

Canadian Railway and Marine World

November, 1917.

Locomotive Design and Construction from a Maintenance Standpoint.

By W. H. Winterrowd, Assistant to Chief Mechanical Engineer, Canadian Pacific Railway.

It is a question if there has ever existed a locomotive house foreman who has not, at some time or other, had the feeling that if some part of a locomotive had been designed a little differently, he could make repairs quicker, easier, and at less expense. While in many instances he may have been justified in this feeling, there are, however, cases influenced by other factors which may have been of greater importance from the standpoint of ultimate economy of operation.

The type and size of a locomotive have an important bearing on certain details of design. A discussion of the factors relating to the selection of the desired type and size is far beyond the scope of this paper, as it would involve a thorough consideration of the economics of railway operation. Some of these factors, usually considered from the standpoint of both present and future, are grades, track curvature, train speeds, train resistances, kind and nature of business, size and type of existing locomotives, transportation expenses, maintenance of equipment, and physical conditions, such as clearances, bridges, turntables, locomotive houses, repair shops, terminal and water facilities, etc. Occasionally certain of these factors may be such that some detail of the resulting design, while undesirable from a maintenance standpoint, is unavoidable. However, the majority of locomotive details are free from other than purely local restrictions and may be designed almost entirely from a maintenance standpoint.

It should not be inferred from what follows that mechanical and operating men, as well as locomotive builders, have not given a great deal of consideration to the points mentioned. Very many locomotives in service today bear witness of such consideration. However, there are at present justifiable reasons for emphasizing and reviewing the importance of locomotive design from a maintenance standpoint. Today, under changed conditions, the railways are being called upon to render greater service than ever before. But little new equipment is available other than that which the railways may build in their own shops. Repair shops are being worked to capacity. Skilled railway mechanics are scarce. Material of all kinds is difficult to obtain. All of which means that maximum service must be obtained from every bit of existing equipment. It is, therefore, essential to consider every legitimate means whereby the out of service period of a locomotive may be decreased and the in service period increased. All new locomotives should be constructed to give maximum service with minimum maintenance. All locomotives being rebuilt, or modernized, should be turned out of the shops prepared to give similar results. Any improvement that can be made to any locomotive, new, modernized, or under repairs, which will result in increased service, increased efficiency, or decreased maintenance, will help to increase the capacity of the railways. The following covers briefly a few of the points worthy of consideration:

Boiler.—It is hardly necessary to state that a well designed boiler of ample capacity is easier and cheaper to maintain than one of smaller capacity and which has to be forced continually. The importance of ample capacity can scarcely be overemphasized, either from a maintenance or operating standpoint. Within its limits of weight and size, a boiler should be designed to have a capacity as large as possible, consistent with other governing factors. In this connection the valves of the superheater, the brick arch, and the feed water heater are unquestionable. These values have been practically demonstrated from the standpoint of economy as well as locomotive capacity. The maintenance of locomotive boilers is an important factor, the greatest difficulties being leaky flues, leaky mud rings, broken staybolts, and cracks in firebox sheets.

Knowing that firebox heating surface does a great deal more work per square foot than flue heating surface, boiler capacity does not depend upon long flues. Short flues are the easiest to maintain. Flue location and spacing should be carefully considered, so as to permit easy maintenance, proper distribution of stresses, with a minimum amount of staying, and also to facilitate washing out, particularly in bad water districts. Many failures are frequently the result of crowding in too many flues, placing them too close to the heel of the flue sheet flange, and the use of too small a bridge. The flue sheet flange radius should be carefully considered in relation to the flue layout. Too small a radius, with flues located close to the heel, will not give as much flexibility as may be desired and will make the top flues difficult to maintain. Continued expanding of the flues will cause the sheet to flow, often resulting in flange cracks. The bead on the flues adjacent to the flanges should always rest on the flat surface of the sheet and never on the curved inside surface of the heel. With $2\frac{1}{4}$ in. or greater diameter flues it is best that the width of bridges be not less than $\frac{3}{4}$ in. Assuming that these points have been taken into consideration, it is important to see that the shop layerout and driller follow the design. There have been cases where a layerout has located flues incorrectly and also added one or more. It is also important that flue sheet holes be drilled the proper diameter as it is almost impossible to keep flues tight in holes that are too large.

The radii of door and back head sheet flanges should be studied in relation to the staybolt stresses. A moderately large back head sheet radius will reduce the stress in outer rows of bolts by transferring a portion of the load to the wrapper sheet. Too small a door opening radius will frequently result in cracking of the sheet at this point as provision is insufficient for expansion.

Mud ring corners of ample radius will be easy to construct and maintain. Trouble due to small radius has, in many instances, been overcome by electric or acetylene welding the bottom edges of

the sheets at this point to the mud ring.

Flexible staybolts reduce staybolt breakage. A careful investigation will indicate the zones of maximum staybolt stress and sheet movement. In these zones the flexible bolts will give good results and reduce staybolt renewals.

Washout plugs should be so located that all points of the firebox and barrel can be easily reached with standard washout equipment.

Grates should have sufficient air space, be free as possible from dead spots, and be easy to remove. Where certain kinds of fuel are used, properly designed dump grates may be a means of reducing the time the engine is on the ash pit.

As far as possible, all brackets, clamps, or fittings applied on the boiler or firebox should be so located that staybolts, rivets, or portion of caulking edges will be accessible with a minimum of labor.

In connection with the barrel of the boiler, points which may be mentioned are—throttle and dome arrangement which will permit interior inspection of the boiler without the removal of the standpipe; also the elimination, as far as possible, of all small studs. The latter will apply equally to all parts of the boiler under pressure.

Expansion slides, instead of an expansion sheet, under the front of the mud ring, will eliminate the maintenance of a considerable number of bolts and rivets. Proper consideration of all other expansion sheets will further reduce maintenance of many bolts and rivets and tend to eliminate the many resulting troubles as well.

The front end, or smoke box, should be arranged to permit of access to all parts with the least possible work.

Frames should be of ample cross section and well braced to hold them rigid. Maximum cross section may be of little avail unless accompanied by sufficient and properly located bracing. In this connection, it hardly seems necessary to mention the advantages of a valve gear located outside the frames. The outside gear has made possible better frame bracing, to say nothing of the advantages of easier inspection and maintenance of the gear itself. As far as possible, bolt holes in frames should not be located where stresses are greatest. Where cylinder design will permit, a one piece frame with a top tie splice seems desirable. Where large cylinders prevent the above arrangement, a one piece frame with ample depth under the cylinders and having no reduction in thickness, will give excellent service.

Cylinders.—The advantages of outside steam pipes are self evident from the standpoint of both construction and maintenance. Cylinders should have saddle faces well bolted together to prevent working. All other things being equal a double row of bolts is better insurance than a single row. Weakening grooves cut in covers will reduce repairs to a minimum in case of failure.

Motion.—All bearing pressures should be as low as consistent with good practice

in order to reduce the wear and resultant replacement. Ample pin length is desirable in order to obtain lateral stability. Arrangement of motion and design of back steam chest and back cylinder covers should be such that both valve stem and piston rod packing will be easily accessible. Fillets on pins, axles, etc., should be of ample radius. Small fillets are frequently factors in failure. Where possible a piston rod of sufficient length to permit piston ring renewals without the removal of the rod from the cross head will reduce maintenance cost. Rod bolts and wedges may be dispensed with by the use of solid bushes. Rods should be designed and arranged so that it may be possible to remove them with a minimum of labor.

The C.P.R. has found that knuckle pins with a small extension on the threaded end through which a strong flat cotter can be placed have been excellent insurance against the usual consequences of loose nuts. Valves of light weight will reduce the load on all valve parts and result in reduced maintenance. Selection of high grade, close grained, cast iron for cylinder and valve bushes, piston heads and rings, and in some cases rod bushes, is more than warranted in view of the increased mileage obtainable and the corresponding decrease in maintenance. If conditions permit the consideration of heat treated, or alloy steels, unbalanced forces may be very materially reduced by the use of light reciprocating parts. The reduction of such forces will in turn tend to reduce maintenance of pins, bushings, etc.

Equalization.—Locomotives should be equalized so as to secure the most efficient guiding power from both leading and trailer trucks, or wheels. This involves the proper distribution of weight and a means of keeping the proper amounts on the various axles at all times. In general, the best results seem to be obtained by dividing the equalizing system so that the division between the front and back systems is as directly under the centre of gravity of the locomotive as wheel base and other conditions will permit. The spring gear and equalizing system should receive particular attention when being erected and also when being repaired. The tops of the driving boxes should be milled out squarely and in a plane parallel with the journal bearings. The equalizer and saddles should be fitted to their seats squarely with the pin holes so that the engine will ride squarely on her springs and track properly. The same will apply to the trailer truck equalizers and spring rigging. Trailer trucks that do not carry the back of the engine level are responsible for much avoidable tire wear.

Spring and Brake Rigging.—The application of bushes will facilitate and cheapen renewal of worn parts. Hangers and their connections should be accessible and easily removable. A driver brake main fulcrum shaft in two pieces of equal length, the outer ends supported in bushed bearings integral with the main frames and the central portion supported by a sleeve, will give more even distribution of braking power and maximum accessibility for repairs and adjustments. Brake cylinders, if at all possible, should be located vertically, in order to reduce packing wear and provide accessibility. Brake shoe heads and hangers should be so constructed and hung that shoes will swing clear of wheels when pressure is released and permit easy application of new shoes. Safety hangers should be provided to support and prevent sagging of brake rods. The ratio of brake cylinder

to brake shoe pressure should be kept as low as consistent, and should not exceed commonly accepted ratios. This will insure that false travel will be kept to a minimum.

Piping.—The importance of ample clamping and provision for expansion cannot be overemphasized. Piping should be as short as possible consistent with conditions. Accessibility is of prime importance. Piping should be so located that there is no obstruction of washout plugs, arch tube covers, pads, etc. Where pipes pass through the front of the cab, provision should be made for clearance or for sleeve protection to prevent wearing or cutting. The C.P.R. has found it a decided maintenance economy to place lubricator piping from cab to cylinders, etc., in a slightly larger wrought iron pipe where the feeds pass beneath the jacket and lagging. By this means the feed pipes can be removed or applied without the necessity of removing any outside covering. Air brake and steam piping should drain properly and contain no traps in which water can accumulate and freeze. It is desirable that pipes from the sand dome be as nearly vertical as possible, the bottom ends being securely clamped in alignment with the rail.

Miscellaneous.—Ash pans should be as simple as possible, and the sides should have sufficient slope to prevent the accumulation of ash under the grates. Swing doors can be suspended so that their own weight helps to keep them closed. This results in less strain on the door operating rigging.

Easy inspection and maintenance results from placing main reservoirs in an accessible location. Where this is impossible, and drain cocks are hard to reach, an extension handle, the end of which is easily accessible, makes the reservoir easy to drain.

Removable liners on locomotive and tender truck pedestals makes it easy to take up wear and reduce pedestal renewals. To prevent rapid wear between wheel hub liner face and driving box sufficient provision for lubrication should be made.

Shoes and wedges should be so designed that wear can be easily reduced and wedges kept in their proper place with a minimum of labor. Improperly maintained shoes and wedges soon result in increased maintenance of boxes, rods, pins, etc.

Pilots made of scrap boiler flues cost less to maintain than those of wood.

All oiling points should be made as accessible as possible. Handholds or small steps, properly located, to make some oiling points accessible, will soon pay for themselves. Lubricator chokes should be placed in proper position and located as near to the cylinder, or steam chest, as possible. Proper inspection and maintenance of chokes has been found the key to many lubrication troubles. The location of the lubricator in the cab where the feeds may easily be seen and adjusted will result in better lubrication. When located close to the front of the cab, or where the light is poor, proper adjustment is exceedingly difficult.

Four pane cab side windows are easier and cheaper to maintain than those containing one large pane.

Boiler jacketing should be applied in sections so that panels can be removed with a minimum of labor.

The foregoing are but a few of the multitudinous details which merit most careful thought. But little mention has been made of the possibilities of simplified design by the use of cast steel. It is felt that with the development of the

cast steel industry and the production of castings which are practically equivalent to wrought iron, locomotive construction in the future may be greatly simplified. We are today, using castings that 10 years ago would have been deemed impossible to successfully cast. For example, one-piece locomotive frames are now under consideration and will soon be in experimental service. These consist of the two main frames and all cross braces cast in one piece. This is an indication of the degree of simplification that may be obtained. The maintenance of such parts has in turn been made possible by the development of the art of electric and acetylene welding.

The foregoing are simply a few indications of the importance of design in its relation to maintenance. To mention all the points that merit attention and to discuss them in detail would be far beyond the scope of this paper. Good and far reaching results can be obtained by inviting criticism and suggestions from those directly responsible for construction and maintenance. Simplicity, correlated with efficiency, should be one of the keynotes of locomotive design. This principle, which in other words is simply good judgment, will make for that degree of efficiency which will be reflected, not only in reduced maintenance costs, but also in the increased capacity of the locomotive plant as a whole.

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

United States Wireless Telegraph Stations.

The United States Navy's new high radio station in the Hawaiian Islands, which was opened recently, is said to be the most powerful radio station in the world and is designed for direct communication with Washington and the Philippines. Exchange of messages was carried out on Sept. 20 between the radio station, Sayville, Long Island, and the Honolulu station, a distance of approximately 5,000 miles. This is said to be the world's record for long distance exchange of communication by radio, and marks a distinct advance in the radio art. The tests to date indicate that communication between Washington and the Philippines will easily be accomplished with but one relay through the Hawaiian station.

The Hawaiian station is one of a chain of high power radio stations under construction by the Navy Department. The principal stations completed to date, in this chain, are Arlington, Darien (Canal Zone), and San Diego. The remainder of the stations, at Caviet (Philippines), Guam, and Tutuila, will be completed during the next two months. The high power stations consist of three masts at each station to support the aerial, each mast being steel, self supporting. The apparatus is of the Poulsen arc type, which is standard in stations of the high power chain.

A Freight Rate Suit.—The C.P.R. is claiming through a Manitoba Court \$60 for freight and other charges on a shipment of horses, from W. T. Alexander, who sent several horses to Calgary and other exhibitions west of Winnipeg, during the past season. The horses were conveyed in a palace car, and it is alleged that Mr. Alexander put some vehicles in the car also. The company claims that this raised the rate, and is suing for \$60, the difference between the rate for the horses and the rate for the vehicles.

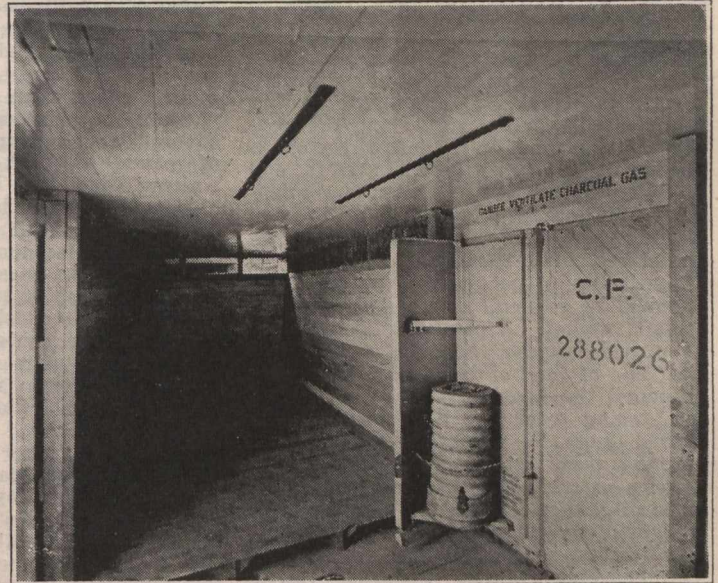
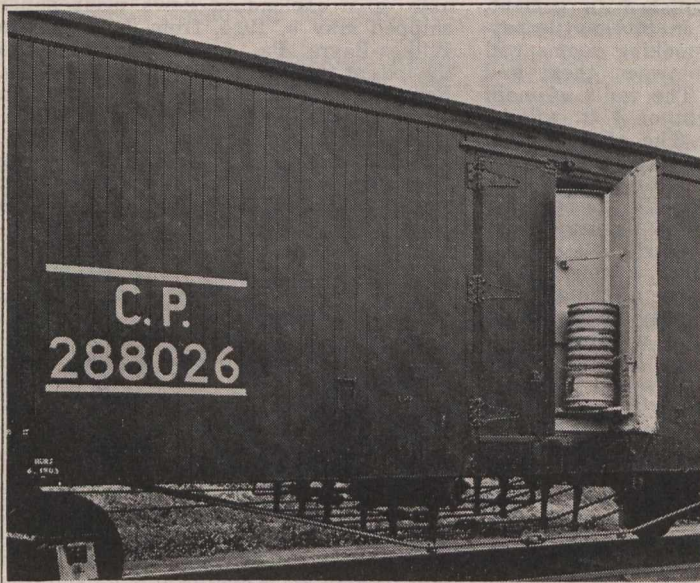
Conversion of Canadian Pacific Freight Cars.

Canadian Railway and Marine World for September and October contained some information about the conversion of a number of C.P.R. freight cars, since which time additional information as well as photographs have been received. Of the 336 single insulated refrigerator cars, converted to vegetable cars, 44 have been done at Angus shops, Montreal, and 292 at Winnipeg shops. On the 1,161 steel side dump ballast cars converted to coal cars the work was divided about

1 layer of insulating paper and 13/16 in. standard t. and g. car lining. This inside lining extends to within 6 in. of the car floor and to within about 12 in. of the ceiling, leaving an opening at top and bottom, so that the heat, supplied from the charcoal heaters, located at the centre of the car, may be circulated freely all along the sides and ends of the load, and return to the centre of the car through a space 5 1/2 in. high provided by a false floor, which is made of two

ped with standard insulated plugs, attached to chains, so that they can be lowered into the space back of the bulkheads when the car is operating under ventilation. Hatch covers are hinged so as to open toward the centre of the car. It is believed that this arrangement provides the best distribution of fresh air throughout the interior of the car.

The heating of each car is to be accomplished by means of standard no. 2 charcoal heaters. In moderate weather one or



C.P.R. Vegetable Cars Converted from Refrigerator Cars.

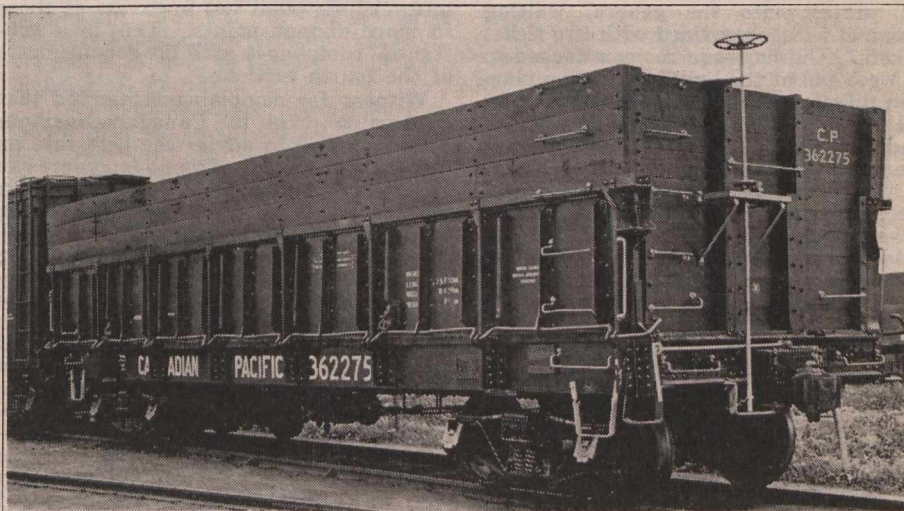
equally between Montreal and Winnipeg shops. The 600 stone cars converted to coal cars were all done at Montreal.

The 336 vegetable cars converted from standard single insulated refrigerator cars are 38 ft. 8 in. long over end sills

courses of t. and g. lumber with insulating paper between. The floor is in sections, about 4 ft. wide, extending between inside linings. This permits of the floor being taken up, whenever necessary, for cleaning underneath, and for repairs to

two heaters may be used in the collapsible galvanized iron heater cages attached to the inside of the car doors. These cages are so arranged that, when the heater requires to be recharged with fuel, it is not necessary to enter the car, and the exchange of air from the outside to the inside of the car is reduced to a minimum by one side of the heater cage being secured in a position to close the aperture of the open car door in much the same manner as revolving doors in public buildings. In severe weather additional heaters may be used suspended from the ceiling from substantial fastenings provided for the purpose.

The 1,161 fifty-ton side dump ballast cars, converted to coal cars, are fitted with end gates and extension sides so as to carry their maximum tonnage in bituminous coal. The extension sides consist of planks, 30 in. high, secured to stakes that pass through openings in the top channel of the steel side construction, and secured at the bottom in malleable blocks provided for the purpose. To prevent the wooden sides bulging near the centre of the car, tie rods are provided, reinforced against bending, by means of a cross timber, 3 x 8 in., securely supported and fastened at the ends to the extension sides. In order that these cars may meet the safety appliance requirements, additional hand holds are provided, and the brake mast, originally located on the corner, is removed, and a new brake mast and fittings are applied about 18 in. from the centre of the car.



C.P.R. Coal Car Converted from Side Dump Ballast Car.

and have standard refrigerator doors. After removing the ice bunkers, floor slats and meat racks, the side and end walls are covered with refrigerator insulating paper, and on the inside of this, vertical strips are spaced about 2 ft. centres along the sides of the car. These vertical strips are 2 in. square, fastened to 1 in. blocks, providing a total of 3 in. air space. The linings on the inside of the strips consist of 3/8 in. t. and g. in-

underframe, draft timber bolts, etc.

At each end of the car there is a bulkhead, just in front of the hatch opening, constructed in the same manner as the side linings. The open space, above the side lining and end bulkhead, is covered with heavy wire mesh, to prevent consignees throwing culled vegetables over into the air spaces. At the bulkhead this mesh also prevents theft through the hatch opening. Hatch openings are equip-

The Canadian Northern Ry. Land Department has issued a homeseekers' guide descriptive of the resources of the districts opened up for settlement by its line through British Columbia.

New Grand Trunk Railway Passenger Stations. News Print Paper Rate from Jonquiere to Wilkes-Barre.

The G.T.R. is erecting a new passenger station at Berlin, N.H., on the line between Portland, Me., and Montreal. We are officially advised that it is located on the site of the original frame structure, and will be a substantial one-story building of brick and stone. The plans show that the outside dimensions of the new station will be 137 x 29 ft., and walls 13 ft. high, with central bays projecting 6 ft. on the track side and 8 ft. on the city side. The office 41 x 22 ft., will be located in the centre of the building, and will provide accommodation for the agent, operator and clerical staff, the ticket, operating and telegraph sections being located toward the track. The women's waiting room will be on the right; and the general waiting room on the left of the office. Each waiting room will be 28 x 26 ft., and will be provided with lavatory accommodation. There will be entrances to each waiting room from the platform and from the street. The baggage room, 25 x 26 ft., will adjoin the general waiting room and will be connected with it by a counter and wicket. A covered platform will be provided under the main roof at the west end of the building. The basement, in which the heating plant and a room for storing records will be located, will extend under the baggage room, the remaining space not being excavated.

All construction below ground level is to be of concrete, above the floor line the walls will be of brick, faced with Saginaw pavers, with base and dressing of Vermont pink granite. The roof will be covered with green Ludowici tiling of imperial Spanish pattern. The interior finish will be dull oak stained dark, all walls and ceilings to be plastered. The waiting rooms will be panelled in oak to the height of the doors, the fields of the panels being covered with burlap and painted. The floors of the general waiting room, women's waiting room and office will be of maple laid diagonally, with a 15 in. border of the same; the lavatories will have tile floors, and the baggage room will be of ordinary boards. The building will be heated by hot water and lighted by electricity. It was designed in the office of H. R. Safford, Chief Engineer, and the contract has been let to Forgione & Rowans, Portland, Me. The estimated cost is \$40,000.

A station is also to be built at Orillia, Ont., to replace the one destroyed by fire. It will be 54 x 142 ft., with umbrella roof, 22 x 34 ft. at each end. The foundation will be of concrete to grade line, with Longford stone base to height of sills (3 ft. 8½ in.). The superstructure above the base will be of dark brown fire flash brick with a light mortar joint. The roof will be covered with asbestos shingles laid diagonally, roof to project 6 ft. beyond face of wall, with Georgian pine rafter heels and sheeted soffit, oiled. The lighting will be electric, of the a.c. system. It will be heated with hot water from boiler located in basement below baggage room. The street approach to the building will be by a porte cochere supported by brick and stone piers supporting same. The entrance doors will be of a French pattern, with divided lights on either side, having pilaster mullions between them and the door. On entering the station from the street side there will be a small alcove with vaulted ceiling, and seat on each side of same. The side walls of the main waiting room will be divided into

five ornamental plaster arches with pilasters between. The plastering will be trowelled stucco finish, with white plaster moulds and ceiling beams. The floor will be of terrazzo, composed of varied color marble chips. On one side of the main entrance there will be a ladies' rest room and lavatory, on the other side a men's smoking room and lavatory. The smoking and rest rooms will be finished in Georgia pine with burlap dado to height of 4 ft., panelled with 3 in. strapping. Lavatories will be finished in cement, marked off with 4 x 4 in. blocks, tile pattern. The rest and smoking rooms will have French doors between them and main waiting room. The walls of main waiting room to height of 4 ft. will be covered with burlap. The office will be of quarter cut oak. The trim of main waiting room will be Georgia pine, and all wood work will be finished in bog oak. The platform will be of paving blocks with standard concrete curb.

At St. Catharines, Ont., a new station is to be erected on the site of the old one, but it will be considerably larger. The main building, containing waiting rooms, office and baggage room, will be flanked by large platform shelters and the Canadian Express building will be attached to the further end of the west shelter. The station proper will be one storey, containing a general waiting room, 77 x 22 ft., with an alcove, 22 x 10 ft. From this general room will be entered smaller waiting rooms, with lavatories attached for men and women respectively. The small waiting rooms will be 16 x 10 ft., and the lavatories, 11 x 10 ft. The ticket office, approximately 20 x 14 ft., will be placed on the centre line of the general waiting room, opposite to the alcove, and will have a large projecting bay, in which will be the telegraph operator's table, and the windows of which will command views of the tracks in both directions. A panelled oak screen will enclose the office and will project into the general waiting room and will be provided with two ticket wickets. The baggage room, attached to the west end of the building, will be placed in direct communication with the general waiting room for handling small hand baggage. There will be three entrances to the station; two directly facing the tracks, on each side of the ticket office, and one from the platform shelter at the east end. The basement will be devoted to the steam heating apparatus and storage of fuel. The Canadian Express Co. will be housed in a building, 44 x 25 ft., situated 65 ft. from the station proper, the intervening space being roofed over to form a platform shelter. The platform shelter will cover 4,500 sq. ft., and the buildings will have an area of 5,000 sq. ft. The building will be constructed generally of brick on concrete foundations. The walls outside will be faced with Hocking Valley vitrified brick, with grey sandstone dressing, and the roof will be covered with asbestos shingles. The floors of the station will be finished with marble terrazzo and those of the baggage and express rooms with cement. All interior finish in station will be Georgia pine and oak stained to bog oak color, the walls being plastered and painted and the dados panelled and finished with burlap. All lavatory walls will be lined with tiles to a height of 4 ft. All seating will be oak stained to match interior finish. The lighting will be by electricity.

