 1884, and served as an operator at Liverpool, Eng., until Feb., 1891, when he was appointed Assistant Superintendent there, being transferred to Waterville, Ireland, in Aug., 1911.

Among the Express Companies.

A board of conciliation appointed under the Industrial Disputes Investigations Act to consider the Canadian Northern Ex. Co.'s employes' demands for increases in wages, etc., is reported to have effected a settlement, whereby certain increases are granted.

The Canadian Northern Ex. Co. has opened offices at Bears Pass and Ruel, Ont.; Arran, Englefield and Wartime, Sask.; Lanfine, Alta, and Chu Chua, B.C.; and has closed its offices at Perthuis, Que.; Orillia, Mornington, Uptergrove and Allans station, Ont.; Dropmore and Vista, Man.

The Central Canada Ex. Co., which operates over the Alberta & Great Waterways Ry., the Canada Central Ry. and the Edmonton, Dunvegan & British Columbia Ry., has become a member of the Express Traffic Association of Canada, and arrangements are being made whereby all other express companies may way-bill shipments through to that company's offices under the terms of the Express Classification for Canada.

The Board of Railway Commissioners has extended to express companies subject to its jurisdiction the arrangement whereby certain tariffs of freight or

passenger tolls may be filed with the board by agents, other than officials of companies acting jointly for two or more railway companies, provided such joint agents be duly authorized to act for the several companies by power of attorney, as set forth in general order 14, July 30, 1908 (order 5117).

D. I. Roberts, President, United States Ex. Co., in liquidation, has entered suit against the Baltimore & Ohio Rd. for \$950,361, for damages for breach of contract, under which, from 1887 to 1914, the U. S. Ex. Co. did business over the B. & O.R. It is claimed that from the commencement of 1912, the B. & O.R. did not accord the U. S. Ex. Co. the exclusive privilege as called for by the contract. D. I. Roberts was formerly General Manager at Montreal of the Quebec, Montreal & Southern Ry. and the Napierville Jct. Ry., subsidiaries of the Delaware & Hudson Co.

At the Express Traffic Association of Canada's last meeting in Montreal, the retiring chairman, W. H. Burr, Traffic Manager, Dominion Ex. Co., was given a silver loving cup by the members, in appreciation of the services he had rendered the association since its inception some nine years ago. The new chairman, J. Pullen, President, Canadian Ex. Co., in making the presentation, paid a high tribute to Mr. Burr, pointing out that the success of the association had been due in no small measure to the latter's personal efforts in furthering its interests. Mr. Burr, in reply, stated that his position had always been a most congenial one, and attributed the association's success to the co-operation of the members, rather than to his own exertions.

Gilbert E. Bellerose, whose appointment as Traffic Supervisor, Canadian Ex. Co., Winnipeg, was announced in our last issue, was born at Penetanguishene, Ont., July 15, 1884, and entered transportation service in Apr., 1902, since when he has been, to June, 1903, in Car Service Department, G.T.R., Toronto; June, 1903, to Oct., 1909, clerk and messenger, road service, Dominion Ex. Co., at various points; Oct., 1909, to Nov., 1911, similar positions, Great Northern Ex. Co., Vancouver, B.C., and Spokane, Wash.; Dec., 1911, to June, 1915, messenger, road service, and depot agent, Dominion Ex. Co., Nelson, B.C., and Calgary, Alta.; Feb., 1915, to Feb., 1917, messenger, road service, Canadian Northern Ex. Co., Winnipeg.

Trail Delivery Limits.—The Board of Railway Commissioners passed order 25954, Mar. 22, as follows: Re the establishment of delivery limits by the Dominion Express Co. in the City of Trail, B.C. Whereas order 13357, Mar. 30, 1911, as amended by order 16331, April 18, 1912, prescribes the municipal boundaries as the cartage limits of all points where express companies subject to the legislative authority of the Parliament of Canada now or hereafter have cartage services, with leave reserved to the companies to apply to the board for the establishment of modified cartage zones in cities, towns, or villages (if any) where for any special reasons it might be unreasonable to require such services to be made throughout the entire area thereof. Upon the consent of the said City of Trail, filed—it is ordered that, until further order, the tolls of the Dominion Express Co. include the delivery of express freight on both sides of the following thoroughfares, in the city, viz.: Bay Ave.

from Victoria St. to Lot 7, Block 14, between Helena and Portland Sts.; Cedar Ave. from Victoria St. to Helena St.; Pine Ave. from Victoria St. to Helena St.; Helena St. from Bay Ave. to Pine Ave.; Victoria St. from Bay Ave. to Cedar Ave., and from Pine Ave. to Green Ave.; Green Ave. and Rossland Ave. to a point opposite Lot 131, where the C.P.R. necting portion of Nelson St.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Independent Pneumatic Tool Co., Chicago, has issued its catalogue 10, describing Thor pneumatic tools and electric drills. It contains 94 pgs. of illustrated matter.