The Interstate Commerce Commission gave the following decision recently in the case of Price Bros. & Co., Ltd., vs. Canadian Northern Railway, et al:

The complainant is a Canadian corporation, engaged in the manufacture of lumber, laths, shingles, wood pulp board and news print paper, with its principal office in the City of Quebec, and a paper mill at Jonquiere, Que. By complaint, filed April 28, 1916, it alleges that the combination rate of 37c per 100 lb. charged by defendants on a carload of news print paper shipped May 5, 1914, from Jonquiere to Wilkes-Barre, Pa., was unreasonable to the extent that it exceeded 27c per 100 lb. Reparation is asked. Rates are stated in cents per 100 lb.

The shipment, weighing 52,500 lb., moved as routed by complainant over the Canadian Northern Ry. to Montreal; C.P.R. to Delson Jct., Que.; Napierville Junction Ry. to Rouses Point, N.Y.; Delaware & Hudson Ry. to Wilkes-Barre. Charges thereon were collected in the sum of \$194.25 based on a rate of 37c, composed of a rate of 15c to Montreal, which rate is not on file with this commission, and a rate of 22c beyond, which rate was legally applicable. At the time of movement a joint commodity rate of 27c was in effect on news print paper, in carloads, from Jonquiere to Harrisburg, Pa., over the Canadian Northern to Hawkesbury, Ont.; G.T.R. to Rouses Point; Delaware & Hudson to Wilkes-Barre; and Pennsylvania Rd. to Harrisburg, or Central Rd. of New Jersey from Wilkes-Barre to Allentown, Pa., and the Philadelphia & Reading Ry. to Harrisburg.

This rate, which was published by the Canadian Northern, was not applicable on shipments to Wilkes-Barre, an intermediate point, but that carrier's tariff provided, conformably to rule 77 of Tariff Circular 18-A, for the publication, upon reasonable request therefor, of rates to any intermediate point not in excess of those to more distant points. This is a substantial compliance with the requirements of the fourth section.

Witness for complainant testified that on April 20, 1914, the Canadian Northern was requested to advise the best rate on news print paper from Jonquiere to Wilkes-Barre for immediate shipment; that on April 24, 1914, no reply having been received, the complainant communicated with defendant's agent over long distance telephone requesting the establishment of the Harrisburg rate to Wilkes-Barre; that on the same day a rate of 33c was quoted via the route of movement. No evidence was introduced tending to prove the rate applied unreasonable, complainant's sole contention being that it was forced to pay the rate assessed on account of the failure of the Canadian Northern to comply promptly with its request for the establishment of the Harrisburg rate to Wilkes-Barre. None of the defendants was represented at the hearing. In its answer the Canadian Northern denies that it was requested to establish the Harrisburg rate to Wilkes-Barre on the dates mentioned; that in response to request from complainant in June, 1914, it established, effective Aug. 17, 1914, a rate of 25c, since increased to 26c. Complainant requested the best rate for immediate shipment. This the Canadian Northern attempted to give, although by doing so it erroneously quoted a rate of 33c.

Northern has in other instances refused to establish rates at intermediate points, notwithstanding the fact that the tariffs naming the rates to the farther distant points carried reference to rule 77 of Tariff Circular 18-A. The effect of the failure to establish rates at intermediate points in conformity to such rule was

fully discussed in Missouri River Building Stone Rates, 28 I.C.C., 269, and need not be repeated here. The establishment in August of the rate requested in June cannot, under the promise made in the tariff, be considered as properly prompt action. The complaint must be dismissed and an order will be entered accordingly.

temporary grades, there are less than 6 miles of 1% and less than 1 mile of 1.15% grade. All other temporary grades are less than 1%.

Canadian Pacific—Ruling grades vary from 0.3% to 1.1% on different subdivisions eastbound and from 0.4% to 1.25% on different subdivisions westbound.

National Transcontinental—The total adverse grade eastbound from Winnipeg to Quebec amounts to 608.0 miles in length and 8,946.7 ft. of a raise. The total adverse grade westbound over the same distance and between the same points amounts to 536.8 miles in length and 9,730.3 ft. of a raise.

Senator Casgrain accepted the answers to the distances, but stated that the information given in reply to the questions as to adverse gradients did not answer them at all. The "total adverse grade" is the grade up which a locomotive must haul a train. The total on the National Transcontinental Ry. and on the G. T. Pacific Ry. is 6,900 ft.; while on the C.P.R. it is 23,000 ft. On the C.P.R., for instance, between the Pacific and the Atlantic every ton of freight had to be raised to a height of 23,000 ft., or nearly five miles, while on the National Transcontinental it had to be raised only 6,000 ft. He thought the Canadian Northern would make a very good showing in this respect.

Senator Casgrain repeated his questions as to the total adverse gradients on Canadian railways between Quebec and Winnipeg, and between Winnipeg and Quebec, Sept. 18, and Sir James Loughheed in reply said the mileage between Quebec and Winnipeg was: Canadian Pacific Ry., 1,587 miles; Canadian Northern Ry., 1,640 miles; National Transcontinental Ry., 1,351 miles. The railways concerned had supplied the following information as to total adverse gradients: C.P.R., 681.51 miles in length, with 14,102 ft. of rise, going east; 659.83 miles in length with 14,578 ft. of rise going west. C.N.Ry.—9,655 ft. going east, 10,393 ft. going west. The elevation above sea level is: 18 ft. at Quebec, and 756 ft. at Red River bridge, Winnipeg. N.T.Ry.—608.0 miles in length and 8,946.7 ft. of rise going east; 536.8 miles in length and 9,730.3 ft. of rise going west.

The Necessity for Loading Cars Fully.

A. H. Harris, Director Overseas Transport, Montreal, has issued the following circular: The volume of Imperial Government war material and supplies which Canadian railways will be called upon to move to the Atlantic seaboard during the coming winter will tax their resources to the limit. If the demands of the allied governments are to be met, conservation of railway facilities is absolutely necessary. A careful analysis of government overseas traffic moved to winter ports last season shows an underloading of 30% in cars containing packing house products, ammunition, explosives, shells, forgings, acetate of lime, carbide, etc. In all cases cars should be loaded to the full capacity authorized by the various railways, and traffic of a bulky nature to the full cubic capacity of car. Had this rule been observed last winter, about one third less cars, and fewer locomotives, would have been required, while seaboard terminal accommodation would have been relieved to that extent. The question is one of national importance, and I earnestly request every Imperial Government contractor will realize the seriousness of the situation.

Birthdays of Transportation Men in November.

Many happy returns of the day to—

F. W. Alexander, A.M.Can.Soc.C.E., Engineer, Alberta District, C.P.R., Calgary, born at Fredericton Jct., N.B., Nov. 22, 1878.

J. O. Apps, General Baggage Agent, C.P.R., Montreal, born at Tara, Ont., Nov. 9, 1877.

A. B. Atwater, Assistant to President, lines west of Detroit and St. Clair Rivers, G.T.R., Detroit, Mich., born at Sheffield, Ohio, Nov., 1845.

H. E. Beasley, General Superintendent, Esquimalt & Nanaimo Ry., Victoria, B.C., born at Hamilton, Ont., Nov. 10, 1862.

C. C. Bonter, General Baggage Agent, Canada Steamship Lines, Ltd., Montreal, born at Toronto, Nov. 13, 1884.

G. B. Burchell, Managing Director, Bras d'or Coal Co., Ltd., North Sydney, N.S., born at Sydney, N.S., Nov. 1, 1877.

J. R. Cameron, Assistant General Manager, Canadian Northern Ry., Winnipeg, born at Truro, N.S., Nov. 5, 1865.

F. H. Clendenning, Division Freight Agent, B.C. Coast Service and Ocean Steamship Lines, C.P.R., Vancouver, B.C., born at Montreal, Nov. 9, 1881.

F. Conway, City Freight and Passenger Agent, C.P.R., Kingston, Ont., born at Ernestown, Ont., Nov. 19, 1850.

W. L. Crighton, Advertising Agent, Canadian Government Railways, Moncton, N.B., born at Derby, Eng., Nov. 9, 1871.

W. R. Davidson, General Superintendent, Western Lines, G.T.R., Chicago, Ill., born at Everton, Mo., Nov. 8, 1871.

W. R. Devenish, A.M.Can.Soc.C.E., Superintendent, District 3, Intercolonial Division, Canadian Government Railways, Moncton, N.B., born in County Tipperary, Ireland, Nov. 21, 1882.

A. C. Douglas, acting Assistant General Purchasing Agent, C.P.R., Montreal, born at Montreal, Nov. 10, 1881.

W. Downie, ex-General Superintendent, Atlantic Division, C.P.R., now of Whitby, Ont., born at Rock Currie, Ireland, Nov. 12, 1850.

Jos. Dubrule, jr., Manager, Canadian Pacific Car & Passenger Transfer Co., and President, Prescott & Ogdensburg Ferry Co., Ltd., Prescott, Ont., born at Spencer-ville, Ont., Nov. 14, 1872.

R. L. Fairbairn, General Passenger Agent, Canadian Northern Ry., Toronto, born at Stillwater, Minn., Nov. 24, 1880.

W. A. Fitch, Assistant Superintendent, District 3, Intercolonial Division, Canadian Government Railways, Moncton, N.B., born at Kentville, N.S., Nov. 25, 1867.

J. E. Gibault, A.M.Can.Soc.C.E., Resident Engineer, District 1, Transcontinental Division, Canadian Government Railways, Quebec, Que., born at St. Jerome, Terrebonne County, Que., Nov. 16, 1887.

H. E. Haanel, Trainmaster, Regina Division, Saskatchewan District, C.P.R., Regina, born at Cobourg, Ont., Nov. 2, 1880.

Grant Hall, Vice President and General Manager, Western Lines, C.P.R., Winnipeg, born at Montreal, Nov. 27, 1863.

N. B. Jones, Car Foreman, C.P.R., Kenora, Ont., born at St. John, N.B., Nov. 9, 1869.

W. E. Ladley, Superintendent of Motive Power, Reid Newfoundland Co., St. John's, Nfld., born at Leeds, Eng., Nov., 1875.

J. McGillivray, Receiver and Manager, Inverness Ry. & Coal Co., Inverness, N.S., born at Nairn, Scotland, Nov. 13, 1867.

J. McMillan, Manager of Telegraphs, C.P.R., Montreal, born at Liverpool, Eng., Nov. 2, 1866.

A. B. McNaughton, General Yardmaster, Ottawa Terminals, G.T.R., Ottawa, Ont., born at Arnprior, Ont., Nov. 10, 1877.

C. Murphy, General Superintendent, Manitoba District, C.P.R., Winnipeg, born at Prescott, Ont., Nov. 20, 1865.

G. H. Nowell, Master Mechanic, Nelson Division, British Columbia District, C.P.R., Nelson, born at Montreal, Nov. 13, 1885.

W. J. Quinlan, District Passenger Agent, Grand Trunk Pacific Ry., Winnipeg, born at Montreal, Nov. 21, 1883.

J. J. Rose, General Agent, Union Pacific System, Toronto, born there, Nov. 22, 1870.

G. H. Shaw, General Traffic Manager, Canadian Northern Ry., Toronto, born at Smiths Falls, Ont., Nov. 25, 1859.

P. D. Sutherland, General Agent, Passenger Department, Canadian Pacific Ocean Services, Ltd., Hong Kong, China, born at Toronto, Nov. 2, 1879.

L. C. Thomson, General Storekeeper, Eastern Lines, Canadian Northern Ry., Toronto, born at Kingston, Ont., Nov. 25, 1882.

H. P. Timmerman, Industrial Commissioner, Eastern Lines, C.P.R., Montreal, born at Odessa, Ont., Nov. 6, 1856.

H. E. Whittenberger, General Superintendent, Ontario Lines, G.T.R., Toronto, born at Peru, Ind., Nov. 9, 1869.

C. G. Washbon, Resident Engineer, Medicine Hat, Alta., born at Morris, N.Y., Nov. 27, 1887.

W. A. Whyte, District Freight Agent, Canadian Northern Ry., Regina, Sask., born at Hornsey, Eng., Nov. 24, 1890.

Distances and Gradients Between Quebec and Winnipeg.

In the Senate, on Sept. 3, Sir James Loughheed gave the following information in answer to series of questions by Senator Casgrain. The railway distances between Quebec and Winnipeg are as follows: National Transcontinental, 1,356 miles; Canadian Pacific, 1,587; Canadian Northern, 1,640.

The following information was supplied by the managements of the three railways mentioned in respect to the adverse grades:

Canadian Northern—Main line from Quebec to Winnipeg is built to 0.5% westbound and 0.4% eastbound grades, with the exception of 53 miles of westbound and 84 miles of eastbound short momentum grades, which can be reduced later when necessary. Of these latter

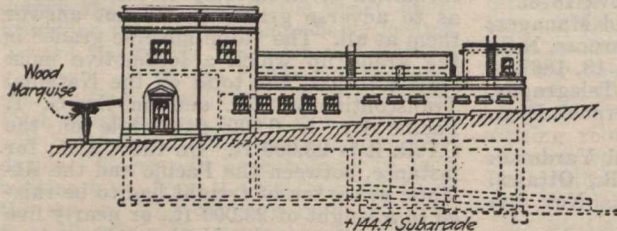
The Canadian Northern Railway's Station Work in Montreal.

Work is being pushed on the excavation for the station site at the C. N. R. terminal in Montreal which was described and illustrated in Canadian Railway and Marine World for July. More surface activity is seen than at any time since work on the Mount Royal Tunnel and Terminal project opened, there being since early in July three steam shovels, two 8-car trains of dump cars and numerous wagons opening up the site. Two whole city blocks, between Lagachetiere and Dorchester Sts., are being excavated. The present station building as planned is a

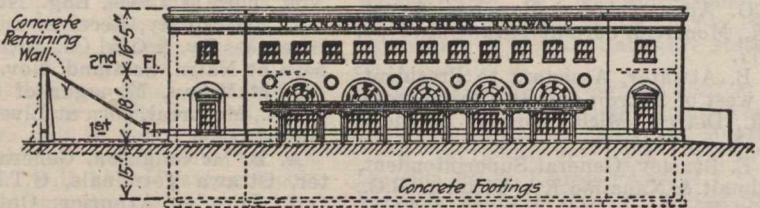
The material from the yard cut is loaded by steam shovels into 6-yd. cars, and these are hauled by dinkies to a point over the east portal of the tunnel under Mount Royal. Here the spoil is dumped into a baffled chute, discharging into spotted 12-yd. tunnel cars. The tunnel track and electric power systems are complete from the east portal to beyond Cartierville. There are three dump trains running to carry the spoil to a fill, where the Cartierville yards are to be. No other traffic is being handled as yet through the tunnel.

loaded cars. Like all the equipment, it is painted battleship gray and bears the letters "U.S.A." for United States Army. The locomotive weighs about 166,400 lb., with the tender about 275,000 lb.

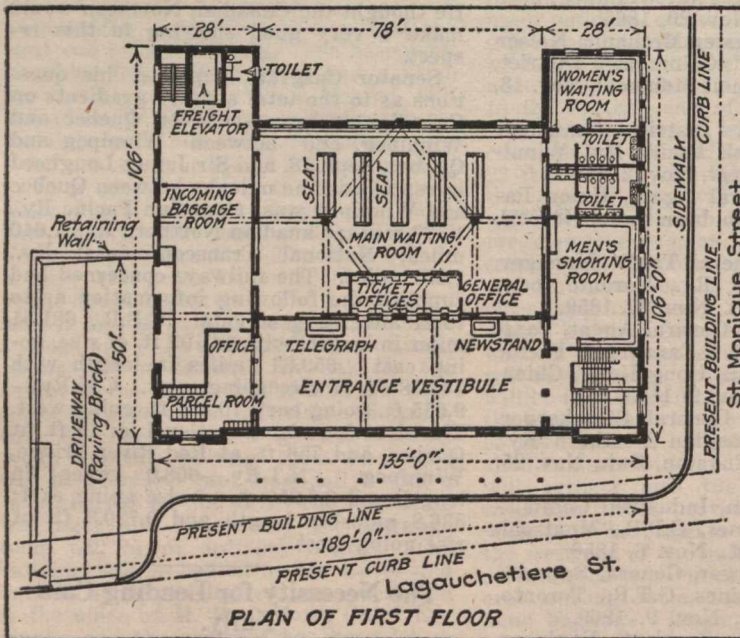
The box cars for the U.S. lines in France have about three times the capacity of the standard gauge box cars used by the French railways until recently. They have the same coupling equipment, etc., as the French rolling stock, so as to be interchangeable with it. The iron railing which runs the length of the car along the top is used to throw a tarpaulin over



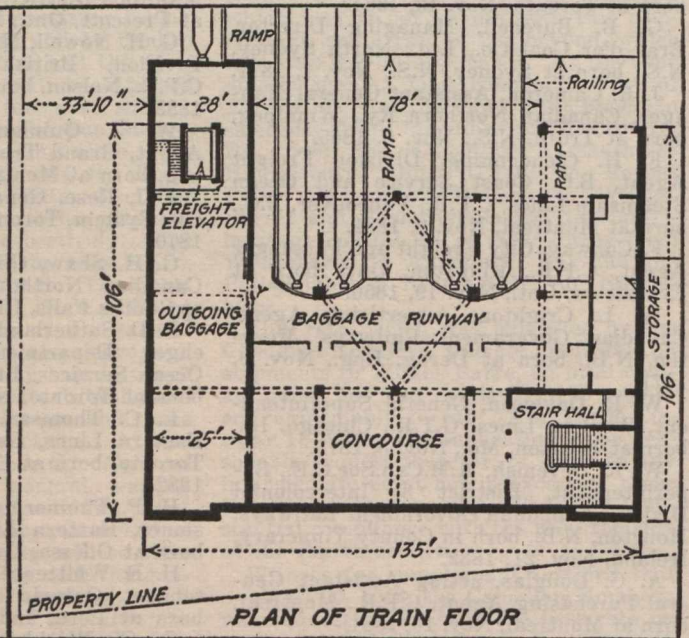
ST. MONIQUE STREET ELEVATION



LAGAUCHETIERE STREET ELEVATION



PLAN OF FIRST FLOOR



PLAN OF TRAIN FLOOR

The Canadian Northern Railway Temporary Station in Montreal.

temporary structure occupying less than half of the area of the terminal site. The rest of the cut will remain open and the five track platforms will be protected by umbrella sheds. The portal of the Mount Royal tunnel is at Dorchester St., and from there the two 2-tunnel tracks will fan out to five for the station yard. The future plans are for the whole site to be occupied by combined station and office or hotel buildings, and two tracks will continue south down the right of way which the company owns leading directly to the waterfront.

There are 260,000 cu. yd. of earth and 18,000 yd. of rock to be removed from the terminal site—20,000 yd. of earth being at the temporary station building. The contract for the station proper was let to Norcross Bros. and the yard cut to Angus Sinclair & Co. The spoil from the building site is loaded by a steam shovel directly into the wagons in the pit, and the loads are snatched up an incline by an electric hoist. The wagons haul to Victoria Bridge, where the city is dumping for river front improvements.

Rolling Stock for United States War Railways in France.

The first locomotive for U.S. war service railways in France was completed in 20 working days, and others of this type are now being turned out at the rate of about 30 a day. About 680 of these locomotives and over 9,000 standard gauge freight cars are on order. Narrow gauge equipment for transportation along the battle front is also on order, and additional orders for both narrow and standard gauge equipment are likely.

The first order for war locomotives was placed on July 18 and the first one was completed on Aug. 9, in spite of the fact that the superheater boiler is constructed specially for this type of locomotive. Otherwise, the locomotives are much similar to locomotives built for the British Government. It is not the most powerful type used in the U.S., but on a road where the heaviest locomotives would haul a train of about 90 loaded freight cars this war locomotive would haul 60

to protect the contents of the car from the weather. The inside length of the car is 36 ft. and its capacity 33 tons.

Increased Railway Rates, etc., in United States to be approved before coming effective. The U.S. Congress at its recent session passed the following amendment to the act to regulate commerce, sec. 15: "Provided further until Jan. 1, 1920, no increased rate, fare, charge, or classification shall be filed except after the approval thereof has been secured from the commission. Such approval may, in the discretion of the commission, be given without formal hearing, and in such case shall not affect any subsequent proceeding relative to such rate, fare, charge or classification." This means that the approval of a proposed increased rate, fare, charge or classification must be secured before the tariff containing it is filed with the commission by the carrier. The commission prepared a tentative form of order recently, to carry the provision referred to into effect, and submitted the same for consideration.

Cross Ties Bought in Canada in 1915 and 1916.

The following bulletin, prepared by the Interior Department's Forestry Branch, is based on reports received from 34 steam railways and 33 electric railways buying ties in 1916. The average prices in the tables are based on the cost at the point of purchase, and may or may not include long haul transportation charges. Only in the cases of those woods which are used in large quantities can value given be taken to represent the relative value of the wood.

A total of 7,839,515 ties was bought in 1916, an increase of 246,985 or 3.2% over 1915. This is the first year there has been an increase in the number since 1912.

Of the total ties bought 109,099 were treated with preservative to withstand decay. This is 2.5% of the total, compared with 5% in 1915 and 7% in 1914.

Jack pine heads the list in number of ties cut with 47.3% of the total. It has held this position since 1911, when it displaced white cedar. White cedar still holds well on to second place, the percentage of cedar ties being more than double that of hemlock its nearest competitor.

The average value was 42c a tie in 1916, compared with 44c in 1915. Electric railways bought 3.4% of the total in 1916, compared with 2.5% in 1915 and 1.1% in 1914. The electric railways paid an average of 44c a tie while the steam railways paid an average of 42c.

The number of ties imported in 1916 was 622,819, valued at \$424,599, compared with 1,219,594 imported in 1915, valued at \$749,407. The majority of these ties were of species of wood either not native to or not abundant in Canada such as oak, hard pine, chestnut, and gum.

Photographic Survey of Proposed Railway Route

A panoramic photographic survey of the proposed Oregon, California & Eastern Ry.'s route has been made to show the character and possibilities of the country to persons interested. The camera used was capable of making a picture 8 in. wide and up to 4 ft. long. It revolved on the head of the tripod and was driven by clockwork, so as to cover any desired degree of a circle. From a high point it was possible to cover a distance of 10 to 30 miles. In most cases it was found practicable to take a view from one valley to another, the points being selected by the engineer. Each picture was begun at about the point where the previous one ended.

It required 31 pictures, each 3 to 4 ft. long to cover the entire route. This work consumed 19 days, as much time was taken in getting to and from the view-points. Pictures were taken only under favorable conditions of light, atmosphere and absence of wind, in order to get good results. After the photographs had been made, the Chief Engineer had a draftsman plot the line of the survey upon each picture, so as to show the cuts, fills, structures and other main features.

The G.T.R. Time Service Department reports that during the past 12 months 8,914 employes' watches were submitted for approval, of which 96 were rejected. There was an average of 6,958 men coming under the watch inspection regulations each week, which means that the department checked ratings of 145,132 comparisons during the year.

Ties Bought, 1915 and 1916.

Kind of Wood.	1915.				1916.			
	Number	Value	Av. value	Per cent.	Number	Value	Av. value	Per cent.
Total	7,592,530	\$3,329,029	\$0 44	100.0	7,839,515	\$3,307,319	\$0 42	100.0
Jack pine	2,463,999	986,139	0 40	32.4	3,708,781	1,461,114	0 39	47.3
Eastern cedar	1,957,140	901,623	0 46	25.8	1,642,836	737,253	0 45	21.0
Hemlock	844,160	336,223	0 40	11.1	631,706	231,941	0 37	8.1
Tamarack	628,897	228,317	0 36	8.3	434,833	163,225	0 38	5.5
Oak	328,120	235,306	0 72	4.3	353,751	253,450	0 72	4.5
Eastern spruce	508,321	138,287	0 27	6.7	351,980	147,295	0 42	4.5
Douglas fir	402,020	156,917	0 39	5.3	328,711	100,946	0 31	4.2
Hard pine	96,637	66,765	0 69	1.3	126,901	84,775	0 67	1.6
Chestnut	53,924	26,898	0 50	0.7	77,093	52,774	0 68	1.0
Western cedar	14,129	5,063	0 36	0.2	65,472	24,094	0 37	0.8
Western hemlock . . . . .	.....	.....	.....	.....	62,749	23,657	0 38	0.8
Beech	12,388	7,776	0 63	0.1	18,433	10,155	0 55	0.2
Maple	42,915	29,195	0 68	0.6	12,374	7,177	0 58	0.2
Red pine	2,000	500	0 25	*	8,401	1,620	0 19	0.1
Birch	189,153	187,572	0 99	2.5	6,229	4,148	0 67	0.1
Elm	21,178	9,735	0 46	0.3	4,495	2,029	0 45	0.1
Gum	13,195	6,209	0 47	0.2	2,588	1,166	0 45	*
Balsam fir . . . . .	.....	.....	.....	.....	1,454	263	0 18	*
Ash	64	26	0 41	*	497	185	0 37	*
Western larch . . . . .	.....	.....	.....	.....	228	52	0 23	*
Sycamore	13,195	6,209	0 47	0.2	.....	.....	.....	.....
Western spruce	1,086	269	0 25	*	.....	.....	.....	.....

*Less than one-tenth of one per cent.

Ties Bought, 1915 and 1916, by Steam Railways.

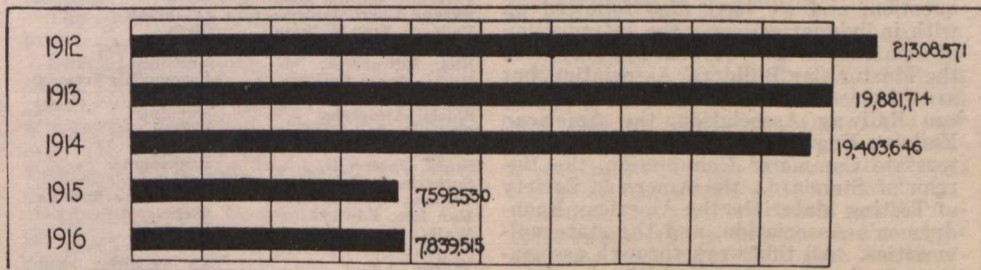
Kind of Wood.	1915.				1916.			
	Number	Value	Av. value	Per cent.	Number	Value	Av. value	Per cent.
Total	7,399,753	\$3,229,000	0 44	100.0	7,572,878	\$3,189,834	\$0 42	100.0
Jack pine	2,462,733	985,706	0 40	33.3	3,668,195	1,443,529	0 45	20.7
Eastern cedar	1,864,398	856,584	0 46	25.2	1,570,586	705,359	0 45	20.7
Hemlock	776,586	300,335	0 39	10.5	509,474	206,898	0 36	7.7
Tamarack	619,923	224,331	0 36	8.4	414,367	154,105	0 37	5.5
Eastern spruce	508,321	138,287	0 27	6.9	344,937	144,702	0 42	4.6
Oak	315,907	225,284	0 71	4.3	339,712	241,763	0 71	4.5
Douglas fir	393,097	152,902	0 39	5.3	279,092	86,646	0 31	3.7
Hard pine	95,783	66,238	0 69	1.3	126,559	84,518	0 67	1.7
Chestnut	53,802	26,819	0 50	0.7	76,325	52,604	0 68	1.0
Western hemlock . . . . .	.....	.....	.....	.....	62,749	23,657	0 38	0.8
Western cedar	14,129	5,063	0 36	0.2	55,972	19,344	0 35	0.7
Beech	12,388	7,776	0 63	0.1	13,372	10,121	0 55	0.2
Maple	42,915	29,195	0 68	0.6	12,374	7,177	0 58	0.2
Red pine	2,000	500	0 25	*	8,401	1,620	0 19	0.1
Birch	189,153	187,572	0 99	2.5	6,229	4,148	0 67	0.1
Elm	21,078	9,695	0 46	0.3	4,495	2,029	0 45	0.1
Gum	13,195	6,209	0 47	0.2	2,588	1,166	0 45	*
Balsam fir . . . . .	.....	.....	.....	.....	1,454	263	0 18	*
Ash	64	26	0 41	*	497	185	0 37	*
Sycamore	13,195	6,209	0 47	0.2	.....	.....	.....	.....
Western spruce	1,086	269	0 25	*	.....	.....	.....	.....

*Less than one-tenth of one per cent.

Ties Bought, 1915 and 1916, by Electric Railways.

Kind of Wood.	1915.				1916.			
	Number	Value	Av. value	Per cent.	Number	Value	Av. value	Per cent.
Total	192,777	\$100,029	0 52	100.0	266,637	\$117,485	0 44	100.0
Eastern cedar	92,751	45,039	0 49	48.1	72,250	31,894	0 44	27.1
Hemlock	67,574	35,888	0 53	35.1	52,232	25,043	0 48	19.5
Douglas fir	8,923	4,015	0 45	4.6	49,622	14,300	0 29	18.6
Jack pine	1,266	433	0 34	0.7	40,586	17,585	0 43	15.2
Tamarack	8,974	3,986	0 44	4.7	20,466	9,120	0 45	7.7
Oak	12,213	10,022	0 82	6.3	14,039	11,687	0 83	5.3
Western cedar . . . . .	.....	.....	.....	.....	9,500	4,750	0 50	3.6
Eastern spruce . . . . .	.....	.....	.....	.....	7,043	2,593	0 37	2.6
Hard pine	854	527	0 69	0.4	342	257	0 75	0.1
Chestnut	122	79	0 65	0.1	268	170	0 63	0.1
Western larch . . . . .	.....	.....	.....	.....	228	52	0 23	0.1
Beech . . . . .	.....	.....	.....	.....	61	34	0 56	*
Elm	100	40	0 40	*	.....	.....	.....	.....

*Less than one-tenth of one per cent.



Ties Bought in Canada, 1912 to 1916.

Cost of Maintaining Electric Locomotives.

By an unfortunate error in type setting, which was not discovered in proof reading, it was stated in an article on this subject, in Canadian Railway and Marine World for August, that the average cost of repairs, power and lubricants on the Norfolk & Western Ry., for electric locomotive equipment, per 100 locomotive miles, for the six months ended Dec. 31, 1916, was \$6,290. It should have been printed as \$62.90. The article referred to is reprinted correctly as follows:

Electric locomotives on the Norfolk & Western Ry., according to that company's report for the six months ended Dec. 31, 1916, proved much more expensive to maintain and operate than steam locomotives. The average cost of repairs, power and lubricants for electric locomotive equipment per 100 locomotive miles was \$62.90, while that of repairs, fuel, stores and lubricants for steam locomotive equipment was only \$25.21. Repairs were respectively \$32.69 and \$12.70. Power and lubricants for the electric locomotives cost \$30.21 per 100 locomotive miles, as against \$12.51 for fuel, stores and lubricants for steam locomotives.

A table in the report divides the steam equipment by divisions and by classes of locomotive (passenger and freight). On the Pocahontas Division, which is the one electrified, repairs to freight and to passenger steam locomotives cost respectively \$14.60 and \$8.53, while fuel, stores and lubricants cost \$15.86 and \$6.01, making totals respectively of \$30.46 and \$14.54.

Association of Manufacturers of Chilled Car Wheels.

Following are extracts of the address delivered by President Geo. W. Lyndon, at the annual meeting, New York, Oct. 9.

It is needless for me to tell you that the chilled iron wheel stands on a firm foundation. You do not see the criticism in the press of the limitation of chilled iron for car wheel purposes. The recognition of a standard 850 lb. chilled iron wheel by the Master Car Builders' Association will dispel the illusions of our competitors with respect to the limit of the carrying capacity of chilled iron. It is a well established fact that the load that can be carried on a chilled iron wheel is only measured by the ability of the rail to support it. Many 33 in. 950 lb. chilled iron wheels are running under heavy locomotive tenders of 12,000 gall. capacity and are giving such a good account of themselves that no other type of wheel is considered by the users. It has taken a long time to bring this about, and the work we have accomplished this year is the result of persistent effort and close association with all the loading organizations in the country that study the wheel question, and we have also followed up with individual railways the introduction of new standards. We deal not only with the Master Car Builders' Association, but are in close association with the American Railway Association, the American Railway Engineering Association, the Interstate Commerce Commission, the Bureau of Standards, the American Society of Testing Materials, the American Foundrymen's Association, and the state universities. All this work through associations, railways and universities is educational and must be beneficial to our

association in determining standards through the Master Car Builders' Association. We must pay the closest attention to the quality of our product. While we have accomplished two-fifths of our programme, we should not rest until we have secured the other three-fifths. We must see that the interior of the 625 and 725 lb. wheel receives recognition in the matter of increased plate thicknesses, which can only be obtained by additional weight. We must have a reasonable factor of safety when measured by excessive stresses encountered in service, and these heat stresses are now recognized everywhere, due to our educational campaign. We are not influenced by commercial considerations in asking for heavier wheels. We know the increased weights are necessary. Who knows what the result of the work of the University of Illinois may be? Perhaps the analyses of the stresses within the wheel may suggest a redistribution of the metal, and we may be able to decrease weights, which we will be ready to do with as great an interest as

we are now anxious to increase them. With the flange improvement settled to our satisfaction and extra weight added to withstand heat stresses, the chilled iron wheel will have a future record as wonderful as it has maintained during the past 67 years of universal use.

The following officers were re-elected for the ensuing year: President & Treasurer, Geo. W. Lyndon; Vice Presidents, E. F. Carry, J. A. Kilpatrick; Secretary, Geo. F. Griffin; Engineer, F. K. Vial.

The Railway Situation in Hamilton.—The Hamilton, Ont., City Council has appointed a special committee to work out the recommendations of the Tye-Cauchon report for the rearrangement of the railway lines in the city and the entrance of new lines. Part of the committee's duty will be to take note of anything the railways at present entering the city propose to do which is at variance with the recommendations of the report, and to take all necessary steps to protect the city's interests.

Canadian Pacific Railway Honor Roll 28.

Anthony, Richard G.	Fitter	Moose Jaw	Wounded
Atcherly, Charles H.	Constable	Transcona	Wounded
Bateman, William W.	Conductor	Sutherland	Gassed
Bell, James	Bridgeman	British Columbia Dist.	Wounded
Bennett, William H. D.	Clerk	Sortin	Killed in action
Brown, Thomas	Laborer	London	Wounded
Buxton, Thomas H.	Trimmer	Lambton	Wounded
Calvin, George Stanley	Locomotive fireman	Bay Shore	Wounded
Cameron, James	Clerk	Calgary	Died of wounds
Canham, Arthur William	Helper	Calgary	Wounded
Carpenter, Clarence	Yardman	Fort William	Wounded
Chambers, Thomas	Apprentice	Angus	Wounded
Coles, Jack McIntyre	Storekeeper	Swift Current	Killed in action
Cottrell, Thomas	Conductor	Calgary	Killed in action
Craik, James	Porter	Fort William	Killed in action
Crawford, Ernest John	Wiper	Coquitlam	Wounded
Dixon, Samuel	Porter	Swift Current	Wounded
Eady, Norman	Brakeman	Schreiber	Gassed
Earnshaw, Herbert	Stripper	West Toronto	Presumed dead
England, Stuart M.	Clerk	Montreal	Wounded
English, Frederick R.	Yardman	Winnipeg	Killed in action
Farthing, Arthur	Car repairer	West Toronto	Died of wounds
Forbes, Alexander	Trainman	British Columbia Dist.	Wounded
Goulet, Evariste Edward	Foreman	New Westminster	Wounded
Graham, Edward Brown	Assistant agent	Morris	Wounded
Graham, William	Trucker	Toronto	Wounded
Green, Charles	Watchman	Strassburg	Wounded
Greer, James Johnston	Pumpman	Irricana	Wounded
Griffin, Henry Norman	Brakeman	Moose Jaw	Wounded
Hannaford, John Henry	Helper	Lambton	Killed in action
Harrison, William	Conductor	Cranbrook	Killed in action
Hay, Thomas Stuart	Conductor	British Columbia Dist.	Died of wounds
Hemmings, Frederick H.	Apprentice	West Toronto	Wounded
Hermiston, Wesley E.	Clerk	Winnipeg	Wounded
Hicks, George	Car cleaner	Glen Yard	Wounded
Hill, William Henry	Locomotive fireman	Winnipeg	Wounded
Hope, Thomas	Yardmaster	Revelstoke	Wounded
Hunter, Ernest Scott	Waiter	Calgary	Presumed dead
Husband, Gordon	Clerk	Vancouver	Wounded
Johnson, Arthur	Trainman	Winnipeg	Wounded
Johnson, William Harry	Clerk	Winnipeg	Gassed
Kennedy, William	Porter	Calgary	Wounded
Kilgour, William	Telegraph agent	Portage la Prairie	Wounded
Lambert, Frank	Stenographer	Montreal	Died of wounds
Lavender, John Smith	Clerk	Vancouver	Died of wounds
McDonald, Daniel W.	Trainman	British Columbia Dist.	Presumed dead
MacLagan, Russel S.	Clerk	Montreal	Killed in action
Malloy, Thomas Oswald	Clerk	London	Wounded
Manson, Ernest	Stenographer	Winnipeg	Wounded
Martin, W.	Cook	Vancouver	Wounded
Mears, James	Cleaner	Winnipeg	Died of wounds
Middletotn, James R.	Assistant engineer	Vancouver	Died of wounds
Millership, Wilfrid E.	Locomotive fireman	East Calgary	Killed in action
Moorwood, Arthur Henry	Fireman	B.C. Lake & River Serv.	Wounded
Morgan, William Francis	Fireman	B.C. Coast S.S. Service	Wounded
Muir, William	Porter	Port McNicoll	Wounded
Murphy, James	Clerk	Kenora	Wounded
Murray, William	Trucker	Estevan	Wounded
Peterkin, Gordon Miles	Clerk	Ottawa	Wounded
Pyrke, Albert James	Trainman	Winnipeg	Killed in action
Raddish, Fred William	Clerk	Victoria	Died of wounds
Reid, Wilbert Christopher	Bolt threader	North Bay	Wounded
Rick, Edward A.	Machinist	Angus	Gassed
Riley, Harry Colbert	Locomotive fireman	Chapleau	Wounded
Robison, Norman	Wiper	Medicine Hat	Wounded
Shiels, Alexander	Machinist	Winnipeg	Killed in action
Sims, Frederick	Helper	Winnipeg	Killed in action
Spicer, Frederick J.	Cleaner	Toronto	Died while prisoner
Stark, Joseph G.	Brakeman	Calgary	Killed in action
Sutherland, Robert	Laborer	Fort William	Died of wounds
Thomas, Wilfred Ernest	Locomotive fireman	Souris	Wounded
Van Loo, Edward	Clerk	Calgary	Wounded
Walls, Nixon	Helper	Ogden	Killed in action
Walton, Barclay Evelyn	Locomotive man	Winnipeg	Killed in action
Wilbee, Victor	Car repairer	West Toronto	Wounded

Shown on Honor Lists to date: Killed, 515; Wounded, 1,111; total, 1,626.

Organization of Canadian Railway Association for National Defence.

An organization of Canadian railway officials has been formed to co-ordinate the various railway companies' work during the war, on similar lines to the American Railway Association's Special Committee on National Defence, which is generally known as the United States Railroads' War Board. Following are full particulars of the steps taken to effect the organization.

In response to a request from Sir Henry Drayton, Chief Railway Commissioner, stating that the Minister of Railways wished to consider the question of ensuring close co-operation between the various railways, and the common use of rolling stock, during the war, a meeting was held at the Minister's office in Ottawa, Sept. 24, at which, in addition to the then Minister, Hon. F. Cochrane, there were present: Sir Henry Drayton, Chief Railway Commissioner; G. A. Bell, Assistant to the Minister and Financial Comptroller; E. W. Beatty, K.C., Vice President and General Counsel, and Alfred Price, Assistant General Manager, Eastern Lines, C.P.R.; U. E. Gillen, Vice President in Charge of Operation, and C. G. Bowker, General Superintendent, Eastern Lines, G.T.R.; R. C. Vaughan, Assistant to Third Vice President, and S. J. Hungerford, Superintendent of Rolling Stock, Canadian Northern Ry.; and C. A. Hayes, General Manager, Eastern Lines, Canadian Government Railways.

The Minister stated that the object of the meeting was to advise the railway managements that the government considered there ought to be closer co-operation between them, and he suggested that the lines should be handled by a committee, composed of the best railway men in the country, who should arrange the distribution of equipment, as between the companies, in the event of one company being short and another having a surplus. He pointed out as the most important questions the distribution of equipment, the diversion of freight, and the per diem amount to be allowed by one company to another for rolling stock loaned. He suggested that the railway officials present should go to the United States, to get fuller particulars as to the operations of the U. S. Railroads' War Board.

Messrs. Beatty, Gillen, Price and Vaughan then went to New York, where they saw the Railroads' War Board's Secretary, and obtained a large amount of information as to the board's operations. Messrs. Gillen, Price and Vaughan afterwards went on to Washington, where they saw the Commission on Car Service, which works under the Railroads' War Board's directions, and obtained information as to its work.

Another meeting was held at the Minister's office in Ottawa, Oct. 11, there being present Hon. J. D. Reid, who has succeeded Mr. Cochrane as Minister; Sir Henry Drayton, Sir George Bury, E. W. Beatty, D. B. Hanna, and U. E. Gillen, the matter being further discussed and a decision arrived at to hold a more general meeting in Montreal.

In response to an invitation from Sir George Bury to the principal railway companies, the following officials met at the C.P.R. general offices in Montreal, Oct. 23: Sir George Bury, Vice President, Canadian Pacific; U. E. Gillen, Vice President, Grand Trunk; D. B. Hanna, Third Vice President, W. A. Kingsland, General Superintendent, Quebec Lines, Canadian Northern; C. A. Hayes, General Manager, Eastern Lines, F. P. Brady, General

Manager, Western Lines; L. S. Brown, General Superintendent, Intercolonial and Prince Edward Island Divisions; H. H. Melanson, Passenger Traffic Manager, Canadian Government Railways; W. A. Griffin, Superintendent of Traffic, A. J. Parr, General Freight and Passenger Agent, Timiskaming & Northern Ontario; F. F. Backus, General Manager, Toronto, Hamilton & Buffalo; J. H. Walsh, General Manager, Quebec Central; E. C. Smith, President, Central Vermont; S. R. Payne, Manager, New York & Ottawa; H. Shearer, General Superintendent, Michigan Central; C. S. Sims, Resident Vice President, Delaware and Hudson; J. H. Hustis, Temporary Receiver, Boston & Maine; C. A. Montgomery, Vice President and General Manager, Algoma Central; A. L. Smith, President, Algoma Eastern. Mr. Hanna presided.

The following resolution was adopted unanimously: That the railways of Canada, realizing the national need of co-ordinating all industrial activities toward the prosecution of the war, and desiring by further co-operation with each other to render the most efficient possible service to the national cause, do hereby agree to establish, for the period of the war, an organization which shall have authority to formulate in detail, and from time to time, a policy of operation of all or any of the railways, which policy, when it is announced by such organization, shall be accepted and made effective by the several managements of the individual railway companies. To that end the following committees shall be established: (1) A committee of four, to be chosen from the chief executive officers of the several railways, to be called "The Special Committee on War and National Defence," which shall have general direction of the said scheme. (2) A committee to be chosen from the vice presidents and chief operating officers of the railways, composed of seven members, to be called "The Administrative Committee," whose duties shall be to carry out the policies laid down and arrangements made by the Special Committee on War and National Defence. That the Administrative Committee shall have power to appoint sub-committees, who shall have supervision over the following: (i) Passenger transportation; (ii) Freight transportation; (iii) Tariffs and statistics; (iv) Materials and supplies. That a general secretary to both committees shall be appointed, with such duties as shall be assigned to him, together with such staffs as he may require, to be selected by him from the employes of the several railways. That the expenses incurred in carrying out the arrangements of the above shall be assessed against all railways operating in Canada, on a basis of half the cost in proportion to the mileage operated, and the other half in proportion to gross earnings. This applies to mileage and gross earnings in Canada.

The committees were constituted as follows:

Special Committee on War and National Defence: Lord Shaughnessy, President, Canadian Pacific; Sir William Mackenzie, President, Canadian Northern; H. G. Kelley, President, Grand Trunk; A. H. Smith, President, New York Central.

Administrative Committee: U. E. Gillen, Vice President, Grand Trunk, Chairman; Sir George Bury, Vice President, Canadian Pacific; D. B. Hanna, Third Vice President, Canadian Northern; C. A.

Hayes, General Manager, Eastern Lines, Canadian Government Rys.; F. F. Backus, General Manager, Toronto, Hamilton & Buffalo; J. H. Walsh, General Manager, Quebec Central; E. D. Bronner, Vice President and General Manager, Michigan Central.

Car Service Committee: A. Hatton, General Superintendent, Car Service, Canadian Pacific; J. E. Duval, General Superintendent, Transportation, Grand Trunk; W. A. Kingsland, General Superintendent, Quebec Lines, Canadian Northern; W. N. Ripley, Superintendent, Car Service, Canadian Government Railways; A. E. Locke, Superintendent, Car Service, Toronto, Hamilton & Buffalo; W. A. Griffin, Superintendent of Traffic, Timiskaming & Northern Ontario Railway.

Sub committees will be established in each province to report to the administrative committee.

W. M. Neale, acting Superintendent of Car Service, Canadian Pacific, Montreal, was appointed Secretary of the association and of all its committees.

Grand Trunk Pacific Railway Annual Meeting.

At the adjourned annual meeting of the company at Montreal, Oct. 17, A. W. Smithers, Chairman of the Board, in reviewing the results for the past year, said it was gratifying to note an improvement, although much remained to be accomplished before the property could be on a self sustaining basis. This condition, however, could only be the natural result of constructing lines through hitherto unsettled and undeveloped country, and was the history of all other transportation lines. It was therefore encouraging to note marked improvement in these conditions from year to year as the advent of the railway had made possible the discovery and opening up of almost unlimited natural resources. Notwithstanding the stopping of foreign immigration during the war, a very considerable immigration from the U. S. well equipped financially for farming and other pursuits, continued to go into the new country, and in addition to the increased acreage taken up, a number of lumber mills along the Fraser River, in British Columbia had been built to supply the increasing demand for lumber on the prairies, all of which made traffic for the railway.

The following board was elected for the current year: A. W. Smithers, Chairman; H. G. Kelley, President; J. E. Dalrymple, Vice President; W. H. Biggar, K.C., Vice President and General Counsel; Frank Scott, Vice President and Treasurer; W. H. Ardley, Comptroller; Sir H. M. Jackson, J. A. Clutton-Brock, Sir W. L. Young, E. J. Chamberlin, Hon. R. Dandurand, W. M. Macpherson, P. McAra, J. B. Fraser and Jules Hone. The Vice President and General Manager is W. P. Hinton, and the Secretary is H. Phillips.

Systematic Thefts of Freight from C.P.R. cars west of Toronto brought about an investigation, the result of which was that at Galt, Ont., Oct. 15, a car checker and a brakeman were each sentenced to three years in the penitentiary; a fireman was sentenced to 12 months imprisonment, a yardman to six months imprisonment, and a fireman and a night operator were fined \$200 each for handling whiskey which formed part of goods stolen.

Jacking Stall for Repairing Steel Cars.

The Canadian Government Railways has installed recently in its freight car shop at Moncton, N.B., a jacking stall for use in repairing steel cars, illustrations of which are given herewith. The frame was made up complete from second hand bridge material, and is of ample size to repair the largest type freight cars. It is 38 ft. 5 in. long and 16 ft. 3 in. wide, the top being open. The foundation is of concrete, 5 ft. deep, in which are embedded anchors for use in holding down a car when the jacks are applied for straightening bent and twisted portions of frame. Rails have been placed on the top of the frame, on which a traveller is operated. This traveller is fitted with a

Freight and Passenger Traffic Notes.

The C.P.R. General Agent's office and city ticket office at Detroit, Mich., has been removed to 199 Griswold St., from 7 Fort St. West.

The Alberta & Great Waterways Ry. winter train service will consist of a train leaving Edmonton at 8 a.m. on Wednesdays and Saturdays, returning from Lac la Biche on Mondays and Thursdays.

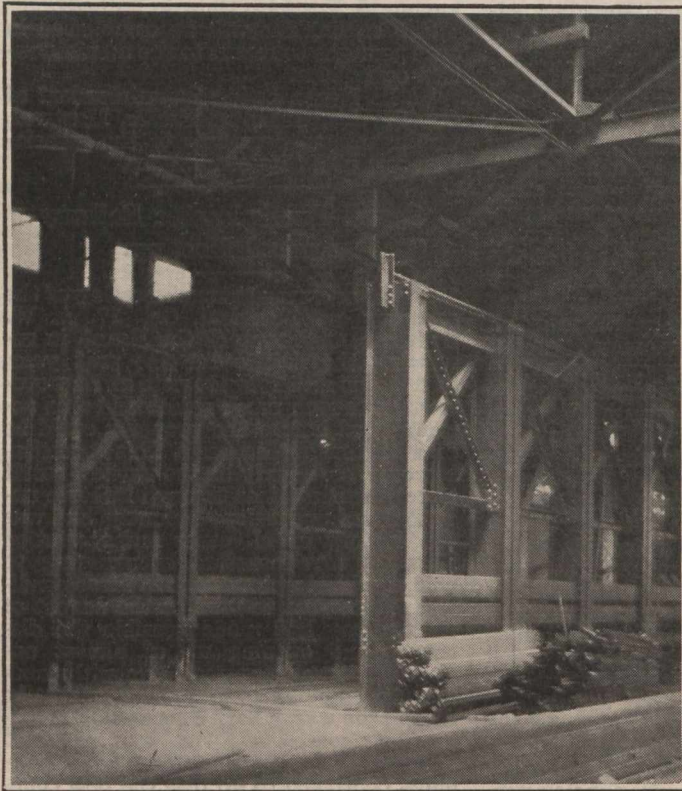
The Canadian Government Railways has placed separate combination dining cars on the National Transcontinental Ry. between Quebec and Cochrane, and standard sleeping cars between Quebec and Winnipeg.

The sailing of the C.P.R. afternoon steamer, leaving Victoria for Vancouver, B.C., was altered from 3.00 p.m. to 2.00

British Columbia Ry. and its allied companies, the Alberta & Great Waterways Ry. and the Central Canada Ry. The rate is asked for via the Canadian Pacific, Canadian Northern and Grand Trunk Pacific Railways.

A press report states that the Board of Railway Commissioners has received a report from its engineering department favoring the granting to the Grand Trunk Pacific Ry. of running powers over the Canadian Northern Ry. into Saskatoon, Sask., and that an order will be issued at an early date. The G.T.P.R. passes about two miles south of Saskatoon, and a bridge would have to be built over the South Saskatchewan River in order to provide a separate entrance.

A press report states that the railway companies are taking steps to put a stop



Jacking Stall for Repairing Steel Cars, Canadian Government Railways.

chain block, which is mounted on a small trolley, and is used for supporting rivet busters, jacks and other heavy tools when they are required. The frame has only been in use for a short time, but it has already proved its usefulness. It enables repairs to be made quickly to cars which are badly bent and twisted. We are indebted to G. E. Smart, Master Car Builder, C.G.R., for the foregoing information and for the photographs.

M. J. O'Brien, Limited, has been incorporated under the Dominion Companies Act, with an authorized capital of \$20,000,000, and office at Ottawa, to take over and carry on all the business enterprises of railway contractor, lumberman, mine owner, manufacturer, agriculturist, etc., heretofore carried on by M. J. O'Brien, of Renfrew, Ont.

The U.S. Director General of Railways, S. M. Felton, has announced that units of railway officers, comprising division superintendents and their staffs, under a general manager and two general superintendents, are being sent to Russia to assist in the rehabilitation of the Trans-Siberian Railway.

p.m., on Oct. 1, so that passengers might make connection with the 7.00 p.m. train east via the Kettle Valley Ry. route.

The Edmonton, Dunvegan & British Columbia Ry. gave notice recently that passengers and freight would be handled to points north of La Biche up to and including mileage 202, on the Alberta & Great Waterways Ry., every two weeks, instead of weekly as heretofore.

The National Transcontinental Ry. local passenger train operating between Winnipeg and Redditt, Ont., was discontinued Sept. 30. The mixed trains, which were run during the summer, one in each direction daily between Winnipeg and Graham, are being continued.