Mussens, Limited, railway, mining and contractors' supplies, Montreal, have removed their offices from 318 St. James St. to the second floor of the McGill Building, 211 McGill St.

Preston Car & Coach Co., Ltd.—The town of Preston, Ont., has passed a by-law to endorse the company's bonds for \$75,000, to enable it to rebuild the portion of its plant which was destroyed by fire recently.

Galena-Signal Oil Co.—S. A. Megeath has resigned as President and General Manager and now has charge of the com-

pany's refining and foreign business, with headquarters at 17 Battery Place, New York, N.Y. General Charles Miller has been elected President of the company, with headquarters at Franklin, Pa.

The Ohio Brass Co., Mansfield, Ohio, has issued "Steam Railroad Electrifications," a 34 pg. booklet, 8 x 10½ in., illustrating and briefly referring to 17 electrifications of steam railways, including Montreal & Southern Counties Ry., St. Clair Tunnel, G.T.R., London & Port Stanley Ry., on which some of the company's products were used.

The Du Pont Fabrikoid Co., Wilmington, Delaware, has purchased the Marokene Co. of Elizabeth, N.J., which manufactures a material similar to fabrikoid, which is used extensively by automobile, carriage and upholstery industries. All the sales transactions of the Marokene Co. will be under the direction of the Wilmington office, and the attention of J. K. Rodgers, Sales Manager, Du Pont Fabrikoid Co.

The Standard Underground Cable Co. of Canada, Ltd., has developed a new type of joint box, or housing, for use on submarine cables which has already been used on submarine cables supplied the Halifax Electric Tramway Co., the Ottawa waterworks, the Atlantic City Electric Co., on the U.S. ship canal at Atlantic City, N.J., the Wilmington & Philadelphia Traction Co., and the Penns-

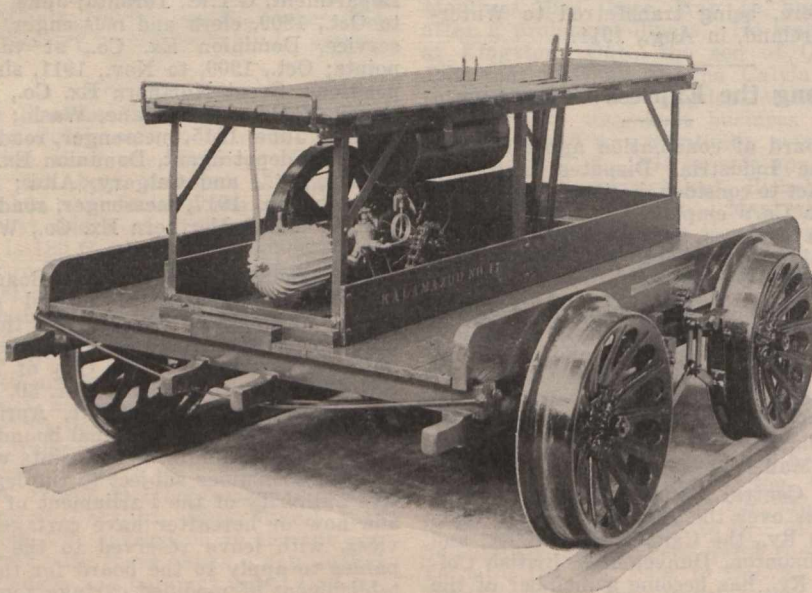
grove Light, Heat & Power Co. in crossing the Delaware River at Wilmington, Del. The box is designed so that all mechanical stresses resulting from the action of tides, currents, etc., which usually tend to damage the cable at these points are taken off the joint proper by long "take-up" rods, on the joint box, parallel to the joint, and to which armor the rods are rigidly connected by heavy iron clamps.

Canadian Westinghouse Co., Ltd.—H. H. Westinghouse, President, having been elected Chairman of the Board, Paul J. Myler, heretofore Vice President, has been elected President. He was born at Pittsburg, Pa., April 24, 1869, and commenced work as a bookkeeper with a produce commission house, since when his record has been as follows: 1886, billing clerk, Westinghouse Air Brake Co.; 1894-1896, Assistant Auditor, Westinghouse Air Brake Co.; 1896, Secretary, Westinghouse Manufacturing Co. of Canada, with office at Hamilton, Ont.; 1898, General Manager, Westinghouse Manufacturing Co.; 1903, Vice President, Canadian Westinghouse Co., Ltd., in charge of Westinghouse interests in Canada. He is a director of the Bank of Toronto, Landed Banking & Loan Co., British Munitions Co., Ltd., Dominion Steel Foundry Co., Ltd., Travelers Life Insurance Co., North American Pulp & Paper Companies, Hamilton Steel Wheel Co., Ltd.,

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