The Edmonton, Dunvegan & British Columbia Ry. put its winter time table in operation Oct. 20. The train for Peace River and other points leaves Edmonton at 4.30 p.m. on Mondays and Thursdays, instead of Tuesdays and Fridays, as during the summer. The return train leaves Peace River on Tuesdays and Fridays.

The Board of Railway Commissioners is being asked to sanction a joint railway rate from Winnipeg to the district opened up by the Edmonton, Dunvegan &

to car tracers entering the railway yards at the different terminals. It is stated that representatives of large firms, particularly coal dealers, have been in the habit of visiting terminal points with a view to locating cars consigned to their plants, and when such shipments are located, get them out on the first train by remunerating men in charge of the yards. It is pointed out that this practice is a discrimination against the smaller manufacturers or dealers, who, perhaps, were unable to make such expenditures.

Suggested Union Station for Edmonton, Alta.—At a sitting of the Board of Railway Commissioners in Edmonton, Alta., Oct. 16, a Board of Trade delegation advocated the erection of a union station for all railways entering the city. The site suggested is between 101st and 109th Streets and between the Canadian Northern Ry. tracks and Jasper Ave. The commissioners stated that the board had no power to direct that railway companies erect union stations, but they would look over the proposition with a view of future developments.

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

Canadian Railway and Marine World is desirous of publishing all the information possible about the war work of Canadian transportation men, engineers, etc., and invites its readers to send in information for use in this connection. No doubt a large number of our readers receive many letters from the front, etc., extracts from which would prove of interest in these columns. We should be glad to be favored in this respect.

The G.T.R. Patriotic Association contributed \$2,000 to the British Red Cross Fund, for which special contributions were raised throughout the Dominion during October.

Overseas Transport Service.—A. H. Harris, Special Traffic Representative, C.P.R., Montreal, who has been loaned by the company, since early in the war, to direct the assembling and transportation overseas of supplies for the Canadian, British and other allied forces, is said to

to his order should be given priority over all traffic, excepting passenger. As a consequence, notwithstanding the volume of tonnage affected, transports have not been held for cargoes, nor has there been congestion at the Canadian seaboard, such as has been experienced at some U.S. ports. The actual time occupied by vessels in loading at Montreal has been under 4½ days.

The Timiskaming and Northern Ontario Railwaymen's Patriotic Association, up to July 31, contributed \$15,223.67 to the Canadian Red Cross; \$18,216.26 to the Canadian Patriotic Association, and \$13,660.91 direct to enlisted employees. The T. & N. O. R. Commission has subscribed \$5,000 and \$10,000 respectively to the Canadian Red Cross and Canadian Patriotic Associations.

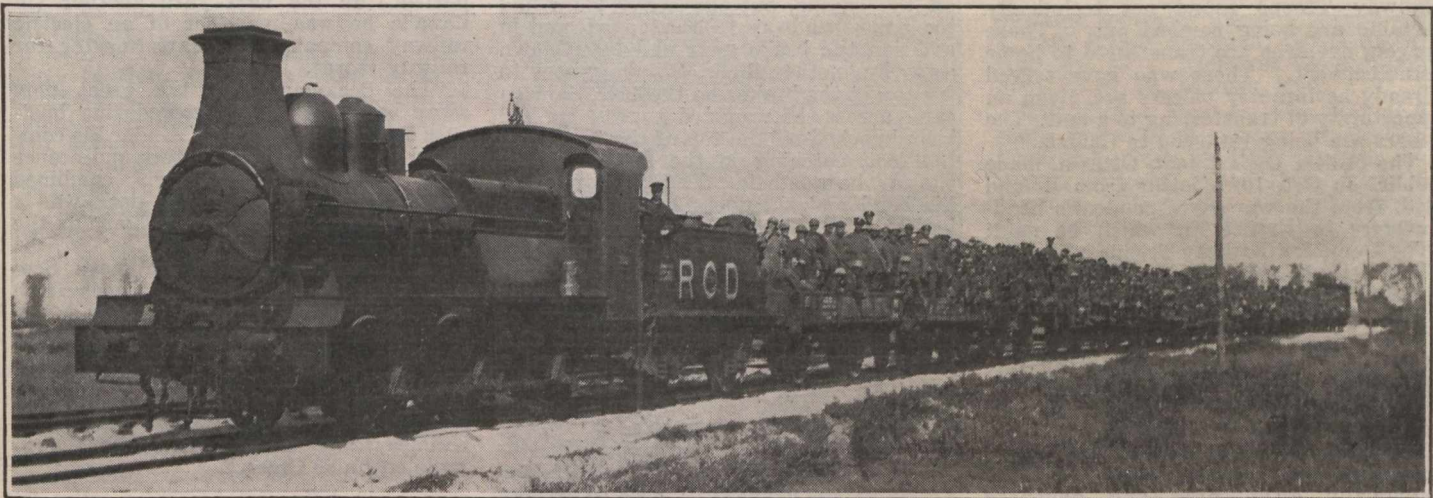
Toronto Ry. employees are reported to have contributed 860 men to the army, since war broke out.

his splendid coolness and personal example he so influenced his men that the work of evacuating the wounded was promptly and successfully achieved."

Lieut. John S. Hall, formerly of the C.P.R. Mechanical Department, who was in no. 13 Light Railway Operating Co., R.E., in France, has been transferred to the Reinforcement Depot, Tank Corps, B. E. F.

Capt. W. B. Hanna, son of D. B. Hanna, Third Vice President, Canadian Northern Ry., who returned from England recently to Toronto, on sick leave, has relinquished charge of the Canadian Expeditionary Force's stationery service in London.

Sergt. N. W. Hanna, of Toronto, who has been wounded on four different occasions, has been awarded the distinguished conduct medal for services in connection with an enemy party which was destroyed after refusing to surrender. He was formerly engaged on C.P.R. construction.



Transportation of Troops to the Front in France.

In the first years of the war, the troops reached the trenches tired out by long and weary route marches. Now things are different, having been changed by the building of military railways. Official photograph issued by Press Bureau. Crown copyright reserved. Loaned by C.P.R.

be now taking charge of four-fifths of Canada's export trade, inland and overseas. Between Aug., 1914, and Feb., 1915, War Office supplies were moved overseas in chartered vessels; between Feb., 1915, and date transports have been supplied by the Admiralty. The bunkering of transports is done on this side, under the direction and supervision of the Director, as is also the dry docking of vessels when necessary. Exclusive of officials and representatives at Vancouver, Calgary, Edmonton, Regina, Winnipeg, Fort William, Toronto, Quebec, Three Rivers, Halifax and West St. John, there is a clerical staff of 45 in Montreal. The number of checkers, longshoremen and dock laborers under the Director's control at the several Canadian ports used by the department exceeds 1,600 men, with a pay roll of \$33,000 a week. The volume of tonnage cleared from the seaboard has been facilitated and delays minimized from the fact that the Canadian Pacific and Grand Trunk presidents, recognizing the growth of the transport service, considered concentration of authority necessary to efficient direction, and accordingly issued instructions to their operating officials that the regulation and control inland of all Imperial transport should be vested in the Director of Overseas Transport. Instructions were issued concurrently that all transport consigned

PERSONAL NOTES.

Capt. W. H. Bennett, Quebec Regiment, C.E.F., who was reported killed, Aug. 13, was formerly on the C.P.R. staff at Montreal, enlisted in the early stages of the war as a private, and went overseas with the first contingent. His commanding officer wrote that he had taken his company over the top, and received a hit, but continued and reached the first objective, when, perceiving that an enemy machine gun in the final trench was accounting for several casualties, he, with three men, made a dash for the gun and captured it, receiving a fatal wound in so doing. He declined to have the wound dressed and ordered his men to carry on.

Lieutenant E. F. Ellis, Royal Field Artillery, B. E. F., who has been awarded the Military Cross, enlisted in Oct. 1914, and prior to that was in the Registrar's Department, C.P.R., London, Eng. The work which earned him the Military Cross is officially described as follows: "Whilst constructing observation posts on two separate occasions, he displayed the utmost disregard for his own personal safety, when the parties he was in charge of had serious casualties. Under heavy fire he withdrew his party to a place of comparative safety, and returned and proceeded to collect the wounded and get them away, remaining for half an hour in the shelled area until all was clear. By

Lieut. Hay Hebson, West Yorkshires, who was reported, Oct. 21, as killed in action, went overseas with the 2nd Canadian Contingent, and was formerly on the C.P.R. staff.

Lieutenant Frank Quinlan, Montreal, who was reported killed in action, Sept. 29, was a son of Hugh Quinlan, of Quinlan & Robertson, railway and general contractors, and prior to enlisting was engaged in the Canadian Government Railways shops at Transcona, Man. He went overseas with one of the pioneer units, and had been in France for about three months, where he was attached to a railway construction battalion.

Lieut. R. S. Richardson, of the 13th Light Operating Co., R.E., British Expeditionary Force, formerly Superintendent, Canadian Government Railways, Fort William, Ont., while riding up to the front in July, on a load of steel, which apparently had not been well loaded, and slipped off the car, carrying him with it, had one of his legs badly cut, both above and below the knee. He was in hospital for about 10 weeks, but a letter, dated Sept. 29, stated that his wounds had healed and that he had returned to duty, after spending a few days touring the war area and visiting Nieuport, Arras, Lens, Vimy Ridge, etc. His company has had a number of casualties, a few fatal, and a number gassed and shell shocked.

Major Ian Sinclair, of No. 1 Company, 13th Battalion, Royal Highlanders, of Montreal, who has been awarded the Military Cross, is the second son of Angus Sinclair, railway contractor, Toronto. He went overseas at the beginning of the war and has been throughout with the third brigade of the first Canadian division, having been wounded four times.

The Canadian Railway Troops' Work.

A recent report on the Canadian Railway Troops shows that during July last they did the following work on railway lines:

	Standard gauge.	Narrow gauge.
Miles located	21.10	82.71
" graded	11.12	90.27
" grade repaired . . . . .	.02	28.00
" track laid	11.23	88.09
" ballasted	16.53	99.71
" surfaced	17.86	60.06

In addition to this, the troops, which approximate 8,000 men, maintained a large mileage of both standard and narrow gauge lines.

A London cablegram of Oct. 15 said: "Officers of the Canadian Forestry and Railway Troops found not technically suitable are being combed out. Those serving overseas are transferred to home establishment. Those who have served already as infantry officers are given an opportunity of transferring to a unit. The others are being returned to Canada."

The Militia Department, Ottawa, made public, on Oct. 10, a letter from Roland Hill, from the war correspondent's headquarters in France, in which he said: "The Dominion Railway Troops have done their little share so well that this morning the Director-General of Transport came over and congratulated them. All these Canadian units are delighted to be near the battle that is driving the Hun further than ever from coveted Ypres."

Roland Hill, in another letter given out by the Militia Department, Oct. 16, says: "In the present phase of warfare on the Western front, when trench lines have practically disappeared and advanced posts have taken their place, the Hun artillery does not attempt the old front line barrages that made life in the trenches so uncomfortable. It is that section immediately behind these new posts that comes in for Fritz's constant attention, and it is in this area that the Canadian Railway Troops have been winning great praise from all sections of the army. In this devastated country, where a pile of broken bricks overgrown with weeds, and a sign with a map location, designate a former village, where roads have altogether disappeared, and even cross country trails melt in a single night, the Canadian railway men construct and maintain their lines. They are shelled by Fritz, if anything, more persistently and in greater volume than the infantry, yet night and day tons of ammunition and rations and men go forward over repaired lines, feeding guns and men alike. The experiences of the railway troops are not lacking in excitement.

"A colonel of Peace River fame and his battalion from Alberta have one of these areas to look after. In a district which can be compared in size with Hamilton and Dundas, Montreal and Ste. Agathe, or Vancouver and Burnaby Lake, they have constructed nearly 150 miles of light railway. It has been planned strategically, so that if one line is suddenly destroyed by shells, traffic can be sent around another way. The men and guns ahead never want for anything. They are not supposed to be operating troops, but when the hot times come they are always

found running trains and loading cars, in addition to doing their own jobs. They are the 'trouble hunters' of the first line of communication.

"During one of the recent attacks Sergt. Oscar Samson, of Alberta, was seriously wounded in the arm. Instead of trekking for medical assistance back in the rear, he attempted to carry on at his job of mending lines destroyed by Hun shells, so that more ammunition could be rushed up. Finally his arm got so painful he decided to go forward on the track that had been mended to an advanced dressing station he knew of. His wound had been fixed by a comrade, and his arm was tied up in an improvised sling. Samson climbed on a tractor that was hauling a trainload of Stokes gun ammunition. When they got to a junction near the front line, both guard and driver were wounded by splinters from a high explosive shell. The little train had made the crest of the grade and was gathering momentum every second, with the driver of the tractor hanging limp and unconscious from his seat. Samson pulled him up to a place of safety and shut off the engine, but the heavy train had too much headway to be stopped, and in addition the brake gear had been blown away by another shell. Climbing back to try to get the brakes on the cars, Samson came across the wounded guard. He had been knocked off the top of the truck and his foot, catching in the framework of the car, he was being dragged along with his head and shoulders bumping on the ballast. The Canadian sergeant released his foot, but failed in his attempt to gather him up into the rapidly moving car. About a hundred yards ahead was another ammunition train, its cargo of high explosive shells being unloaded at a battery position. By good luck, and a knowledge of braking learned on the grades in the Rockies, Samson managed to slow down his train just as it reached the standing trucks, and a serious collision and explosion were avoided. Then, although the shell fire was extremely heavy, the sergeant went back and rescued the wounded guard. Samson won the Military Medal for his splendid exhibition of pluck.

"There are many such tales of courage. In another of the Alberta companies there is an officer with a Military Cross and a man with a Military Medal. This is how they were won: The 'gang' were repairing a shelled-out switch which had marooned a trainload of Stokes gun ammunition, badly wanted up at the front. A fragment of Hun shell detonated a whole cargo, knocked out about a score of men, and sent Lieut. K. Corbitt spinning, a piece of casing cutting his Sam Browne belt in half. Corbitt gathered himself up and found his company commander wounded and unable to 'carry on.' The lieutenant, assisted by acting sergeant Simpson, also from Alberta, dived in among the burning truckloads of ammunition and removed all the wounded to a safer place and got them medical assistance. With the same non-commissioned officer, he vainly tried to put out the fire with sand ballast, but the shells were exploding too fast, and the flames continued to gain headway. Simpson, finding it was impossible to save the ammunition, crawled around and collected the railway tools that had been scattered by the first explosions."

In another letter, made public in Ottawa, Oct. 23, Roland Hill said: "Today the Colonel of Canadian Railway Troops invited me to accompany him to an exhibition he was giving to French, Belgian

and British engineers. He walked along a new main military line built with rails from Canadian railways. The ties had been cut in a miniature Canadian sawmill not many miles south, in woods where the Kaiser's Uhlans roamed early in the war. Out in the large yard there was a big steam shovel eating away the side of the hill, filling a truck a minute—the Belgian officer timed the great engine—to go forward where the light railway crews—Canadians there, too—were ballasting new lines. Fritz's airmen spotted them one day, and for weeks afterwards his artillery searched for them, wasting hundreds of rounds of ammunition. The Germans thought it was some new mastodon of destruction. It used to work on a Canadian Pacific grade in Northern Ontario. When the Huns broke back along the coast they left various bits of tangled machinery. The Canadian Colonel gathered these up, commandeered a big railway truck, and built a track layer in his own blacksmith shop.

"At railhead there is a young Canadian railway transport officer who used to be train dispatcher at a little place on the prairie. In the next yard another (in Canada he was manager of an electric railway company) is quartermaster for railway stores.

"The dockmaster at the great port away back was in the stevedoring business on the Pacific coast. Under his command were more transporters and cranes than Vancouver and Victoria combined will see for years. In the dock was a tramp ship straight from his home on the Pacific coast.

"A lieutenant-colonel from Nova Scotia, with his labor battalion men from all parts of the Dominion, who knew the job, had trebled the port for unloading the rails. At another port I found a colonel, an Ontario member of parliament, handling a bunch of Chinese coolies piling lumber, and even the native interpreter claimed Canadian association with sawmills on False Creek."

The C.P.R. and Vancouver Tide Lands.—A claim is being made in an action brought by the Pacific Box Co. against J. G. Woods in a British Columbia court that the C.P.R. has no right to collect rents on certain waterfront land on the north side of False Creek near the Courbe St. bridge, Vancouver. Woods originally leased the property, which comprises two parcels, one the property down to high water mark, the other the reclaimed land beyond that point. Woods leased to A. J. Forsythe, who gave the Pacific Box Co. permission to store lumber, etc., on the wharf. Forsythe, it is alleged, was in arrear with his rent, and Woods seized lumber belonging to the Pacific Box Co. in satisfaction. A press report states that point raised will involve the question of the C.P.R. title to all of the tide lands it is using in Vancouver.

C.P.R. Inspection Trip.—Sir George Bury, Vice President, and other officers completed their inspection trip over the company's western lines, Oct. 1, and left Winnipeg, Oct. 2, reaching Montreal, Oct. 4. R. B. Angus, the oldest director of the company; F. L. Wanklyn, General Executive Assistant, and J. G. Sullivan, Chief Engineer, joined the party in Vancouver, Sept. 25, and returned east with it.

The Esquimalt & Nanaimo Ry., a C.P.R. subsidiary, has issued a number of writs asking for an injunction restraining further prospecting on lands on the Chemainus land district, Vancouver Island. Among the defendants is the Canadian Collieries (Dunsmuir) Ltd.

Mainly About Railway People Throughout Canada.

C. R. Morrill has been appointed Assistant General Manager of the Southern Pacific Ry., at Houston Texas.

F. P. Drake, M.D., one of the G.T.R. surgeons at London, Ont., died there suddenly Oct. 7.

Col. F. Firebrace, R.E., who died in England recently, was a director of the G.T.R. and the Grand Trunk Pacific Ry., and also of the Great Indian Peninsular Ry.

N. R. DesBrisay, District Passenger Agent, C.P.R., St. John, N.B., was presented with a silver coffee urn and serving tray by his staff, recently on the occasion of his marriage.

Hon. Chas. Stewart, M.L.A., who has succeeded Hon. A. L. Sifton as Premier of Alberta, has also been appointed Minister of Railways and Canals for the province, as well as President of the Council.

Miss Florence Page Black, daughter of James Black, Claim Agent, British Columbia Division, C.P.R., Vancouver, was married there recently to W. Harold Sim, of that city.

Geo. W. Yates, for many years secretary to Hon. Frank Cochrane, until recently Minister of Railways, has been appointed secretary to the Prime Minister, Sir Robert Borden.

J. Sydney Roe, who has been private secretary to Hon. J. D. Reid, as Minister of Customs, for the past six years, will continue to act as private secretary for him as Minister of Railways.

A. Grills, General Roadmaster, G.T.R., St. Thomas, Ont., was elected President, Roadmasters and Maintenance of Way Association, for the current year, at the recent annual convention in Chicago.

W. A. Wilson, who retired from the position of Canadian Freight Agent, New York Central Lines, at Toronto, recently, has been given a silver service and an illuminated address by a number of friends.

Lincoln Smith, Assistant to Manager, B.C. Coast Steamship Service, C.P.R., Victoria, is reported in a press dispatch as about to resign to become Managing Director of Peter McQuade & Sons, ship chandlers, Victoria.

George Beckingham, Superintendent of Track, G.T.R., Montreal, was elected a member for four years, of the executive committee of the Roadmasters and Maintenance of Way Association, at its recent annual convention in Chicago.

R. F. Hill, Assistant General Freight and Passenger Agent, Toronto, Hamilton & Buffalo, Ry., Hamilton, Ont., was presented with a cabinet of silver by head office officials and employes, Oct. 11, on the occasion of his recent marriage.

Hon. Hugh Guthrie, M.P. for South Wellington, Ont., since 1900, who has been appointed Solicitor General in the Dominion Government, was for several years Chairman of the House of Commons Railway Committee.

Wm. Murdoch, City Engineer, St. John, N.B., died there suddenly, of apoplexy, Oct. 8, aged 69. He was the son of Wm. Murdoch, one of the first conductors on the European & North American Ry., between St. John and Shediac.

Charles E. Donovan, who died in Toronto, Oct. 9, was at one time freight agent on the Toronto, Hamilton & Buffalo Ry., and was subsequently employed by the Quaker Oats Co. at Chicago, and latterly at Traffic Manager, T. Eaton Co., Toronto.

G. C. Peters, local manager, New Brunswick Telephone Co., Moncton, N.B., who died there suddenly, Oct. 3, aged 73, was engaged on construction on the Inter-colonial Ry., between Dorchester and Sackville, N.B., many years ago. He had been with the New Brunswick Telephone Co. for over 30 years.

F. P. Gutelius, formerly General Manager, Canadian Government Railways, Moncton, N.B., and now Vice President and General Manager, Delaware & Hudson Co., Albany, N.Y., has also been elected Vice President of the United Traction Co., Albany, and the Schenectady Ry., Schenectady, N.Y., which companies operate electric railways in the Albany and Schenectady districts.



A. C. Boyce, K.C., D.C.L., who has been appointed a member of the Board of Railway Commissioners for Canada.

H. S. Rogers, Maintenance Engineer, Delaware & Hudson Co., Albany, N.Y., has been appointed Division Engineer in charge of maintenance of way on the Susquehanna Division, at Oneonta, N.Y. This is the division of which J. K. McNeillie, formerly General Superintendent, Canadian Government Railways, Moncton, N.B., was appointed Superintendent recently.

F. C. Salter, European Traffic Manager, G.T.R., London, Eng., expressed regret at his inability to accept an invitation to attend the unveiling of the Bell memorial, at Brantford, Ont., Oct. 24, in commemoration of the invention of the telephone there. As a boy, he was one of the party to speak over the world's first telephone line in 1876 between Brantford and Tutela Heights, where the inventor, A. G. Bell, lived.

W. W. Atterbury, Vice President of the Pennsylvania Rd., who is now supervising railway operations for the U.S. troops in France, was nominated, on Oct. 2, to be a brigadier general in the National Army. He was appointed Director General of

Transportation of the U.S. Expeditionary Army in France, on Sept. 14, after a month's service in active charge of all railways, docks and highways under General Pershing.

James William Doyle, whose appointment as General Manager, Cape Breton Ry., St. Peters, N.S., was announced in our last issue, was born at Summerside, P.E.I., Oct. 12, 1872, and entered railway service in April, 1895, since when he has been, to Sept. 1902, clerk, C.P.R., Montreal; Sept. 1902, to July 1903, accountant, Montreal Terminal Ry., Montreal; July 1903 to July 1917, Auditor, Cape Breton Ry., St. Peters, N.S.

Albert John Michener, whose appointment as General Foreman, Michigan Central Rd., St. Thomas, Ont., was announced in our last issue, was born there, Nov. 9, 1874, and entered M.C.R. service July 3, 1889, since when he has been, to July 3, 1894, apprentice on car building; July 3, 1894, to Dec. 1, 1902, car builder; Dec. 1, 1902, to June 1, 1908, freight and wood machine foreman; June 1, 1908, to Oct. 1, 1916, Coach Foreman; Oct. 1, 1916, to Aug. 14, 1917, Assistant General Foreman, all at St. Thomas, Ont.

Milo Clifton Dawson, who died at Toronto recently, was born at Beekmantown, N.Y., June 28, 1852. He was, from Aug., 1887, to June, 1890, conductor, Wagner Palace Car Co., Weehawken, N.J.; June, 1890, to June, 1898, Assistant District Superintendent, same company, Weehawken, N.J.; June to Sept., 1898, agent, same company, Saratoga, N.Y.; Sept., 1898, to Feb., 1900, Superintendent, same company, Montreal; Mar., 1900, to Oct., 1906, agent, Pullman Co., Toronto; November, 1906, up to the time of his death, conductor, same company, Toronto.

D. F. Burk, who died at Port Arthur, Ont., Sept. 29, aged 68, was associated with a number of land development schemes in western Ontario for several years. In partnership with a brother he entered railway contracting business in 1884, and carried out several contracts. He was, at various periods, Vice President and director, Port Arthur, Duluth and Western Ry.; President and director Ontario and Rainy River Ry., both of which have since been incorporated with the larger systems, and President, St. Joe Ry. He was also at one time Manager and Secretary, Lake Superior Dock Co.

Arthur Cyril Boyce, K.C., who has been appointed a member of the Board of Railway Commissioners, to fill the vacancy caused by the retirement of Jas. Mills some time ago, was born at Wakefield, Eng., Sept. 12, 1869. On coming to Canada he took a law course, and was admitted a barrister, with honors and bronze medal, in 1890, and made a K.C. in 1908. He practised at Port Arthur, Rat Portage and at Sault Ste. Marie, Ont., and was elected Chancellor of the Algoma Diocese in 1910. He was elected M.P. for Algoma in 1904 and was re-elected, sitting until the dissolution of parliament recently.

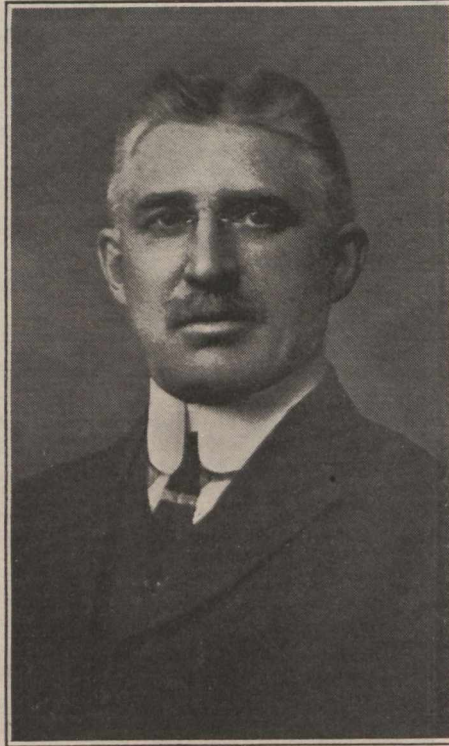
George C. Conn, Freight Traffic Manager, Pere Marquette Ry., Detroit, Mich., has resigned, to enter private business. He was born at Woburn, Mass., July 1, 1867, and entered railway service Oct. 1, 1864, in the Boston & Lowell Rd.'s general freight department, and was later, to 1888, with the Boston & Maine Rd., since when he has been, to 1890, Travelling Freight Agent, Pennsylvania Rd.; 1890 to

1897, Travelling Agent, Canadian Pacific Despatch; 1897 to 1900, Commercial Agent, Flint & Pere Marquette Rd., Minneapolis, Minn.; 1900 to 1904, General Agent and Assistant General Freight Agent, Pere Marquette Rd., Milwaukee, Wis.; 1904 to 1909, General Freight Agent, Minneapolis, St. Paul and Sault Ste. Marie Ry.; 1909 to Mar. 7, 1912, Freight Traffic Agent, Pere Marquette Rd.; Mar. 7, 1912, until the recent reorganization of the company as the Pere Marquette Ry., Vice President, Pere Marquette Rd., Detroit, Mich.

E. B. Skeels, formerly Resident Engineer, C.P.R., Lethbridge, Alta., after leaving there some months ago, was appointed by the United States War Department, Central District, as Assistant Superintendent of Construction at Camp Robinson, Wis., which was built entirely for artillery forces. Upon the completion of Camp Robinson, he resigned from the U.S. Government service and was appointed Superintendent of Pumping Plant Construction for Bates & Rogers Construction Co., which has the contract for building Camp Grant, Wis., one of the 16 large cantonments for the U.S. Army. This camp is being supplied by 6 artesian wells, the water from which will be pumped into a 300,000 gal. concrete reservoir by means of an air lift system. Centrifugal pumps, two stage, of various makes, some direct connected, motor driven; others driven by motor, with belt; and gasoline engine, with belt, pump the water from the concrete reservoir to a 250,000 gal. steel tank and mains, the maximum pressure being 85 lb. With the exception of one pump, the centrifugal pumps are guaranteed to pump 1,000 gal. a minute each against a 175 ft. head. It is said that Camp Grant will be enlarged so as to finally accommodate 60,000 men, instead of 40,000, as originally planned. On the completion of his work at Camp Grant, Mr. Skeels was transferred to Madisonville, a suburb of Cincinnati, Ohio, where he is now Superintendent for Bates & Rogers Construction Co. on the replacement of a stone arch bridge under the Baltimore & Ohio Rd. double track main line, east of the city. He also had charge of a track connection between the Baltimore & Ohio Rd. and the Cincinnati Hamilton & Dayton Ry., at Dayton, Ohio., involving approximately 2½ miles of grading and 5,000 lin. ft. of trestle and bridge work. He will probably be at Madisonville all winter.

J. W. Mulhern, whose appointment as General Superintendent, Kettle Valley Ry., Penticton, B.C., was announced in a recent issue, and whose portrait appears in this issue, was born at Naples, Ill., in 1863, and entered railway service in 1881, since when he has been, to 1887, successively water carrier, track hand, freight trucker, freight clerk, brakeman and freight and passenger conductor, Chicago, Burlington & Quincy Rd., Beardstown, Ill.; 1887, Yardmaster, same road, Beardstown, Ill.; Oct., 1887, to Jan., 1890, Yardmaster, Kansas City Terminals, same road; Jan., 1890, to Dec., 1902, Trainmaster, same road, Brookfield, Mo.; Dec., 1902, to Aug., 1904, Superintendent, Kansas City Terminals, same road; Aug., 1904, to Dec., 1905, Superintendent, Hannibal-St. Louis Division, same road, Hannibal, Mo.; Dec., 1905, to July, 1908, Superintendent, Galesburg Division, same road, Galesburg, Ill.; July, 1908, to May, 1910, Superintendent, Illinois Lines, Chicago & Alton Rd., Bloomington, Ill.; May, 1910, to May, 1911, Assistant to Second Vice President, Western Pacific Ry., San Francisco, Cal.; May, 1911, to Aug., 1912,

General Superintendent, Utah Line, Denver & Rio Grande Rd., Salt Lake City, Utah; Nov., 1912, to July, 1914, Superintendent, Chicago-Petoskey Division, Pere Marquette Rd., Grand Rapids, Mich.; July, 1914, to Mar., 1917, Superintendent, Northern Division, Chicago Great Western Ry., St. Paul, Minn. He was in charge of the C.B. & Q.R. terminals at Kansas City, Mo., during the flood of 1903, and had charge of all the company's trains in and out of St. Louis, Mo., during the World's Fair of 1904. While at Galesburg, Ill., he had charge of the building of the C.B. & Q.R. new hump yards there, and of the heavy grade reduction and realignment of that division. While with the Chicago & Alton Rd., at Bloomington, Ill., he completed the heavy grade reduction in the second main track to Carlinville, on the Illinois Lines, and on going to the Western Pacific Ry., he took



J. W. Mulhern,
General Superintendent, Kettle Valley Railway

over the road from the construction department, completed the construction and organized the line for operation, together with its marine service, putting it into operation Aug. 22, 1910.

Grand Trunk Pacific Ry. Inspection.—A. W. Smithers, Chairman of the G.T.R. and G.T.P.R. boards of directors, and the party of directors and officers of the G.T.P.R., which accompanied him on his recent trip of inspection, reached Vancouver from Prince Rupert, Oct. 8, and travelled eastward, visiting points not touched on the westward trip. The party arrived at Winnipeg, Oct. 12, and Montreal, Oct. 14.

Suit for Recovery of Rails.—The Grand Trunk Pacific Ry. has entered suit against M. Gordon to recover 1,590 ft. of 80 lb. steel rails, together with the angle bars and bolts belonging thereto, now lying in the Canadian Northern Ry. yards in Vancouver. Gordon purchased certain effects of Foley, Welch & Stewart at Tete Jaune and it is alleged that in addition to these he removed the rails and bolts claimed by the G.T.P.R.

The Wabash Railway in Canada.

The agreement under which the Wabash Ry. operates over the G.T.R. Air Line Division will expire Jan. 24, 1919. This covers the G. T. R. line and ferries from Detroit, Mich., to Black Rock, N.Y., and the line from Welland Jct. to Suspension Bridge, Ont., which are used under a joint operating agreement. The rental provided for was \$275,000 a year for the five years ended Mar. 1, 1903; \$300,000 a year for the five years ended Mar. 1, 1908; \$325,000 a year for the five years ended Mar. 1, 1913; and \$350,000 a year for the remaining period of the lease. The Wabash has also to pay its proportionate share of the cost of maintenance and operation. This a report says is calculated on a wheelage basis, representing 70% of the traffic and works out at approximately \$100,000 a month. The Wabash does a local, as well as a through, freight and passenger business over the route, the G. T. R. only operating a few local trains mainly in connection with the branch lines, connecting with the main G. T. R. system.

One press report states that the Wabash will, on the expiration of the lease, abandon the Canadian field, and make a contract for its U. S. business with another U. S. company, while another report states that the Wabash will buy the Air Line from the G.T.R. and become an owning as well as an operating railway in Canada.

We are officially advised in regard to the foregoing that negotiations respecting a renewal of the lease are pending.

Military Railway Platforms of Old Ties.

Material of all sorts is so scarce now in France that the engineers laying out the various railways behind the lines experience difficulty in getting material for the platforms on which men and equipment—mainly the latter—are landed. These platforms have to be close to the railway track and about as high as the distance of the floor of the car from the ground. A solution of the difficulty has been found in the utilization of old railway ties. Two forms of platforms are in use. One is built between two lines of track, where an earth fill is retained between walls made up of ties. The other is alongside of one track, where the platform fill is retained by a row of ties held back to deadmen. In the double wall type a trench is excavated and ties set in the hole thus made are held tight by tamping in earth around them. Along the top of the ties then run falling pieces tied across the filled area with iron rods. In the single row type the ties are likewise set in excavation and sticks driven back of the face form deadmen to which occasional tie rods from the upper part of the ties are fastened. The fill is then made up to the level of the tops of the ties. It is found easier to excavate holes for the ties and fill in afterward than to attempt to drive them as piles.

The Canadian Northern Ry. is seeking to recover through a Saskatchewan court a sum approximating \$4,000 from Judge Ousley, J. E. Chisholm, K.C., and J. Thompson, an alleged overcharge. The three defendants were arbitrators in the matter of Green against the company, and the company alleges that there has been an overcharge of the amount named in the fees charged and expenses incurred in the hearing.

Some Present Day Problems in Railway Maintenance Work.

The paper on this subject by F. B. Tapley, Assistant Engineer of Maintenance, Canadian Government Railways, Moncton, N.B., as read before the Canadian Railway Club in Montreal, and published in Canadian Railway and Marine World for October, was discussed by the club members at some length. The following are the most important parts of the discussion:

G. E. Smart (President), Master Car Builder, Canadian Government Railways: There is room for improvement in track work. My own experience has not been great—in fact, all I know is from the work I had when in charge of a wrecking crew. Usually the first thing was to find where the car was derailed, then with the resident engineer or roadmaster find the cause. The cost of ties is very high. I was talking to a section foreman the other day and he referred back 15 or 20 years, when ties could be purchased for from 15c to 20c each whereas now they cost 75c. When you consider this you begin to realize that it is time we looked around for something that will prolong the life of the tie. I do not know that we have gone into this very extensively in this country, but there are sections in which they are using treated ties and find them an improvement and cheaper, notwithstanding the additional cost of treating the tie.

We must provide proper facilities for housing men if we are going to keep them together. The time has passed when you can pick out an old box car with leaky roof and decayed sills and turn it over to the track department for the use of their men. Mr. Tapley speaks about the use of motors on the sectionmen's cars. I know of cases where the men have purchased the motors and applied them themselves at their own expense.

R. M. Hannaford, Assistant Chief Engineer, Montreal Tramways Co.: There is one thing in the paper that I cannot understand, and that is the stress which is laid on the use of the treated tie. The treatment does not lengthen the life of such a tie as the cedar tie but it will lengthen the life of ties from other woods more susceptible to rot. The trouble with the cedar tie is that it not only rots, but it will split and break down under rail. The best thing to make the tie last is to use a tie plate, which is a step forward, as the proper use of tie plates will increase the life of the ties. In regard to the labor trouble; I think the main trouble is to keep the men on the regular sections and not so much on the extra gangs. The life of the regular sectionman is rather dull and the work is hard, and after working hard all week if he is sent up the line 20 or 30 miles on some work of emergency on Sundays—which happens from time to time—in one of these cases that the President spoke of—he is apt to become dissatisfied. The track is one of the hottest places on which a man can work, and the work is somewhat dispiriting, and could be alleviated to an extent by the use of motor cars. If you start out fresh in the morning, by the time you reach the place of work and remove the tools from the hand car you feel you have done enough for a few hours at least, and it is the same thing going home. It is hard to pump against a heavy grade, or a heavy wind, and you feel like getting off and letting someone else pump the car while you walk home.

Cutting the end of rails is a good thing if you can overcome the objection of us-

ing old plates. The trouble is that the rail is liable to hammer down the plate. Sometimes you can twist it around and use it in the opposite way, but the hammering down of the following rail makes an offset in the plate so that it will not fit. The street railways use a large file in a frame, which grinds the joints, or levels them up, after the joints have been tightened.

You can get men more readily for extra gangs than for regular gangs, as the men do not like to go out into the country where life is monotonous and it gets on their nerves. They want a little recreation, which they do not get on regular sections.

In regard to the heavy work on the track, such as tamping: There are certain types of power tampers which are used and which can be used with economy in large gangs, and they also help the men as they take away a lot of the drudgery of tamping by hand.

In regard to the life of ties: The other day in speaking to a practical man, he stated that he did not consider it would pay to treat ties until they were worth 95c each, they are now 80c, so that they would soon have to begin to treat them.

I believe that too little attention has been given to the quality of ballast used. The practice has been to use any old thing that looked like gravel, and while good ballast may have to be hauled some distance it pays to apply the proper quality. On the Grand Trunk, the nearest ballast pit to Montreal, as I remember it, is River Beaudette, and I think there is another pit not far from Acton, on the line to Richmond. When you have to haul your ballast 40 miles it is going some. I believe the roads will eventually come to use broken stone ballast. It costs more to produce and to handle, but it is the cheapest in the end to use for the track.

W. H. Yost, Engineer, Hart Otis Car Co.: My experience in ballast maintenance work has been mostly in building the ballast car and seeing the work from that point of view. Many of the roads in the United States have gone into the use of washed ballast and broken stone ballast, which is more expensive, but cheapest in the end, as the poor material loosens up by reason of moisture and results in pockets in the roadbed. In Canada, where you have ballast pits at convenient points and the material is of good quality, it is cheaper to use it and it does very well, but with the heavy equipment used today good ballast is very necessary.

In regard to housing of men: I have been to some of the camps and have stayed in them. The men are housed fairly well and the food is very good. Of course, you do not want to look twice where you sleep and you probably will require to be fumigated when you leave, but that is all in the day's work.

C. W. Van Buren, General Master Car Builder, C.P.R.: We are all interested in track work. The locomotive and car men particularly know what effect certain conditions of track have on the equipment. The President made a remark about the wrecking foreman, the first thing he did was to look for a bad rail. I do not agree with him, in every case, as I knew of a wrecking foreman who reported to the maintenance of way department, and he did not find any bad rails. He found various car defects, but, of course, when he was turned over to us we got him busy looking for bad track.

I do not know just how expensive rock

ballast is, but as a matter of information should like to know if it is not a fact that in the long run rock ballast is more economical, and is it not the only thing that gives automatic drainage and a good, clean roadbed? It might be interesting to hear about that.

Another thing is the process for re-rolling worn rails. Some officers have been hauled over the coals about grinding cast iron wheels and reclaiming them, and they have had to explain at length why this should not be done in Canada. If it is profitable to reroll rails it is something which we should look into, but I would like to have some information as to whether the rerolled rail is as safe as the new rail, as it comes from the mill. This is a very serious question, as we all know the troubles we have had in this country during the winter with broken rails.

We can understand that a tie plate will assist in preserving the tie and probably save considerable trouble and expense in track maintenance, but the tie plate is only a little wider than the base of the rail, and I would like to know why it would not be better to make the plate wider.

Jas. Powell (Secretary): I understand the C. P. R. has a machine for regrinding wheels.

C. W. Van Buren: It has none, and it is not likely that it will have any.

Jas. Powell: You regrind the wheel to make it serviceable for a little longer, but in the case of the rail, if it is rerolled it will never be like the new rail. On the English roads they have a chair which holds the rail much firmer than the tie plate which we use in this country. I would like to ask something about the ditching machine. It seems to me it would be very helpful in maintaining the track, especially in the spring after heavy snow when the water accumulates, and if there is no means of carrying it away the ties become loose.

C. W. Van Buren: I think Mr. Tapley's idea of the ditching machine is something like the man who wanted to hire a janitor. He asked the man who applied if he had ever been in jail, and he said "No." He then asked him if he ever used intoxicating liquor, and he said, "You don't want a janitor; what you want is an angel." Mr. Tapley knows what he wants, but I do not think it has been discovered yet.

F. B. Tapley: We have a machine built like a small steam shovel. Several types are made. These machines will ditch or clean out a cut, but they will not finish it. The machine I have in mind is a ditch cleaner with a bucket belt which will cut a ditch of standard section or clean the ditch out the same as a man would do with a shovel. When the man cleans it out with a shovel, he put the earth on the side of the ditch and in a few weeks it is washed back again. If we could take this material, and by using a belt conveyor and dump cart, put it down the side of a dump, it would take this work off the sectionman. I have only just a crude idea. I have seen trench excavators, and they are mighty good machines.

A Member: How long would the arm have to be to carry that?

F. B. Tapley: Say 12 ft. on the average. We should keep the centre of the ditch 11 ft. from the centre of the track, or a little farther, depending on the depth and width of the ditch. My idea is to have it so that it would elevate the material from the ditch on one side and then turn

round and work on the other side. The man in charge could watch it to see that it did not cut too deep. It is a hard job to grade a ditch and any practical trackman will tell you that. If we could get something like that and get it working, it would save time and money.

R. M. Hannaford: I think you should have the arm at least 15 ft., because the average railway embankment being 14 ft. that would give you 7 ft. You have got a bank of 2 ft., then a very small bank with a slope of $1\frac{1}{2}$ to 1, which gives 3 ft. more. You have also to allow 4 ft. for the ditch, so that you have got at least 15 ft. and that is with only a single track. I think something is needed for ditching the cuts a great deal more than the fills, as the fills will take care of themselves. I also think that rock ballast with a sloping subgrade would obviate a great deal of the trouble.

F. B. Tapley: The Lehigh Valley, when it built a portion of its line, used a roller to roll the subgrade, and never surfaced the track for two years afterwards. It had a solid subgrade that was firm enough to take the water away without soaking into it.

A Member: That was specially prepared?

F. B. Tapley: Yes, it was tried as an experiment.

A Member: It would be very expensive.

F. B. Tapley: No, not when you rent a roller for \$10 a day and consider how much work you can do with it.

A. Bromley-Smith, Asst. Engineer, C. P. R.: I think that from an engineer's point of view, the greatest difficulty at present is to obtain material. Mr. Tapley states his preference for a plate with a smooth bottom. A tie plate should be large enough to eliminate cutting into the ties and thus destroying them by mechanical wear, and the base should be of such a character as not to accelerate rotting by cutting the fibre of the wood and so permitting water to enter. One of our roads is using a $8\frac{1}{2} \times 6\frac{1}{2}$ in. shoulder plate with the rail seat canted 1 in 20 and having a corrugated base, under 85 lb. rail, with very satisfactory results.

The question of treating ties is one which comes up periodically and is a matter of economics. There is only one creosoting plant in Canada at present, and the available supply of creosote is probably not sufficient to justify the railway companies adopting this method of prolonging the life of ties to any large extent just now.

Mr. Tapley referred to rerolling rails. A considerable tonnage of rails has been rerolled into rails of lighter and modified section during the past few years in the United States, but the practice has not yet reached a stage where the railways can make use of it to a very large extent. After rail has been in service for some time, a large number of minute cracks develop in the running surface, and the use of rerolled rail must be extended with caution until experience shows the reliability to be placed upon it. Before being rerolled, rails are sorted according to the extent they are worn, then heated and run through rolls which increase their length, and reduce the section of the head. The process is patented, and no Canadian firms are handling it at present.

Better standardization of track fastenings is certainly desirable, a move in that direction was made this year, and, I believe, we shall shortly see a considerable reduction in the number of types of rail and fastenings being ordered by the various railways.

E. A. Cunningham, Vice President's

Office, C.P.R.: About 15 years ago I visited a plant on the Great Northern at Somersmont, where they creosoted ties; they took every class, jack pine, fir, spruce, etc.; they used every sort of local grown timber, and seemed to think they got excellent results. At that time they were also using a three-cornered tie with 12 in. face known as the "Jim Hill self-tamping tie." I mention this in passing so that if any member desires to get some statistics on treated ties he might do so by communicating with the Great Northern as the time which has elapsed must have proven many things.

A. Bromley-Smith: The practice in Europe, where creosoting has been carried on for many years, is to force as much creosote as possible into the ties, and, I think, a life of only 12 years, for ties so treated, would be considered very disappointing. In this country, the tendency at first was to restrict the amount of preservative used, but I consider ties should be treated under the pressure process, and given a full injection of creosote.

F. B. Tapley: We have had some experience with the use of creosoted piles used in salt water. I think the process was the same as described by Mr. Smith. These piles have been in service nearly 30 years, in salt water, and they are as good above as they are below water, but unfortunately we have no records to show just how they were treated.

R. M. Hannaford: The piles under the G. T. R.'s Galt wharf at Portland, Me., were renewed in creosote about 26 years ago. I know the piles there were eaten away by a small worm known as the *Limnoria*. Before these piles were renewed they were eaten down in some places to 3 in., but after the creosoted piles were put in there was no sign of them being attacked by this worm.

G. T. Bell, Passenger Traffic Manager, G.T.R.: What is the relative proportion of the cost of maintenance that should be charged against passenger and freight trains?

F. B. Tapley: The only way I could answer that would be by taking the amount of passenger and freight tonnage handled. From my own experience I should say the passenger equipment is not so hard on the track as freight equipment.

G. T. Bell: Based on train mileage, with modern passenger and freight trains, what is your idea as to division of the expense?

F. B. Tapley: The cost is about two-thirds in favor of freight and one-third in favor of passenger.

Experiments with Storage of Bituminous Coal.

A series of experiments, started in 1910, to determine the effects of storage upon the properties of bituminous coal has recently been completed by the University of Illinois Engineering Experiment Station. The object has been to devise methods of storing which will avoid the risk of spontaneous combustion and to determine the extent to which coal deteriorates in storage. Prof. S. W. Parr, under whose direction the tests have been conducted, summarizes the results in Bulletin 97 of the Engineering Experiment Station. It is shown that, if properly sized and carefully handled, coal may be stored without danger of spontaneous combustion; that the actual loss of heat value, or deterioration, resulting from storage is slight; and that underwater

storage eliminates entirely all risk of spontaneous combustion or of deterioration. The extent of the waste and economic loss incident to the present method of seasonal production, with its attendant abnormal demands upon transportation facilities is discussed, and it is estimated that the lack of storage facilities in large distributing centres necessitates a capital investment in mines and railway cars of \$500,000,000 in excess of the amount which would be required if production could be maintained at a uniform rate throughout the year. Copies of the bulletin may be had without charge by addressing C. R. Richards, Director Engineering Experiment Station, University of Illinois, Urbana, Illinois.

German Plot to Destroy Canadian Pacific Railway.

The United States Secretary of State made public on Oct. 10 two cablegrams sent by the German Foreign Office in Jan. 1916 to Count Bernstorff, German Ambassador at Washington, as follows:

"Jan. 3. Secret. General staff desires energetic action in regard to proposed destruction of Canadian Pacific Railway at several points, with a view to complete and protracted interruption of traffic. Capt. Boehm, who is known on your side and is shortly returning, has been given instructions. Inform the Military Attache and provide the necessary funds.

(Signed) "Zimmermann."

"Jan. 26. For Military Attache. You can obtain particulars as to persons suitable for carrying on sabotage in the United States and Canada from the following persons: 1, Joseph MacGarity, Philadelphia, Pa.; 2, John P. Keating, Michigan Avenue, Chicago; 3, Jeremiah O'Leary, 16 Park Row, New York. One and two are absolutely reliable and discreet. Number three is reliable, but not always discreet. These persons were indicated by Sir Roger Casement. In the United States sabotage can be carried out on every kind of factory for supplying munitions of war. Railway embankments and bridges must not be touched. Embassy must in no circumstances be compromised. Similar precautions must be taken in regard to Irish pro-German propaganda.

(Signed) "Representative of General Staff."

Quebec's Interest in Canadian Northern Ry.—The Quebec City Council has instructed the City Attorney to attend before the board of arbitration which will fix the value of C.N.R. common stock to be taken over by the Dominion Government, in order to protect the city's interests. It was stated at the council meeting that the city has interests valued at \$420,500 in the railway.

Coupler Repairs.—One of the larger U.S. railways undertook an investigation recently into the question of repairs to car couplers, with the result that, for 1916, it was shown that the expense per car per year was \$197. The rate of coupler renewals was 0.14 coupler per year, thus showing the average service life of a coupler to be between seven and eight years.

The Canuck Supply Co., Ltd., Montreal, has made the following appointments: E. L. Foley, Eastern Sales Manager, with headquarters at Ottawa; W. J. Espey, Manager of Toronto Branch; J. T. Dohm, heretofore Manager, Toronto Branch, has been appointed Manager of Winnipeg Branch, in charge of territory west of Fort William.

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

Burrard Inlet Tunnel & Bridge Co.—Local interests in North Vancouver are organizing to bring pressure to bear on the directors of the company, who are representatives of the municipal councils, to apply to the Dominion Parliament for a further renewal of the company's charter, and not to permit it to lapse, as was suggested at the recent annual meeting of shareholders. Public meetings are being arranged for to discuss the whole matter. The Vancouver City Council finance committee was instructed, Oct. 5, to take the matter into consideration. (Oct., pg. 393.)

The Canadian Northern Ry. is applying to the Dominion Minister of Public Works to approve of site and plans of a bridge across the Assiniboine River at Kamsack, Sask., mileage 279.3 on its main line.

Canadian Pacific Ry.—The new locomotive house at the Bay Shore terminal, St. John, N.B., is reported to be practically completed. The heating plant has been put in and the installation of the lighting plant is reported to be in progress. A new water tank in the yard and an extension to the coal trestle at Bay Shore are being built, Grant & Howe being the contractors.

A press report from Lethbridge, Alta., states that it is understood that the building of the gap between the east and west terminals of the Weyburn-Lethbridge line will be undertaken next year. The present westerly terminus is at Altawan, the boundary between Saskatchewan and Alberta, and the present easterly terminus is at Manyberries, Alta., the distance between these two points being 37.9 miles.

A press report states that plans are under consideration for the erection of a new station at Lethbridge, Alta., and that its site will be about the same location as that occupied by the existing icehouse, on First Ave. South, opposite Galt Gardens. Another report states that the plans for the new station are being considered in conjunction with plans for the enlargement and rearrangement of the present station.

A press report states that the company has under consideration plans for the construction of a pier at Victoria, B.C., to cost about \$1,000,000. (Oct., pg. 387.)

Edmonton, Dunvegan & British Columbia Ry.—J. D. McArthur, President, is reported to have said in Winnipeg, Oct. 5, that there was not the slightest foundation for the report that negotiations were in progress with the C.P.R. for the sale of the E.D. & B.C.R. and its two allied lines. He had just completed a trip of inspection over the lines and found everything satisfactory. No plans had been definitely settled for construction in 1918.

At the Edmonton, Alta., City Council meeting, Oct. 9, a letter was read from W. R. Smith, the company's Chief Engineer, asking permission to lay tracks and operate trains between what is known on the old maps as Plante Ave., south as far as the intersection of the Canadian Northern Ry. tracks between old Stephen and Trethewey Aves., and on McKenzie Ave. between 121st St. and 105th St. The letter said: We are prepared to comply with the necessary procedure in applying to the Board of Railway Commissioners for approval. In applying for this I would point out to you that on 121st St. there are already existing tracks, and sufficient width has been

added to the street south of old Alberta Ave. to permit of another line of tracks down this street without any damage to property. I understand there are certain existing agreements with regard to McKenzie Ave. of long standing and we would be prepared to accept a narrow strip on the southern portion of the street, complying with the requirements of the Board of Railway Commissioners in the construction of the line." The matter was referred to the City Commissioners for consideration. This is the first definite move made by the company towards the location of its terminals in the centre of the city. (Oct., pg. 392.)

Essex Terminal Ry.—A press report states that a contract has been let to the Chick Construction Co., Windsor, Ont., for the extension of the line from Ojibway to near Amherstburg, where the Brunner Mond Co. is building a large charcoal plant. An earlier press report stated that the extension was to be seven miles in length along the first concession in Sandwich West to Amherstburg. (Sept., pg. 350.)

Grand Trunk Pacific Ry.—A press report states that the company is expending \$20,000 on bridge construction in the vicinity of Prince George, B.C. (Sept., pg. 350.)

Grand Trunk Ry.—W. D. Robb, Vice President in charge of rolling stock, etc., was in Brockville, Ont., Oct. 4, and is reported to have said that nothing would be done in regard to the proposal to remove the company's shops from Brockville to Prescott until next spring, at least, and that it was not all likely that anything would be done until after the war. (Oct., pg. 393.)

Great Northern Ry.—Traffic on the company's line into Vancouver was held up recently owing to the sinking of 350 ft. of track east of Ardley. There is a big sink hole at this place which has given considerable trouble since the line was built. A temporary line has been built so that traffic may be carried on and a large gang of men is endeavoring to fill the hole permanently. (Sept., pg. 350.)

Greater Winnipeg Water District.—At a meeting of the Greater Winnipeg Water District Commissioners recently the auditor reported that the expenditure upon construction to June 30 was \$7,682,335, of which \$1,601,928 had been expended upon railway construction, equipment and rolling stock.

Hudson Bay Ry.—We are officially advised that the state of construction on the closing down of work for the season was as follows: The grading of the entire line from Pas to Port Nelson was completed in September. Ballasting and train filling has been carried on to mile 332 from Pas, and the track is in good condition up to that point. The bridge over the second crossing of the Nelson River at Kettle Rapids, mileage 332, is in course of erection and is expected to be completed early in December. It is a continuous truss 1,000 ft. long, with 2 shore spans of 300 ft. each, and a river span of 400 ft. It is being erected on the cantilever method by the Canadian Bridge Co., Walkerville, Ont., from the designs of W. Chase Thompson, M.Can.Soc.C.E., Montreal. A temporary trestle has been erected over the Limestone River, mileage 350. No buildings were commenced at division yards during the season. The work remaining to be done consists of a trestle

bridge across the Kisematchisk River, mileage 395, and 92 miles of tracklaying, ballasting, etc.

It is reported that good progress has been made with the terminal work at Port Nelson. G. H. Roy, with a party of 70 men, reached Halifax, N.S., Oct. 5, from Port Nelson. The remainder of the men employed worked to the Kettle Rapids of the Nelson River and went out to Winnipeg by rail. (Oct., pg. 303.)

Intercolonial Ry.—Tenders are under consideration for building frame stations at Thorburn and Valley, N.S., a locomotive house at Thorburn and an ice house of 1,500 tons capacity at Mulgrave, N.S.

Owing to the extreme high tides in the Bay of Fundy and Petitcodiac River, on Oct. 1—the highest experienced since 1869—considerable portions of the roadbed were washed out, necessitating the suspension of traffic between Halifax and Moncton for some days. The damage was considerable between Moncton and Grindstone Island, 30 miles, and from Daniels Flat to Germantone Lake, 15 miles, the most serious damage being done between Aulac and Sackville, where half a mile of track was washed out, while other serious washouts occurred near Dorchester and Upper Dorchester. Temporary repairs were made to enable traffic to be resumed. (Oct., pg. 393.)

Kettle Valley Lines.—We are officially advised that the company has decided to build a branch line from Princeton to Copper Mountain, B.C., about 13 or 14 miles. The location is in charge of A. McCulloch, Chief Engineer, Penticton, B.C. This construction is in conjunction with a large mining proposition of the Canada Copper Corporation, which was reported, Oct. 15, to have placed an issue of \$2,000,000 of bonds in New York. This bond issue will provide for further development of the mining property and the building of a concentration plant. The Kootenay Power Co. is reported to be about to expend \$1,000,000 in extending its power lines to the mining plant. (Sept., 1916, pg. 364.)

Northern New Brunswick & Seaboard Ry.—See St. John & Quebec Ry.

Pacific Great Eastern Ry.—Following are extracts from the directors' report presented at the annual meeting in Victoria, B.C., recently: "You have been fortunate in obtaining a disinterested expert report upon the location and construction of the railway by two eminent engineers at the head of their profession in Canada, who, after a close inspection of the whole line, affirm that the location is the best that could have been secured; that the construction is of the highest standard desired, and that the work has been honestly and economically carried out. You will be gratified at this justification of the confidence reposed by your directors in the ability and integrity of your Chief Engineer. Paralyzed by the effects of the war and further embarrassed by the ill timed action of the B.C. Government in bringing suit against your sponsors and directors for their failure to complete this contract, of which the cataclysm of war is the cause, but one course is open, which is the policy being pursued, viz., to mark time until the advent of normal conditions and the settlement of all litigious disputes."

The bridge over the Capilano River, west of North Vancouver, was carried away by a flood, Oct. 1, for the fourteenth time since the railway was opened to

Dundarave, B.C. Temporary repairs have been made and traffic was resumed within a couple of days.

The Finance Minister and the Provincial Secretary for British Columbia spent several days early in October in a trip of inspection over the P.G.E.R. to Clinton and over a section of the partially constructed line thence to Prince George. The matter of future construction is under consideration by the B.C. Government.

In Nov., 1916, the P.G.E.R. placed a contract in the U.S. for 21,000 tons of steel rails. It was stated, Oct. 17, that the B.C. Government had decided to finance this contract, in order that the increase in value of the rails may accrue to the company and so increase the value of the assets which the government is claiming under its mortgage.

Quebec Bridge.—Work on the bridge had sufficiently progressed to permit the crossing of a work train, Oct. 17. The train consisted of a locomotive and two flat cars and the passengers included C. N. Monsarratt and R. Modjeski, of the Bridge Commission, and G. F. Porter, construction engineer for the contractors. It is expected that everything will be ready for the running of freight trains over the bridge by the middle of November, and that the official opening for regular traffic will take place next spring. (Oct., pg. 400.)

St. John & Quebec Ry.—In addition to providing for an extension of time for building the Gagetown-Westfield section of the line, the New Brunswick Legislature passed an act last session providing for the removal of the Northern New Brunswick & Seaboard Ry. tracks and their use on the Gagetown-Westfield section of the S.J. & Q.R. The government may pay for the rails in cash or make other arrangements for compensating the N.N.B. & S.R.

The N.N.B. & S.R. is a mineral carrying railway, built in 1911 by the Canada Iron Corporation from Nipisiguit Jct., on the Intercolonial Ry., to the company's iron mines, 16.9 miles. The mines and railway have not been operated for some two or three years. The present owner of the property is Canada Iron Foundries, Ltd. (Oct., pg. 394.)

Toronto, Hamilton & Buffalo Ry.—We are officially advised that the yard extension work projected at Hamilton is a 4-track addition, each track to accommodate 70 cars, at the present Kinnear yard, 1.75 miles east of Hamilton station. The company already owns part of the mountain face, and the clearing and grubbing performed on that piece of property started some opposition. A request was made to the city to sell a portion of the mountain face adjoining, which was necessary for the accommodation of the trackage, but the company was informed that owing to the opposition which had developed the request would in all probability be refused.

The company is applying to the Board of Railway Commissioners for an order to expropriate a piece of property on the mountain side to the east of Gage Ave., Hamilton belonging to the city. City officials state that the only object which the company could have for acquiring property in this vicinity is for the extension of the Kinnear yard.

In connection with this work the Hamilton City Council has protested on the ground that its being carried out would interfere with the Tye-Cauchon plan for dealing with the whole railway situation in Hamilton, which has been approved by the city council. The council desires to have the work near Gage Ave. suspended

until the Tye-Cauchon plan has been fully considered by all parties concerned. (Sept., pg. 351.)

Union Station for Victoria, B.C.—A press report states that plans are being prepared for the erection of a union station at the Kitsilano Indian Reserve, Victoria, for use by the C.P.R.'s subsidiary, the Esquimalt & Nanaimo Ry., and the Canadian Northern Ry., and that the estimated cost of the building is put at \$1,000,000.

United States Railroad War Board's Report on Traffic Conditions.

The U.S. Railroad War Board issued the following statement recently: Reports just compiled for the board indicate that the travelling public in general and the shippers in particular are giving the finest kind of co-operation to the railways in the handling of the increased traffic that the war has produced. What this co-operation means may be gleaned from these facts: Since May 1 the railways, aided by the loyalty and understanding of the public, have been able to reduce their passenger service by approximately 25,000,000 miles. This has released thousands of train crews and locomotives for use in the freight service and cleared thousands of miles of track, thereby facilitating the movement of coal, food products, and supplies needed by the government.

In addition to the foregoing saving of equipment and trackage, the shippers, big and small, have rallied so splendidly to the slogan, "Make one car do the work of two," that a saving of close to half a million freight cars has been accomplished. This saving of freight cars has enabled the railways to move approximately 25% more freight since war was declared than during the same period last year. Intensive loading and a general increase in the size of the "trade units" used by the various industries has rendered possible the saving of car space. Cotton, for instance, which was formerly moved in units of 50 bales, now moves only in units of 65 and 75. As there are 18,000,000 bales to be moved by rail each season, the increase in the trade unit in this one commodity alone has produced a saving of anywhere from 83,000 to 125,000 cars. Sugar, on which the carload minimum from the South was formerly only 24,000 lb. a car, now moves only on a 60,000 carload minimum. The producers of manufactured food and products, especially the canners, have also come to a realization of the value of intensive loading, and are now loading virtually all of their cars to capacity.

Coal, which has been loaded beyond capacity on most lines since the beginning of the war, is also moving freely now, although labor trouble in some parts of the country is tending to counteract the efforts of the railways to meet the abnormal demand for fuel. During the past month the supply of cars on the "lake coal" lines has been increased 25% and there has been some increase in the movement of bituminous coal to the lake ports, but it has not been proportionate to the increased supply of cars, as labor trouble has tended to decrease the mine production.

Although excellent results have been achieved to date through the co-operation of the shippers, the travelling public, and the railways it will be necessary for all concerned to exert renewed efforts, as the abnormal demands upon the railways in the movement of both troops and sup-

plies is constantly increasing, while the securing of new equipment is virtually impossible. From now on, 2,500 cars a day will be required by the government to move food and supplies to the men in training at the National Army, National Guard, and other encampments, while the demand of the allies for cars to carry export goods to the seaports will be practically doubled. All of this additional traffic must be moved by the railways, although they have only 3% more equipment than they had at this time last year.

Gross Railway Earnings June 1 to Sept 30.

	1917.	1916.	1915.
C.P.R.	\$107,168,000	\$97,753,000	\$67,081,000
C.N.R.	29,815,200	26,780,400	16,063,200
G.T.R.	49,307,934	47,040,020	36,901,794
	\$186,291,134	\$171,573,420	\$120,045,994

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1916, from July 1, 1917:

	Gross Earnings	Expenses	Net Earnings	Decrease
July	\$3,844,900	\$2,940,000	\$ 904,900	\$ 292,500
Aug.	3,405,200	2,812,000	593,200	478,800
	\$7,250,100	\$5,752,000	\$1,498,100	\$ 771,300
Incr		\$ 502,300		
Decr \$ 269,000			\$ 771,300	

Approximate earnings for September, \$3,341,700, and for three weeks ended Oct. 21, \$2,591,200, against \$3,187,900 for September, and \$2,544,800 for three weeks ended Oct. 21, 1916.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, compared with those of 1916, from Jan. 1, 1917:

	Gross Earnings	Expenses	Net Earnings	Increase
Jan. 10,158,307.86	7,726,829.86	2,431,478.50	341,070.27	
Feb. 9,084,276.76	7,098,227.96	1,986,048.80	308,228.94	
Mar. 11,846,542.98	7,909,225.16	3,987,317.82	516,987.46	
Apr. 12,355,519.60	8,180,541.98	4,174,979.62	441,241.66	
May. 14,355,149.63	9,803,426.84	4,551,719.79	179,436.88	
June 13,556,979.69	9,641,073.49	3,915,906.20	226,273.09	
July 13,377,850.55	9,617,853.33	3,760,007.22	227,084.51	
Aug 12,414,537.25	8,596,998.76	3,817,538.49	1,650,248.36	

\$97,149,174.32 \$68,574,179.88 \$28,574,994.44 x \$ 511,617.46
 Inc. \$ 8,619,544.72 \$ 9,131,162.18 x \$ 511,617.46
 x Decrease.

Approximate earnings for September \$11,952,000, and for three weeks ended Oct. 21, \$9,604,000, against \$11,846,000 for September, and \$8,932,000 for three weeks ended Oct. 21, 1916.

Grand Trunk Railway Earnings.

Aggregate traffic receipts from Jan. 1 to Sept. 30:—

	1917.	1916.	Increase.
G. T. R.	\$38,689,686	\$34,506,112	\$4,183,574
G. T. W. R.	7,158,848	7,013,803	145,045
D.G.H. & M.R.	2,493,513	2,486,612	6,901
Totals ..	\$48,342,047	\$44,006,527	\$4,335,520

Aggregate earnings for September, \$5,783,792, and for three weeks ended Oct. 21, \$3,908,859, against \$5,636,826 for September, and \$3,819,229 for three weeks ended Oct. 21, 1916.

Grand Trunk Pacific Ry. Earnings.

The approximate earnings for the Prairie Section, 916 miles, for September were \$538,545 against \$362,849 for Sept. 1916, and the aggregate earnings for three months ended Sept. 30, were \$1,515,374 against \$1,056,605 for same period 1916.

The Interstate Commerce Commission, on Oct. 22, ordered reopened the 15% rate advance case for eastern carriers, and fixed the first hearing for Nov. 5 at Washington.

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.

26558. Sept. 19.—Authorizing Canadian Northern Ry. to build extension to spur for Western Coal Co., Fort Rouge, Man.

26559. Sept. 22.—Authorizing G.T.R. to take additional lands for additional trackage and terminal facilities at Fort Erie and Bridgeburg, Ont., and at Canadian approaches to International bridge.

26560. Sept. 24.—Authorizing G.T.R. to operate over C.P.R. sidings to Reliance Moulding Co., and Frontenac Floor and Wall Tile Co., Kingston, Ont.

26561. Sept. 24.—Authorizing G.T.R. to build spur for Davis Leather Co., Newmarket, Ont.

26562. Sept. 24.—Authorizing C.P.R. to build spur for Ford Motor Co. of Canada, Winnipeg.

26563. Sept. 20.—Ordering C.P.R. to build spur for George Webb, Toronto.

26564. Sept. 24.—Ordering G.T.R., within 60 days, to install bell at crossing immediately west of Tillsonburg station, Ont.; 20% of cost to be paid out of railway grade crossing fund.

26565. Sept. 24.—Ordering Algoma Eastern Ry. by June 1, 1918, to fence right of way on east side of track, mileage 51.5 to 52.5, Merritt Tp., Ont.

26566. Sept. 24.—Extending to June, 1918, time within which City of Fort William, Ont., shall install half interlocking plants at crossing of Canadian Northern Ry. by Fort William Electric Ry. at Victoria Ave., and at Franklin St.; conductors to flag cars over crossings.

26567. Sept. 24.—Authorizing New York Central Rd. to rebuild bridge 43A near Northfield Station, Ont.; and rescinding order 26163, May 29.

26568. Sept. 25.—Authorizing Saskatchewan Government to build highway crossing over C.P.R. station grounds at Lafèche; C.P.R. to maintain crossing, within limits of right of way, and Village of Lafèche to close and convey to C.P.R. part of old road which is within limits of its right of way.

26569. Sept. 25.—Authorizing Canadian Northern Ry. to build spur for Beaver Lumber Co., North Battleford, Sask.

26570. Sept. 24.—Authorizing C.P.R. to build spur for National Portland Cement Co., Bentinck Tp., Ont.

26571. Sept. 25.—Authorizing Quebec Ry. Light & Power Co., and C.P.R. to operate over crossing at St. Valier St., Quebec, Que., C.P.R. trains not to exceed 15 miles, and electric cars 10 miles an hour.

26572. Sept. 26.—Approving Edmonton, Dunvegan and British Columbia Ry. plan of station to be built at Donnelly, Alta.

26573. Sept. 26.—Relieving G.T.R. from providing further protection at St. Remi St., Montreal.

26574. Sept. 27.—Approving plan and profile filed by Bowness Improvement Co., showing drainage of Bowness subway under C.P.R. in Secs. 34 and 35, Tp. 24, Range 2, west 5th meridian, Alta.

26575. Sept. 27.—Authorizing G.T.R. to build spur for Standard Paving Co. Dumfries North Tp., Ont.

26576. Sept. 26.—Extending to Nov. 30, time within which Canadian Northern Ry. shall erect fourth class station at Fairmount, Sask., as required by order 26458.

26577. Sept. 26.—Authorizing The Gap, no. 39, rural municipality, Sask., to make highway over Canadian Northern Ry. at mileage 24.5, on blind line between Secs. 15 and 22, Tp. 6, Range 21, west 2nd meridian.

26578. Sept. 26.—Ordering Canadian Northern Ry. to file proposed joint tariff on canned goods, in carloads, to become effective by Nov. 1; railway companies made parties to same to file concurrences by Nov. 1, and rescinding order 26168, May 31.

26579. Sept. 26.—Approving plan and specifications of work on Kaufman drain under G.T.R. in Harwich Tp., Ont.

26580. Sept. 27.—Ordering Edmonton, Dunvegan & British Columbia Ry. to fence right of way between mileage 235 and 240, by June 1, 1918.

26581. Sept. 27.—Amending order 22451, Aug. 27, 1914, re Erie & Ottawa Ry. (T. H. & B. R.) branch to Michigan Central Rd., in Moncton Tp., Ont.

26582. Sept. 27.—Amending order 26506, Sept. 7, re Esquimalt and Nanaimo Ry. spur for Foundation Co., on Songhees Indian Reserve, Victoria, B.C.

26583. Sept. 28.—Relieving C.P.R. from providing further protection at highway west of Elfros station, Sask.

26584. Sept. 28.—Authorizing Dominion Government to make highway crossing over C.P.R. on line between Sec. 7, Tp. 26, Range 11, and Sec. 12, Tp. 26, Range 12, west 5th meridian, Alta.

26585. Oct. 1.—Authorizing C.P.R. to close station at Ypres, Ont.

26586. Oct. 1.—Amending order 26464, Aug. 21, 1914, re Calgary Power Co., Calgary, Alta.

26587. Oct. 1.—Ordering G. T. R. to restrict

speed of northbound trains over highway crossing at Port Colborne, Ont., to 10 miles an hour.

26588. Oct. 1.—Extending for three months from date time within which Canadian Northern Ry. shall complete spur at North Battleford, Sask., as authorized by order 18549, Jan. 18, 1913.

26589. Sept. 29.—Approving Edmonton, Dunvegan & British Columbia Ry. standard freight tariff, C.R.C. 62, effective Oct. 1.

26590. Oct. 2.—Ordering C.P.R. within 60 days to install bell at highway near Buckingham Jct. station, Que., movements over crossing on siding to be flagged by train crew; 20% of cost of installation to be paid out of railway grade crossing fund.

26591. Oct. 2.—Amending order 26423, Aug. 14, re whistling by Canadian Northern Ry. locomotives at Brighton, Ont.

26592. Oct. 2.—Ordering G.T.R. to erect freight shed at Beauharnois, Que., within 30 days.

26593. Sept. 27.—Authorizing The Gap rural municipality, no. 39, to make highway over Canadian Northern Ry. at Ceylon, Sask.

26594. Oct. 1.—Authorizing Canadian Northern Ry. to build branch for Sanatorium for Consumptives at Ninette, Man.

26595. Oct. 2.—Relieving Edmonton, Dunvegan & British Columbia Ry. from fencing right of way between mileage 10.7 and 10.8, Burnt River bridge, and from erecting fences, gates and cattle guards between mileage 8 and 10.7 and 10.8 and 29, relief given in latter case to cease as soon as any land on either side becomes settled or improved.

26596. Oct. 2.—Authorizing Canadian Northern Ry. to build spur for Langstaff, Schurg & Co. at Emo, Ont.

26597. Oct. 2.—Dismissing complaint of O'Brien Bros., Chatham, Ont., that C.P.R. has erected a fence along its line at King St. East, without providing access to their property.

26598. Oct. 3.—Extending for two months from date time within which C.P.R. shall erect standard 6 station at Enterprise, Ont.

26599. Oct. 2.—Authorizing Canadian Northern Ry. to build overhead across Fairford St., Moose Jaw, Sask.

26600. Oct. 2.—Relieving C.P.R. from providing further protection at Keewatin St., Winnipeg.

26601. Oct. 3.—Authorizing C.P.R. to build spur for Merritt Collieries, Ltd., Merritt, B.C., and approving clearances.

26602. Oct. 2.—Relieving Edmonton, Dunvegan & British Columbia Ry. from erecting fences gates and cattle guards along certain portions of its right of way between mileage 130.8 and 262.2, and ordering it to fence right of way between mileage 159 and 161.8, 163.5 and 165, 192 to 194.8 and 234.7 to 240; work to be completed by June 30, 1918.

26603. Oct. 2.—Ordering C.P.R. to erect station at Mud Lake, Ont., in accordance with order 26068, May 5, and stop trains on flag there.

26604. Oct. 3.—Extending to Oct. 1, 1918, time within which Mount Royal Tunnel & Terminal Co. (C.N.R.) may operate trains over connection with Jacques Cartier Union Ry. near Jacques Cartier Jct., Que., mileage 5.01 from Dorchester St.

26605. Oct. 3.—Relieving Edmonton, Dunvegan & British Columbia Ry. from fencing right of way along certain portions between mileage 262.2 and 357.3.

26606. Oct. 4.—Relieving G.T.R. from providing further protection at Sealy St., Casselman, Ont.

26607. Oct. 3.—Extending to Dec. 31 time within which G.T.R. shall complete widening of culvert near St. Gregoire station, Que., as required by order 26375.

26608. Oct. 4.—Authorizing G.T.R. to build spur for Fesserton Timber Co., Orillia, Ont.

26609. Oct. 5.—Relieving Lake Erie & Northern Ry. from providing further protection at Morell St., Brantford.

26610. Oct. 5.—Approving New York Central Rd. bylaw, Sept. 11, re tariffs of tolls for persons and property; and amending order 24833, Mar. 27, 1916.

26611. Oct. 5.—Approving Quebec Oriental Ry. standard freight mileage tariff, C.R.C. 28.

26612. Oct. 5.—Approving Michigan Central Rd. bylaw, Sept. 11, in respect of freight traffic and rescinding order 16183, Mar. 28, 1912.

26613. Oct. 5.—Relieving G.T.R. from providing further protection at Main St., Seaforth, Ont.

26614. Oct. 6.—Ordering G.T.R. to appoint night and day watchmen at crossing of highway by joint section of C.P.R. and G.T.R. at Golf Links, or Dixie Road, mileage 9.85 from Toronto, pending completion of Toronto-Hamilton highway.

26615. Oct. 9.—Ordering American Express Co. to provide facilities for handling fish shipments from Dominion Ex. Co., Michigan Central Rd. station, St. Thomas, Ont.

26616. Oct. 9.—Relieving G.T.R. from providing further protection at highway at west end of Gore station, Que.

26617. Oct. 9.—Rescinding order 19405, May 29, 1913, which authorized C.P.R. to build spur for Arlington Shingle Co., Nanoose District, Vancouver Island, B.C.

26618. Oct. 5.—Authorizing Saskatchewan Government, on behalf of rural municipality of Eye Hill, no. 382, to make highway over C.P.R. station grounds at Evesham, Sask.

26619. Oct. 9.—Authorizing Palmerston Tp., Ont., to change location of crossing and divert road over C.P.R., near Snow Road, Ont., 20% of cost to be paid out of railway grade crossing fund; C.P.R. to move return fences, cattle guards, planking and crossing sign to new crossing and maintain them.

26620. Oct. 9.—Approving revised location of Canadian Northern Ontario Ry. Scarboro cut-off through York and Scarboro Tps., mileage 3.66 to 7.80 from Yonge St., connection with Ottawa line to be moved short distance east, so that switch will be entirely off road allowance.

26621. Oct. 9.—Relieving C.P.R. from providing further protection at highway 5 mile east of Yamachiche, Que.

26622. Oct. 9.—Authorizing Canadian Northern Ontario Ry. to build across Dawes Road, by a subway, between York and Scarboro Tps., and rescinding order 20640, Oct. 22, 1913.

26623. Oct. 10.—Amending order 26454, Aug. 20, 1917, re bridge over Toronto, Hamilton & Buffalo Ry. at King St., Hamilton, Ont.

26624. Ordering Canadian Northern Ontario Ry. to build subway at Don Mills Road, Lot 1, Con. 3, York Tp., and authorizing it until further order to cross Don Mills Road at grade; and rescinding order 20642, Oct. 23, 1913.

26625. Oct. 10.—Ordering G.T.R. to build crossing between Cons. 11 and 12, near Stevensville, Ont., work to be done by Oct. 31.

26626. Oct. 10.—Amending order 18925, Mar. 27, 1913, re C.P.R. tracks under Canadian Northern Ontario Ry. in E. ½ Lot 1, Con. 4, Scarboro Tp., Ont.

26627. Oct. 10.—Ordering C.P.R., pending re-establishment of daily mixed local service, to stop train 1 on flag at Minnitaki, Ont., and rescinding order 26311, July 12.

26628, 26629. Oct. 9.—Authorizing Canadian Northern Ontario Ry. to build across Eglinton Ave., York Tp., by trestle and rescinding order 20656, Oct. 22, 1913; also to build across highway between Lots 3 and 4, Con. 3, York Tp., and rescinding order 19518, June 9, 1913.

26630. Oct. 10.—Exempting C.P.R. from requirements of Railway Act re notice and consent of shareholders; and recommending to Governor in Council for sanction agreement between C.P.R. and Napierville Jct. Ry., Feb. 26, providing for use by Napierville Jct. Ry. of C.P.R. between Delson Jct. and Windsor St., Montreal, and facilities there.

26631. Oct. 11.—Authorizing C.P.R. to build spur at grade for Belgian Orchard Syndicate, across Elm St., Vernon, B.C.; south switch of through siding to be removed and placed so that Elm St. shall have full width of 60 ft. where it crosses C.P.R.

26632. Oct. 12. Amending order 26592, Oct. 2, re G.T.R. freight shed at Beauharnois, Que.

26633. Oct. 11.—Authorizing G.T.R. to operate its trains over C.P.R. sidings to William Rennie Co.'s premises, Chatham, Ont.

26634. Oct. 13.—Suspending, pending hearing by Board, following schedules: Supplements 45 and 46 to G.T.R. C.R.C. no. E-2374; Supplement 18 to C.N.R. C.R.C. no. E-189; Supplement 14 to C.P.R. C.R.C. no. 3280, items 152 and 153; Supplement 4 to M.C.R. C.R.C. no. 2675, item 155A; and T.H. & B. Tariff C.R.C. 1176, and ordering that schedules to be superseded by schedules herein set forth be and are hereby continued in force pending Board's decision.

26635. Oct. 12.—Authorizing C.P.R. to build spur for Whitmore Bros., Regina, Sask.

26636. Oct. 12.—Authorizing C.P.R. to build spur for Dryden Timber & Power Co., Dryden.

26637. Oct. 12.—Authorizing New York Central Rd. to rebuild bridge near St. Stanislas, Que.

26638. Oct. 12.—Relieving C.P.R. from providing further protection at Humber Summit crossing, near Woodbridge, Ont.

26639. Oct. 9.—Approving plan, July 22, 1916, showing changes in bridge over C.P.R. on Nelson St., Sudbury, Ont., and authorizing Sudbury-Copper Cliff Suburban Electric Ry. to extend its tracks across same; cost of maintaining bridge, less cost of maintenance of additional work in floor system, made necessary by S.C.C.S.E.R.Co. using bridge, to be paid by C.P.R.

26640. Oct. 13.—Approving clearances at unloading shed at Robin Hood Mills, Ltd., Moose Jaw, Sask.

26641. Oct. 12.—Approving agreement between Bell Telephone Co. and Monk Rural Telephone Co., Carleton County, Ont., dated Sept. 19.

26642. Oct. 16.—Ordering C.P.R. to file tariff reducing stop-over charge for milling western grain, ex-lake, in transit, to 1c per 100 lb., to become effective not later than Nov. 1.

26643. Oct. 15.—Approving agreement, Aug. 22, between Bell Telephone Co. and Dunnet Tp., Ont.

26644. Oct. 15.—Approving agreement between Bell Telephone Co. and Everett Telephone Co., Simcoe and Dufferin Counties, Ont., Oct. 15, 1915.

26645. Oct. 15.—Authorizing Edmonton, Dunvegan & British Columbia Ry. to divert Grande Prairie Trail in s.w. ¼ Sec. 9 and n.w. ¼ Sec. 4, Tp. 76, Range 5, west 6th meridian, Alta.

26646. Oct. 15.—Authorizing C.P.R. to build at grade a second passing siding across D'Arcy St., Cobourg, Ont.

26647. Oct. 15.—Authorizing C.P.R. to construct at grade passing siding across road allowance between Lot 10, Con. 1, Brighton Tp., and Lot 11, Con. 1, Cramahe Tp., Ont.

26648. Oct. 15.—Relieving C.P.R. from providing further crossing protection at Bell's Road, Quebec, Que.

26649. Oct. 15.—Relieving Michigan Central Rd. from maintaining night and day watchmen at first public crossing east of G.T.R. diamond east of Welland, Ont.

26650. Oct. 15.—Ordering that all train movements over crossing by Kettle Valley Ry. of Winnipeg St., Penticton, B.C., in both directions, be limited to 4 miles an hour; all passenger trains backing in from South Penticton to Penticton, or vice versa, to be equipped with tail hose on rear of train, air to be coupled and working on all freight movements between these points.

26651. Oct. 16.—Approving C.P.R. standard plan of double track tunnels on its Western Lines.

26652, 26653. Oct. 15.—Approving Canadian Northern Ry. shelter to be built at Pointe Bleue, Que., and approving its station to be built at St. Felicien, Que.

26654. Oct. 16.—Authorizing G.T.R. to build bridge over Saskatoon Ave., Campbellford, Ont.

26655. Oct. 11.—Dismissing application of South Alberta Hay Growers, Ltd., Pincher Creek, Alta., for commodity rates on timothy seed, in carloads, for home consumption and export.

26656. Oct. 11. Relieving C.P.R. from providing further protection at crossing of Dundas St., Woodstock, Ont.

26657. Oct. 16.—Ordering that Sherman Ave., Hamilton, Ont., be protected by day and night watchmen, appointed by G.T.R. City and G.T.R. each to pay half wages.

26658. Oct. 16.—Authorizing C.P.R. to build diversion of Mill Spur and make temporary road diversions at Ayr Pit, mileage 67.6, Galt Subdivision, Ont.

26659. Oct. 16.—Authorizing G.T.R. to build spur from Imperial Oil Co., Chatham, Ont.

26660. Oct. 15.—Authorizing G.T.R. to operate over two spurs of Burlington Steel Co., Hamilton, Ont.; and approving clearances there.

26661. Oct. 18.—Amending order 26228, June 20, re G.T.R. siding, in Cobourg, Ont., for Thompson MacDonald Co.

26662. Oct. 18.—Disallowing Supplement 2 to Dominion Atlantic Ry. Tariff, C.R.C. 429.

26663. Oct. 18.—Ordering that trees between east and west legs of Y and north of Church St., Brockville, Ont., be cut down; and that movement of Canadian Northern and Canadian Pacific trains over same be limited to 6 miles an hour.

26664. Oct. 18.—Authorizing C.P.R. to build spur for Dominion Blank Book Co., Berthier, Que.

26665. Oct. 17.—Ordering G.T.R. to stop train 189 on flag at Malton, Ont.

26666. Oct. 19.—Authorizing C.P.R. to build spur for Andrew Jergens Co., Perth, Ont.

26667. Oct. 19.—Authorizing C.P.R. to build extension to siding for Swift Canadian Co., St. Boniface, Man.

Japanese Railway Mission to America.

A special mission representing the Imperial Japanese Railways arrived on the United States Pacific coast about the middle of October to undertake a study of American transportation and industrial conditions, and proceeded east. The U.S. Secretary of Commerce arranged for the entertainment of the mission until it reached Washington, and designated a Japanese speaking representative of the Bureau of Foreign and Domestic Commerce to conduct the members personally on their trip across the country. Prominent railway officials volunteered to furnish every facility for a thorough study of their systems.

The object of the visit is to investigate the present transportation conditions in the U.S., to inspect the principal industrial plants and mines, to study the loading and unloading of cotton, and to observe the methods employed in the large railway sorting yards. The Imperial Japanese Railways are represented on the mission by Jiro Nakamura, Assistant Traffic Manager; Akio Kasama, Secretary and Purchasing Agent; Dr. Yasujiro Shima, Director of Machinery and Rolling Stock; and S. Kobayashi, Resident Engineer at New York.

The French Government is reported to have ordered a further 9,000 freight cars through the U.S. Government.

Motor Accidents at Level Crossings in Ontario.

The Board of Railway Commissioners has issued the following circular:

In view of the increasing number of accidents at level crossings in Ontario to persons travelling in motors, the board desires that a discussion should be had, in which the different motor associations, municipalities and railways interested should take part, and the best possible methods and protection in the interest of public safety be adopted. Without in any way limiting the discussion, the following questions should be considered:

The matter of the view from the highway of any approaching trains. Factors to be considered from the motorist's standpoint are the speed and braking efficiency of the motors, having regard to the fact that the motor must be stopped after the train is seen.

Whether or not there is any difficulty in seeing the standard railway crossing sign from motors, and whether additional post signs on the road would assist in obviating accidents, for example, warning posts placed at some distance from the crossing, or posts placed in the centre of the highway, about 50 feet from crossing?

Whether humps or hogs-backs should be placed on the road, so as to compel motorists to bring down the speed of their cars to a rate at which they may safely proceed?

Ought motors be brought to a stop before crossing?

Bells or wig-wag signals, which are of the greater benefit to motorists?

Can any change be made in railway regulations which, without injuring the efficiency of the public service, will promote safety?

Ought the regulation whistle signals to be given closer to the highway, or any change be made in the use of the signal or the bell?

Written submissions may be sent by mail to the board at Ottawa, and in addition the matter may be spoken to at any meeting of the board.

In connection with the foregoing circular it may be mentioned that the Vice Chairman of the Ontario Railway and Municipal Board, A. B. Ingram, suggested recently that that board's efforts to protect crossings on railways under provincial jurisdiction should be supplemented by the municipalities, which should erect warning boards on the highways, say, 300 ft. from each crossing, worded, "Beware. Railway Crossing, 300 Feet," or something similar.

J. K. McNeillie's New Position on The Delaware and Hudson.

Following are some particulars of the D. & H. Co.'s Susquehanna Division, of which J. K. McNeillie, formerly General Superintendent, Canadian Government Railways, Moncton, N.B., was appointed Superintendent recently: The main line extends from Binghamton, N.Y., on the south, to Mechanicville and Albany on the north, about 150 miles. There are two branches, viz., Cooperstown and Cherry Valley, each about 21 miles long. The main line is, with the exception of about 24 miles, double tracked and equipped throughout with automatic electric signals. For about 10 miles there is a third track for northbound traffic. There is under construction some additional third track for northbound traffic. Together with certain grade revisions, will

give a uniform low grade line where there is the greatest density of traffic.

Extensive terminals are located at Binghamton, Oneonta, Schenectady and Mechanicville. At Nineveh, about 24 miles from Binghamton, is the connection with the Pennsylvania Division, which extends from Nineveh to Wilkes-Barre (a connection with the Pennsylvania Rd.) Carbondale, etc., tapping the Pennsylvania anthracite coal mining region. In this latter territory are located some 42 breakers, and from these operations are loaded from 800 to 1200 cars a day of anthracite coal, which forms a considerable part of the loaded northbound traffic over this division. Bituminous coal, from the Pittsburg district, and other freight received at Wilkes-Barre and other points, also moves via this route. At Oneonta, a city of about 12,000 population, which is the headquarters of the division, there is a double hump yard, having a capacity of some 3,500 cars, through which freight is classified in both directions. A 52 stall locomotive house, efficient coal and ash handling facilities are provided. Locomotive and car repair shops are also located there. At Mechanicville is the connection with the Boston & Maine Rd. and the Delaware & Hudson Saratoga Division, over which Canadian freight moves north to connections at Rouses Point. Near Schenectady is a connection with the New York Central. At Binghamton is a connection with the Erie and the Delaware, Lackawanna & Western.

The density of traffic over the main line is said to be the greatest in the United States, with probably one or two exceptions. As will be seen from the above, freight collected from the anthracite coal region and from connections at Wilkes-Barre and Binghamton for New England points and the Canadian territory via Mechanicville and for Albany and vicinity is moved over this territory, requiring upward of 85 through freight trains daily and a movement of from 4,000 to 5,600 cars. Anthracite coal and ore represent a large part of the traffic, the balance being bituminous coal, merchandise and perishable freight and manufactured products, while there is a heavy traffic developed from the General Electric and American Locomotive Companies, located at Schenectady. The main line runs through a very productive dairy country, and a train of some 21 cars is required daily to ship the milk collected in this territory to New York City, this supply being a considerable factor in the daily requirements of the metropolis.

Central Ry. of Canada Suit.—In the Quebec High Court, Practice Division, Montreal, Oct. 18, Justice Bruneau gave judgment dismissing with costs the action of the Central Ry. of Canada against C. J. Wills and others. This was an action for damages arising out of an alleged breach of contract in connection with the building of a railway from Montreal to Georgian Bay. The parties have been engaged in legal proceedings over the contract ever since construction ceased in 1912. The big suit was carried to the Imperial Privy Council in 1914, and since then the suits for damages have been up before Quebec courts from time to time. It is said that the whole have now been disposed of.

The C.P.R. is reported to have approached the New Brunswick Government with a proposal that the government take over the company's demonstration farm at Fredericton for operation in connection with the Department of Agriculture.

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,
Associated Business Papers,
Audit Bureau of Circulation.

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, NOVEMBER, 1917.

PRINCIPAL CONTENTS.

Appointments, Transportation	439
Birthdays of Transportation Men	421
Board of Railway Commissioners,—	
Orders by, Summaries of	435
Traffic Orders	441
Canadian Government Railways, Jacking Stall	426
Canadian Northern Ry., Station Work in Montreal	422
Canadian Pacific Ry., Freight Car Con- versions	419
Honor Roll	424
Canadian Railway Association for National Defence	425
Canadian Ticket Agents' Association Meeting Canadian Transportation Men, etc., in the War	440
Electric Railway Department	442 to 446
British Columbia Electric Ry.'s Position ..	443
Finance Meetings, etc.	445
London & Lake Erie Ry. & Transportation Co.'s position	444
Projects, etc.	444
Quebec Ry., Light, Heat & Power Co.'s Report	446
Toronto Suburban Ry.'s Highway Crossing Protection	446
Trussed Rail Joint, A New	442
Express Companies, Among the	441
Freight and Passenger Traffic Notes	426
French State Railways' Gondola Cars	438
Grand Trunk Pacific Ry. Annual Meeting ...	425
Grand Trunk Ry. Passenger Stations	420
Locomotive Design and Construction	417
Mainly About Railway People	429
Marine Department	447 to 455
Great Lakes Vessels for Ocean Service ...	454
Imperial Oil Co.'s Tank Vessels	455
Prince Edward Island Car Ferry and its Terminals	447
Pure Drinking Water on Great Lakes Vessels	448
St. Lawrence Power Dam Proposals	451
Sault Ste. Marie Canals Traffic	452
Shipbuilding Activities	449
United States Government Shipbuilding Work	453
Wreck Commissioner's Judgments	450
Railway Development	433
Railway Earnings	434
Railway Finance, Meetings, etc.	439
Railway Maintenance Work	431
Railway Ties Purchased in 1915 and 1916 ..	423
Telegraph, Telephone and Cable Matters ...	441

Subscribe for Canada's Victory War Loan.

Canadian Railway and Marine World urges its readers to subscribe for the Dominion War Loan Bonds now being offered, because:

It is absolutely necessary to provide funds to enable Canada to maintain its army at the front and to strengthen it in every possible way.

It is equally necessary to provide funds to be loaned to the British Government to purchase ships, munitions, produce, etc., in Canada, and thereby to keep Canadian industries active, provide a market for products, and stimulate traffic, in which our readers are vitally interested.

The bonds are absolutely the best investment that can be had. They are secured by the whole assets and credit of the country. They yield a most attractive rate of interest—a rate that would not have been dreamed of for government securities three years ago—and will always be saleable quickly and without any difficulty.

As evidence of our absolute confidence in offering this advice, it may be mentioned that Canadian Railway and Marine World's proprietors have invested to the full extent of their ability in the three Dominion War Loans offered previously and intend to do the same in regard to the present offering.

The Essex Terminal Ry.'s plans for an extension from the end of its present line at Ojibway, Ont., to Amherstburg, about 12 miles, having been approved by the Board of Railway Commissioners, the Chick Contracting Co., of Windsor, Ont., has been given a contract for grading. The extension will pass through Sandwich West and Anderton, the present objective being to reach the Brunner-Mond Canada Ltd. to secure stone and other building material for construction of the Canadian Steel Corporation's plant at Ojibway. If the weather is favorable it is hoped to have track laid by the end of the year.

Locomotive Whistling, etc., at Hamilton.—The Hamilton City Council has been complaining of the ringing of bells and whistling by locomotives on the Toronto, Hamilton & Buffalo Ry., and claims that more noise is made than is necessary. The company claims that it is only obeying the Dominion regulations, and that if the city desires to prevent it a bylaw preventing whistling, etc., can be passed. In this event, it is pointed out, the city would be liable if any accident happened through the failure on the part of a locomotive man to whistle or ring the bell.

Special Freight Arrangements for Live Stock.—The Minister of Agriculture announced recently that arrangements had been made between his department and the railways to prevent depletion of Canadian breeding and feeding stock, insure the feeding of live stock in Canada, and secure the return of feeding and breeding stock to the farms. It comprises: A re-distribution policy, which will provide for the movement of stock from areas where feed is light to areas where feed is plentiful. Free freight policy in connection with the transportation of breeding cattle and breeding sheep. Fifty per cent. rebate of freight rate on carload shipments of feeding cattle from Winnipeg to country points in the Eastern Provinces. Free shipment of carloads of breeding sheep and lambs from Toronto and Montreal to the west.

Acquisition of the Canadian Northern Railway by the Dominion Government.

The act authorizing the Dominion Government to acquire the whole of the Canadian Northern Ry.'s capital stock which it does not already own, as passed at the Dominion Parliament's last session, and published in full in Canadian Railway and Marine World for October, provides for an agreement, as to the terms and conditions, to be entered into between the Government and the owners of the stock and for the price therefor being fixed by arbitration. At the time of writing (Oct. 26) we understand that the agreement has not been signed, but that it has been drafted and that its terms have been practically settled, with the possible exception of the maximum price to be paid. As a preliminary step towards the arbitration proceedings the company's books are being audited by chartered accountants appointed by the Government.

During the discussion of the bill in the House of Commons, the Finance Minister stated that Sir William Meredith, Chief Justice of Ontario, would represent the Government in the arbitration to fix the price. Press reports have mentioned F. H. Phippen, K.C., as likely to represent the company as arbitrator, but as he is its General Counsel, his appointment is not considered probable.

As soon as the stock has been transferred the Government may advance not exceeding \$25,000,000 to assist the company in paying indebtednesses, and the company will then probably be in a position to place orders for rolling stock, which is imperatively required, and to proceed with necessary works which have been delayed.

Unconfirmed press reports state that Hon. F. Cochrane, ex Minister of Railways, will be appointed chairman of the C.N.R. directorate, and Hon. G. P. Graham, another ex Minister of Railways, has been mentioned as a probable member of the board.

Port Arthur Harbor.—During this year the harbor at Port Arthur, Ont., has been dredged to a depth of 25 ft. below zero of the harbor gauge, which is 601.86 ft. above mean sea level. The main harbor north of the south entrance has been widened and dredged out to a line 150 ft. from the west side of the breakwater, involving the dredging of a triangular area 2,140 ft. long in the eastern part. The main harbor in front of the Canadian Northern Ry. coal wharf has been deepened over an area of 1,700 ft. extending out 250 ft. from the face of the wharf, the north limit of this area being 1,500 ft. distant from the Canadian Northern elevator B.

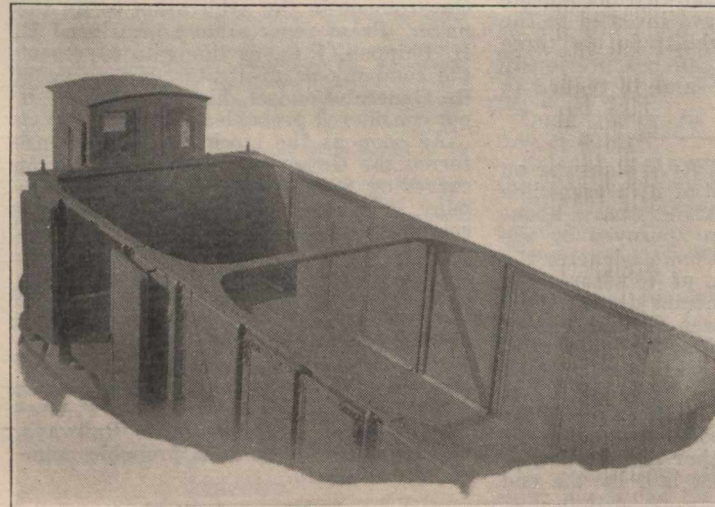
Three Rivers Shipyards, Ltd.—Some particulars about the incorporation of this company were given in Canadian Railway and Marine World for October, since which official information has been received. The shipyard site consists of 75 acres, on Notre Dame St., Three Rivers, Que., about a mile from the city hall. We are advised that it is being equipped, at a cost of about \$55,000, with the latest woodworking machinery for building wooden ships. As previously stated, the company has a contract to build two wooden steamships for the Imperial Munitions Board. T. M. Kirkwood, of Toronto, is President and General Manager, and W. T. Donnelly is Vice President and Consulting Engineer.

Gondola Cars with Cabs for French State Railways.

The 1,000 gondola cars with brakeman's cabs which the French State Railways ordered from Canadian Car & Foundry Co. have all been shipped and one of them is illustrated herewith. Their general dimensions are:

- Capacity 20 metric tons.
- Length over body and end sill 21 ft. 10 $\frac{1}{2}$ in.
- Length over buffers 27 ft. 8 $\frac{1}{2}$ in.
- Length, inside body 21 ft. 7 $\frac{1}{2}$ in.
- Width, inside 8 ft. 2 $\frac{7}{16}$ in.
- Height, from rail to top of floor 4 ft. 1 $\frac{5}{16}$ in.
- Height, from rail to top of side 8 ft. 10 $\frac{1}{2}$ in.
- Height, over cab 11 ft. 4 $\frac{1}{2}$ in.
- Wheel base 11 ft. 9 $\frac{1}{4}$ in.

They have steel superstructure with wood lining, riveted to an all steel and iron underframe, resting on 2 axles, through the medium of two journal boxes with front cover. The draw bar hooks, screw couplings and safety chains are of open hearth steel, able to stand a pulling indicated as follows: Draw bar hooks and screw couplings, 55,000 kilograms; safety chains and hooks, 20,000 kilograms; safety chain eye bolts, 18,000 kilograms. The buffer volute and bearing spring are



Extension of Canadian Pacific Yards at Lambton and West Toronto.

Considerable progress has been made with the enlarging of the C.P.R. Lambton-West Toronto yards, briefly referred to in Canadian Railway and Marine World last issue. The work consists of lengthening and rearranging the tracks, which will greatly increase the capacity and facilitate the operation of the yards. The tracks will be long enough to hold the longest trains. The present neck at Runnymede Road crossing, which now causes delay and other troubles, will be removed.

The Lambton yard, located between Scarlett Road and Runnymede Road, is being divided into two parallel yards, with independent leads at both ends. The yard will be used entirely for receiving and dispatching trains. It will provide for double track movements and for the easiest possible access to and from the locomotive house for incoming and outgoing locomotives. The West Toronto yard, located between Runnymede Road and Keele St., is also being divided into two yards, with independent switching tracks

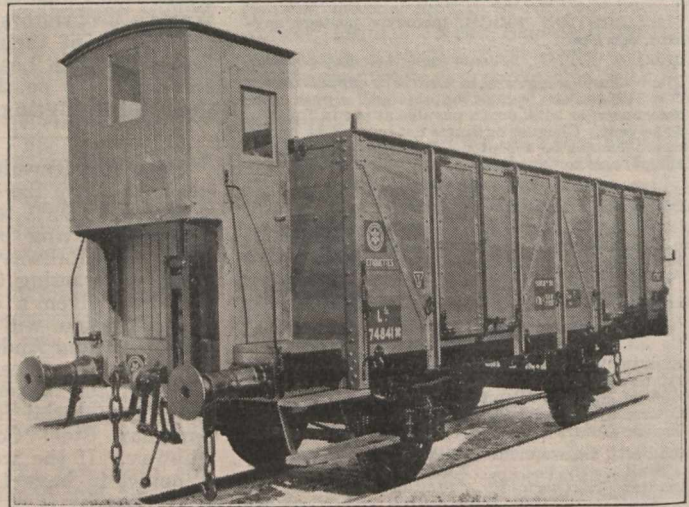
mede Road, for which some extra land was bought. A local freight and transfer yard and platform has been built west of Jane St. to take care of the transfer of freight which was formerly done in John St. yard. This improvement has resulted in a considerable saving in time and power. The construction of this transfer yard has necessitated the moving of Lambton station to Scarlett Road, a short distance west. Track scales will be located at the most convenient points.

The work in connection with the widening of Runnymede Road subway is being done by Archibald & Holmes, contractors, of Toronto. All the track work is being done by the C.P.R. forces.

The Lambton yard was fully described and illustrated in Canadian Railway and Marine World, Nov., 1913, pg. 532.

Oxyacetylene Welding for Track Repairs

Repairing of frogs and track crossings by building up the worn places by oxyacetylene welding is being practiced in side track repair work in the Chicago &



Gondola Car with Cab, for French State Railways

made of 3 $\frac{1}{2}$ x 19/32 in. leaves; the end of each one of the leaves being grooved out so as to form a male and female part, and stop any displacement of the same. They have 41 11/32 in. diameter rolled steel wheels and axles with journals, size 140 x 250 millimetres. The wheels mounted on axle to standard American gauge, 4 ft. 8 $\frac{1}{2}$ in. Oak, which is usually used on French State Railway cars, has been replaced in this case by yellow pine. The brakes are operated by a hand brake wheel from the inside of the cab, released by hand and applied by counterweights attached to the lever arm, which transmits power to the foundation brake gear. The counterweights are suspended from the brake mast nut, which in turn engages the brake mast. The mast has a special thread with approximately 5 in. pitch, which gives a quick brake application and is keyed to 2 ratchet wheels, which, by an arrangement of springs and levers, hold the brake in either release or applied position. Two brake shoes are applied to each wheel, and the cars are equipped with a special design of trussed brake beam. No air brakes are used and we understand that when freight trains are made up on the French State Railways every fourth or fifth car is equipped with a cab, in which a brakeman rides.

at each end. It will be used mostly for sorting cars for the Toronto terminals and may be called the "local yard."

The Lambton yard is being lengthened 750 ft. by acquiring extra land and diverting St. Clair Ave. to the north between Scarlett Road and Jane St. The two switching tracks at the west end of the yard are being extended westward. In order to extend the yard at the east end, it is necessary to widen the present subway at Runnymede Road about 80 ft. to the north. This extension is being built in reinforced concrete throughout. The bents consist of reinforced concrete posts and caps, on which are placed concrete slabs, spanning the four openings, two of which are for the roadways and two for the sidewalks. The concrete slabs are being constructed on the ground adjoining the subway, and are placed in position by a portable crane. The slabs, which are 4 ft. 7 in. wide, are being laid with $\frac{1}{4}$ in. spaces. The joints are being filled with grout, and the entire floor will be made waterproof before the tracks are put on. When the present subway was built this extension was contemplated and the two abutments were built long enough for it.

The extension westward of the local yard is achieved by diverting Ethel Ave. to the north for 800 ft. west of Runny-

Northwestern Ry. The work is done by the section gangs and the success has been such that it is intended to provide an outfit for each roadmaster's division. The same outfits are used for cutting rails, boring bolt holes and welding pieces of angle-bar under the rail base to serve as anchors. Particulars of the work were given at the annual meeting of the Roadmasters' and Maintenance of Way Association recently by P. J. McAndrews, Roadmaster C. & N. W. R., Sterling, Ill. The welding and cutting have been confined to side track work as yet, but Mr. McAndrews considers that with proper care the process can be employed in main track repair work.

Pullman Company's Earnings.

The Pullman Co. reports for the year ended July 31, as follows:

	1917.	1916.
Gross income	\$49,184,559	\$43,761,465
Operating expenses	29,381,563	24,913,914
Depreciation	6,170,584	6,467,184
Balance	*\$13,632,412	\$12,380,367
Dividends	9,599,784	9,599,760
Surplus	\$4,032,628	\$2,780,607

*Equivalent to \$11.36 a share earned in the fiscal period on \$120,000,000 capital stock, compared with \$10.31 a share in 1915-1916.

Transportation Appointments Throughout Canada.

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

Canadian Northern Ry.—H. T. HAZEN, M.Can.Soc.C.E., heretofore Chief Engineer, Toronto Suburban Ry., has been appointed Engineer, Maintenance of Way, Eastern Lines, C.N.R. Office, Toronto.

GEO. COLLINS, heretofore Special Representative, Toronto and Trenton, Ont., has been appointed Superintendent Branch Lines, Toronto District, Ontario Division, vice J. Irwin, on leave of absence. Office, Trenton, Ont.

W. M. JACKLIN, heretofore Superintendent, Maintenance of Way, has been appointed Superintendent of Track, Ontario Division, and his former position has been abolished. Office, Toronto.

J. R. MACKENZIE, heretofore Division Engineer, Rosedale, Toronto, has been appointed Assistant Engineer, Ontario Division, and will act as Assistant to H. T. Hazen, Engineer Maintenance of Way. Office, Toronto.

The positions of division engineer, Ontario Division, held heretofore by J. R. MACKENZIE, Toronto, and E. W. DELANO, Capreol, Ont., having been abolished, Mr. Delano has left the company's service.

The superintendents of the various districts of the Ontario Division have been given charge of maintenance of way. Supervisors of track, and supervisors of bridges and buildings, now report to the superintendent of their respective districts.

E. DAGG has been appointed ticket agent, Union Station, Winnipeg, vice B. G. Rutley, resigned.

C. H. WORBY, heretofore Sleeping and Dining Car Agent, Saskatoon, Sask., has been appointed Sleeping and Dining Car Agent, Winnipeg.

H. C. LaROCHE, heretofore dining car steward, has been appointed Sleeping and Dining Car Inspector, Winnipeg, vice F. Taylor, promoted.

H. MILNES, heretofore dining car steward, has been appointed Sleeping and Dining Car Inspector, Winnipeg.

H. COLEY, heretofore Sleeping and Dining Car Agent, Edmonton, Alta., has been appointed Sleeping and Dining Car Agent, Saskatoon, Sask., vice C. H. Worby transferred.

F. TAYLOR, heretofore Sleeping and Dining Car Inspector, has been appointed Sleeping and Dining Car Agent, Edmonton, Alta., vice H. Coley, transferred.

Canadian Pacific Ry.—C. O. McHUGH has been appointed Chief Dispatcher, Brownville Division, vice W. R. Howard. Office, Brownville Jct., Me.

J. G. SUTHERLAND, heretofore Car Service Agent, Calgary, Alta., has been appointed Inspector of Transportation, Western Lines, vice C. L. Leighty, who was appointed Superintendent of Telegraphs, Ontario District, Toronto, some time ago. Office, Winnipeg.

H. L. HORN, heretofore dispatcher, Moose Jaw, Sask., has been appointed Chief Dispatcher, Winnipeg, vice J. L. Able, who has been granted extended leave of absence.

J. J. McDONNELL, heretofore dispatcher, Lethbridge, Alta., has been appointed Chief Dispatcher, Saskatoon, Sask., vice J. H. Scott transferred.

J. H. SCOTT, heretofore Chief Dispatcher, Saskatoon, Sask., has been appointed

ed Car Service Agent, Calgary, Alta., vice J. G. Sutherland promoted.

C. BOARDMAN, heretofore Locomotive Foreman, Red Deer, Alta., has been appointed Locomotive Foreman, Strathcona, Alta., vice Jas. McGowan transferred.

—JAMES MCGOWAN, heretofore Locomotive Foreman, Strathcona, Alta., has been appointed Locomotive Foreman, Red Deer, Alta., vice C. Boardman, transferred.

Delaware & Hudson Co.—M. D. BOMHOWER, formerly General Foreman, Angus Shops, C.P.R., Montreal, has been appointed Division Car Foreman, Pennsylvania Division, D. & H. Co., reporting to the Master Car Builder. Office, Carbondale, Pa.

Grand Trunk Ry.—The following station agents have been appointed: Rouses Point, N.Y., W. W. Cooper; Cornwall Jct., Ont., C. F. Brydges; Smithfield, Ont., E. Harrington; Gelert, Ont., P. C. Brown; Holland Landing, Ont., G. W. D. Stevenson; Baden, Ont., W. Russell; Park Hill, Ont., W. Waugh; Longwood, Ont., R. T. Brand.

Grand Trunk Pacific Ry.—The following station agents have been appointed: Mawer, Sask., W. H. Thompson; Juniata, Sask., C. T. Bryant; Riceton, Sask., R. McCammond; Lewvan, Sask., J. H. Walker; Entwistle, Alta., C. W. Jaminette; Pocahontas, Alta., V. A. Scott; Mirror, Alta., G. W. Angus; Saltwell, Alta., L. D. Davis; Coalspur, Alta., D. L. Lyons; New Hazelton, B.C., J. F. Supon; Giscorne, B.C., G. E. Blundell.

Michigan Central Rd.—P. G. FINDLAY, heretofore Assistant to Manager, New York Central Fast Freight Lines, Chicago, Ill., has been appointed General Freight Agent, M.C.R., vice W. C. Rowley, resigned, to enter private business. Office, Detroit, Mich.

J. H. MEGLEMRY, heretofore Division Freight Agent, Buffalo, N.Y., has been appointed Assistant General Freight Agent there, and his former position has been abolished. This is a new position.

W. C. LEWIS, heretofore Division Freight Agent, Bay City, Mich., has been appointed Assistant General Freight Agent there, and his former position has been abolished. This is a new position.

F. B. ROWLEY, heretofore Commercial Agent, Minneapolis, Minn., has been appointed Assistant General Freight Agent, Chicago, Ill., and the position of Division Freight Agent there, heretofore held by G. M. Weaver, who has resigned to enter private business, has been abolished.

New York Central Fast Freight Lines.

—F. O. STAFFORD has been appointed Manager, vice Carl Howe, whose appointment as Traffic Manager, Michigan Central Rd., was announced in our last issue. Office, Chicago, Ill.

Reid Newfoundland Co.—R. G. REID, heretofore General Superintendent, has been appointed a Vice President. Office, St. John's, Nfld.

J. P. POWELL, heretofore Assistant General Superintendent, has been appointed General Superintendent, vice R. G. Reid promoted. Office, St. John's, Nfld.

Winnipeg Joint Terminals.—JAMES CLARK, heretofore Night Yardmaster, Canadian Northern Ry., Fort Rouge, Man., has been appointed General Yardmaster, Winnipeg Joint Terminals, vice W. McAuley, resigned.

Railway Rolling Stock Notes.

The G.T.R. has received a mikado type locomotive from Canadian Locomotive Co.

The Toronto, Hamilton & Buffalo Ry. has received 2 six-wheel switching locomotives from Canadian Locomotive Co.

The C.P.R. has received 485 steel underframe coal cars and a decapod locomotive from its Angus shops, Montreal, and a stock car and 4 vans from its Winnipeg shops.

The Russian Government is reported to be receiving quotations for the supply of 10,000 four-wheel freight cars. It is announced that the U.S. War Purchasing Board has permitted the Russian Government to place an order for 3,000 of such cars in the U.S.

Press reports state that the Russian Government is arranging to place additional orders for 1,500 locomotives in the United States, and that it is likely the order will be divided between the American Locomotive Co. and the Baldwin Locomotive Works.

Canadian Government Railways have received a ditcher from F. H. Hopkins & Co.; 69 refrigerator cars from Canadian Car & Foundry Co.; and the following second hand rolling stock from the General Equipment Co.: 2 locomotives, 141 coal cars, 30 tons capacity, and 23 box cars, 30 tons capacity.

The Eastern Car Co., since Sept. 14, has shipped 250 box cars, 20 tons capacity, for the Paris & Orleans Ry., leaving 100 yet to be shipped on an order for 2,000; 125 gondola cars for the French State Railways, leaving 675 to be shipped on an order for 1,000; and 100 box cars, 1,200 poods capacity, for the Russian Government, on an order for 3,000.

Railway Finance, Meetings, Etc.

Grand Trunk Dividends Passed.—The Secretary has issued the following notice: "The board has decided, in view of the great increase in working expenses, owing to war conditions, that it is inadvisable to declare any interim dividend on the 4% guaranteed and preference stocks. Notwithstanding the utmost exertions, the company has been unable up to the present to obtain the sanction of the Railway Commission to an increase in rates."

Pacific Great Eastern Ry.—The British Columbia Government has issued a writ against the officers and directors of the P.G.E.R., in which it is alleged that the members of the company are not legally entitled to hold the shares, that the directors are not legally qualified, and that all the proceedings taken at the recent annual meeting were illegal.

Temiscouata Ry.—Gross earnings for July \$24,965; operating expenses \$20,259; net earnings, \$4,706.

Timiskaming and Northern Ontario Ry.—Passenger traffic receipts for Aug., \$75,080.95; freight traffic, \$127,202.33; total, \$202,283.28, against \$83,798.80 passenger traffic; \$90,444.75 freight traffic; \$174,243.55 total, for Aug. 1916.

White Pass and Yukon Route.—Gross earnings from Jan. 1 to Sept. 14, \$1,557,125 against \$1,513,817 for same period 1916.

Outside Ticket Offices.—A press report stated recently that there was a movement on foot in railway circles to abolish the outside ticket offices in the smaller Canadian cities and towns. No confirmation of the report is obtainable. On the other hand, several passenger officials state that it is without foundation.

Travelling Engineers and Fuel and other War Problems.

The Travelling Engineers' Association will not hold its annual convention in the United States this year, owing to war conditions. Following are extracts from the President's circular announcing this.

While much has been done by the members of this association, I wish to remind you what can be done in the way of greater assistance to the Council of National Defence. The conservation of fuel is one of the most serious problems confronting the government and the railways today. Many railways have already organized departments for supervising the handling and performance of locomotives. With the cost of fuel as great as it is now, the most rigid economy should be practiced—and to this end locomotive men must be thoroughly trained—they must be shown how to get the most out of every pound of fuel fired. The only way to do this is by supervision. It will therefore be necessary for the travelling engineer to give the closest attention to firing methods and inspection of idle engines under steam, with a view of reducing to a minimum the consumption of coal. It is of great importance that locomotives be loaded to their full capacity. This will not only help to relieve the congestion, but more work will be obtained from available power, in other words, make the locomotives pull to the limit of their weight, for every possible pound of pull is needed in the war.

The modernizing of old locomotives will require a great deal more attention, with a view to bringing them to the maximum efficiency. In modernizing old locomotives we must equip them to take the place of new ones that cannot be built in time. We are now in a position where all locomotives and all men must do more than they have ever done before.

All members of this association should investigate labor saving appliances. On account of the shortage of labor, it will be necessary for all members to make a thorough study of devices to be placed on locomotives that will produce greater efficiency and economy.

Many new problems will arise in the handling of long troop trains and heating them by steam. The vastness of this undertaking is better understood if it is known that one field army, which consists of 80,000 men, requires 6,229 cars, comprising 366 trains, hauled by 366 locomotives, and yet this is only 4% of the new army to be moved.

A great many locomotive men and firemen who are of military age, have responded to the call of our country; many regiments composed of railway employes are now in France ready to take places where needed. This patriotic response to our nation's call has necessitated the promoting of senior firemen and the employment of a great many inexperienced men, who will have to be educated, and in all instances increased supervision will be necessary to bring them to the highest standard of efficiency. It is important that they understand what we want and why we want it. On account of the scarcity of fuel a poorer quality may have to be used, and these men must be taught how to use each scoop of coal so that every unit of heat possible will be generated. The travelling engineer, from his past experience as a locomotive man, can prove very valuable to the railways in co-operating with the various operating departments of the service. It is therefore up to us to take counsel together

and see if we cannot help reduce the cost of fuel and make more perfect the transportation chain.

As congestion may occur on some of the railways it may be necessary to transfer or interchange locomotives, the association should at this time give special attention to formulating plans for the interchange of these locomotives.

The majority of the members of this association are men who have passed the military age as now prescribed by the United States War Board, but knowing that all of us wish to have some part in the responsibilities assumed by our government, I urge upon you, if you have not already done so, to subscribe for one or more Liberty bonds and in this way do our bit, although we cannot go to Europe to do it.

It is the duty of all members to be loyal to the association regardless of the fact that it is necessary this year to postpone the convention. In this way only can we keep up the splendid reputation of the association. I therefore recommend that the reports of the committees contain the comments made by various members of this association and the annual report published as heretofore.

The work of the association has been very productive this year—the subjects are of unusual interest and I feel that a vote of thanks should be extended to the different committees to those who have in any way assisted them and to our most efficient secretary. In closing, may I use the words of the world famed Rip Van Winkle, "May we live long and prosper."

The Henderson Transfer and Lighterage Co., the incorporation of which was announced in our last issue, will operate chiefly in transferring grain between Fort William and Port Arthur, in connection with the Davidson and Smith Elevator Co., Port Arthur. The company has acquired the s.s. Robert L. Fryer of U. S. registry from R. J. Henderson, Winnipeg, who is President. This vessel is equipped for all kinds of wrecking and lighterage work, and was built at West Bay City, Mich., of oak, in 1888. The hull is built with diagonal strapping on the frames, wooden arches, steel boiler house, steam pump wells, etc., and her dimensions are: length 281 ft., breadth 41½ ft., depth 21½ ft.; tonnage, 1,810 gross, 1,451 register. She is equipped with triple expansion engines with cylinders 19, 32 and 50 ins., diar., by 40 ins. stroke; 850 i.h.p. at 88 r.p.m., and supplied with steam by 2 Scotch boilers 10 by 11 ft., at 150 lbs. J. R. Smith is General Manager of the company.

The s.s. George A. Graham was wrecked at South Shore, off Manitoulin Island, Lake Huron, Oct. 7, during a gale, and became a total loss. She was built at Chicago in 1891, and was originally named Marina. The hull was of steel, with double bottom for watertight ballast, steel boiler house, three watertight and two non watertight bulkheads, complete electric lighting plant, etc., and she was equipped with triple expansion engines, with cylinders 24, 38 and 61 ins. diar. by 42 ins. stroke, 1,200 i.h.p. at 75 r.p.m., supplied with steam by two Scotch boilers 14 by 12½ ft. at 125 lbs. Her dimensions were: length 292 ft., breadth 40 ft., depth 24½ ft.; tonnage 2409 gross, 1577 register. She was owned by the Montreal Transportation Co., having been recently acquired from the Canadian North West Steamship Co., Toronto, with that company's other steamships, Atikokan and Paipoonge and barge Thunder Bay.

Canadian Ticket Agents' Association Meeting.

The 31st annual meeting of the association was held at Montreal, Sept. 26. For the first time in its history, the association assembled for a one day purely business meeting, social features, always an attraction, being eliminated, and for this reason it was thought that there would be but a small attendance, but the members turned out in greater numbers than at Port Arthur last year. The Secretary-Treasurer's report showed that the association, both numerically and financially was prospering, 25 new members having joined during the year.

C. A. Cavins, G. P. and T. A., Chicago and Northwestern Lines, as accredited representative of the American Association of Passenger Traffic Officers, presented greetings from that association, congratulated the members on their work in the past and encouraged them to continue their good efforts in the future. He gave many statistics showing the growing importance and advance of railway work and interests in the United States and Canada, and foretold of greater things to be. Short addresses were given by W. S. Cookson, General Passenger Agent, G. T. R., C. B. Foster, Asst. Passenger Traffic Manager, C.P.R., and W. H. Snell, General Passenger Agent, C.P.R., George Ham, of the C.P.R. headquarters staff, and others. All spoke in complimentary terms of the association's objects and the advantages of a yearly reunion for the purpose of an interchange of opinions and mutual acquaintance.

President Hare gave a resumé of the association's progress during the past twelve months, and impressing upon all the importance of increasing the membership. He strongly advocated courtesy as a winning factor in an agent's dealing with the public. Many matters of interest to the ticket seller were discussed. It was unanimously decided that all members on military service should be kept in good standing on the books until the end of the war.

The following were elected officers: President, E. R. Blow, C.P.R., Whitby, Ont.; 1st Vice President, H. F. Whittier, G.T.R., Trenton, Ont.; 2nd Vice President, J. Ransford, G.T.R., Clinton, Ont.; 3rd Vice President, J. A. McDonald, C.P.R., Valleyfield, Que.; Secretary-Treasurer, E. da la Hooke, G.T.R., London, Ont.; Auditors, B. Caswell, C.P.R., Smiths Falls, Ont.; Executive Committee, W. Jackson, C.P.R., Clinton, Ont., W. J. Moffatt, G.T.R., Toronto, A. M. Hare, G.T.R., Tillsonburg, Ont., F. W. Churchill, C.P.R., Collingwood, Ont., C. B. Janes, C.P.R., Orillia, Ont. The Honorary Counsel, J. H. Flock, K.C., London, Ont., and Honorary Physician, Dr. W. Shaw, Clinton, Ont., continue in office.

Australia's Transcontinental Railway was opened Oct. 22.

The World's Shipyards.—An inventory of the world's shipbuilding facilities completed recently by the Japanese Government's Shipping Affairs Bureau is said to show that there are 850 shipyards, of which 264 are equipped to build steel ships of 1,000 tons or more, while 416 are able to turn out vessels of less than 1,000 tons. They are: Britain, 236; British colonies, 58; Holland, 105; Germany, 51; Japan, 25; Italy, 18; France, 25; Austria-Hungary, 9; Spain, 14; Belgium, 7; America, 48; Norway, 24; Sweden, 17; Denmark, 9; Russia, 17; China, 5; other nations, 12.

Traffic Orders by Board of Railway Commissioners.

Pulp Rates to United States.

26547. Sept. 20.—Order 24915, April 22, 1916, suspending certain tariffs increasing rates on wood-pulp and sulphite pulp from stations in Canada to points in the United States. It is ordered that the said order be rescinded, subject to and upon the condition that the rates from Ottawa, Hull, Hawkesbury, and Buckingham to destinations in Central Freight Association territory included in the suspended tariffs, except Jackson, Battle Creek, Vicksburg, and Kalamazoo, Mich., be revised to the basis of 19 1-10c. to Chicago, in accordance with the established percentages thereof, all fractions of 1c in the rates, excepting the ½c, to be eliminated in accordance with the following rule: Under .25, drop; .25 to .74, ½ cent; over .74, 1 cent. And it is also ordered that the rates from Ottawa, Hull, Hawkesbury, and Buckingham to Jackson, Battle Creek, Vicksburg, and Kalamazoo, be made 1c less than the rates from Grand Mere.

Fibre Board Cheese Box Rates.

26548. Sept. 19.—Re application of Canada Cheese Box Co., Ltd., for the same freight rates on fibreboard cheese boxes as apply on ordinary wooden cheese boxes. It is ordered that the rates and minimum weight to be charged by railway companies on fibreboard cheese boxes, in carloads, be those concurrently charged between the same points in Canada on wooden cheese boxes, in carloads; and that prompt effect be given this order by amendment of the Canadian Freight Classification, or by a commodity tariff of general application.

Commodity Rates on Canned Goods.

26572. Sept. 26. Re complaint of Dominion Cannery, Ltd., against withdrawal of joint commodity rates on canned goods from points on Canadian Northern Ry., south of Trenton, Ont., to points in Ontario west of Ottawa, Peterborough and Whitby, and the failure of the C. N. R. to comply with order 26168, May 31, 1917. It is ordered that the C.N.R. be required to publish and file its proposed joint tariff on canned goods, in carloads, the basis of which is contained in its submissions to the board, to become effective not later than Nov. 1; that the railway companies made parties to the said joint tariff file concurrences therein on or before Nov. 1, and that order 26168, May 31, 1917, be rescinded.

E. D. & B.C. Ry. Standard Freight Tariff.

26589. Sept. 27. Granting application of Edmonton, Dunvegan & British Columbia Ry. under Sec. 327 of the Railway Act, for approval of its Standard Freight Tariff, C.R.C. no. 62, effective Oct. 1, 1917.

Quebec Oriental Ry. Freight Tariff.

26611. Oct. 5. Granting application of Quebec Oriental Ry. under sec. 327 of the Railway Act, for approval of its Standard Freight Mileage Tariff, C.R.C. no. 28.

Minimum Weight Tariffs Suspended.

26634. Oct. 13. Re complaints of Canadian Manufacturers' Association and Toronto Board of Trade against proposal of railway companies, by schedules filed to become effective October 15, 1917 (Michigan Central Rd., Nov. 1), to increase aggregate minimum weight of less than carload shipments of fresh meat, dressed poultry, packing-house products, butter, and eggs, when loaded in refrigerator cars on private sidings, to 15,000 lb. per car. Upon reading the complaints filed, and in default of answers thereto by the carriers affected thereby, it is ordered

that the following schedules be suspended, pending hearing by the board, viz., supplements 45 and 46 to Grand Trunk Tariff, C.R.C. no. E-2374; supplement 18 to Canadian Northern Ry. Tariff, C.R.C., no. E-189; supplement 14 to Canadian Pacific Tariff, C.R.C., no. E-3280, items 152 and 153; supplement 4 to Michigan Central Tariff, C.R.C. no. 2675, item 155A; Toronto, Hamilton & Buffalo Tariff, C.R.C. no. 1176. And it is further ordered that the schedules to be superseded by the schedules herein set forth be continued in force pending the board's decision on the hearing to be had.

Milling in Transit Charge.

26612. Oct. 16. Re complaint of Dominion Millers' Association against milling-in-transit charge of 2c per 100 lb. made by Grand Trunk and the Canadian Pacific Railways on grain ex-lake. It is ordered that the C.P.R. be required to publish and file a tariff reducing the stop-over charge for milling western grain, ex-lake, in transit, to 1c per 100 lb.; the said tariff to be made effective not later than Nov. 1.

Commodity Rates on Timothy Seed.

26655. Oct. 11. Re application of South Alberta Hay Growers, Ltd., of Pincher Creek, Alta., for commodity rates on timothy seed, in carloads, for home consumption and for export. It is ordered that the application be refused.

Minimum Carload Weights for Apples.

26662. Oct. 18.—It appearing that the Dominion Atlantic Ry. has, unauthorized by the board, published and filed Supplement no. 2 to its Tariff C.R.C. 429, increasing minimum weight of apples, in carloads, from 24,000 lb. a car, as shown in Canadian Freight Classification 16, approved by the board, to 30,000 lb. a car, it is ordered that the said supplement be disallowed.

The Dominion Government Transportation Policy.

In a statement issued by the Premier, Sir Robt. Borden, on Oct. 18, announcing the new union government's policy it is stated that it will include "the development of transportation facilities; the co-operative management of the various railway systems, so as to secure economy in operation, to avoid unnecessary construction, and to secure the widest and most effective use of existing railway facilities; the encouragement and development of the shipbuilding industry, and the establishment of steamship lines upon both oceans and upon the Great Lakes; co-operation with the various provincial governments for the improvement of highways; and the investigation of the possibilities of air service for important national purposes."

In regard to the references to the establishment of steamship lines, in the statement above quoted, we are officially informed that the government's policy has not been fully determined and we are therefore unable to state whether government owned lines or subsidized lines are contemplated.

The Anglo-American Shipping Co., Ltd., has been incorporated under the Dominion Companies Act, with \$20,000 capital, and office at Montreal, to build and operate steam and other vessels, and to conduct business as common carriers, shipping agents within and without Canada, and to conduct a general towing and wrecking business.

Telegraph, Telephone and Cable Matters.

The Great North Western Telegraph Co. has opened offices at Jonquiere, Que., Beamsville, Ont., and Dropmore, Man.; and has closed its offices at Marsouins, Que., and Sparrow Lake, Ont.

Jas. T. Troyer, heretofore in charge of the C.P.R. Telegraphs in the Toronto News office, has been appointed agent, C.P.R. Telegraphs at Guelph, Ont. Prior to his departure from Toronto, he was presented with a pipe by his associates.

The Pacific cable, operated by the Pacific Cable Board, made a profit during the past year, and therefore the usual contributions will not be required. In addition to Great Britain, Canada, Australia and New Zealand are responsible for shares in any deficiency arising from operation.

The Great North Western Telegraph Co.'s 36th annual meeting was held at Toronto recently. The board was re-elected for the current year as follows: Z. A. Lash, K.C., President; Adam Brown, Vice President; F. B. Hayes, Aemilius Jarvis, D. B. Hanna, R. P. Ormsby, Hon. F. Nicholls, directors. G. D. Perry is General Manager, A. C. McConnell, Secretary and Auditor, and D. E. Henry, Treasurer.

The Association of Railway Telegraph Superintendents will hold a special meeting, Nov. 22, at Chicago, Ill., to consider the conservation of telegraphing and telephoning on both commercial and railway wires; the shortage of operators, and plans for schools to teach operators, and the emergency use of wire facilities in the operation of railways to meet the war situation.

Among the Express Companies.

E. V. Clare has been appointed agent Canadian Ex. Co., Moose Jaw, Sask.

R. S. Hodgson has been appointed acting route agent, Dominion Ex. Co., Winnipeg, vice W. A. McDonald.

G. A. Howard has been appointed agent, Canadian Northern Ex. Co., Emerson, Man., vice H. J. Berry.

N. R. Weir has been appointed route agent, Dominion Ex. Co., Campbellton, N.B., vice K. Copeman promoted.

E. Calder has been appointed agent, Dominion Ex. Co., Charlottetown, P.E.I., vice L. C. Goodge, transferred.

C. L. Bowles, heretofore route agent, has been appointed Auditor of Agencies, Canadian Northern Ex. Co., Winnipeg.

L. C. Goodge, heretofore agent, Dominion Ex. Co., Charlottetown, P. E. I., has been appointed agent at St. John, N.B.

K. Copeman heretofore route agent, Campbellton, N.B., has been appointed acting agent, Dominion Ex. Co., Halifax, N.S.

The Board of Railway Commissioners has ordered the American Ex. Co. to provide facilities for handling fish shipments from the Dominion Ex. Co. at the Michigan Central Rd. station at St. Thomas, Ont., other than necessary checkers that may be supplied by the companies. The cost of service, other than checking, to be divided equally between the American and Dominion Ex. Cos., and payments to be made to the former by the latter, the Dominion Ex. Co. having the privilege of furnishing half of the help in lieu of payments.

Electric Railway Department

A New Trussed Rail Joint on the London Street Railway.

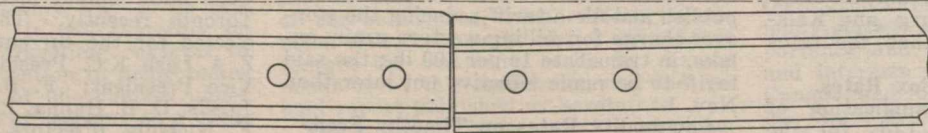
By C. B. King, Manager, London Street Railway.

That necessity is the mother of invention was again proved when we found it necessary to devise some kind of rail joint that could be used to repair tracks more permanently than any we had used previously. Quite a lot of the track had become worn at the joints, by reason of the joints working loose, allowing the ends of the rails to become bent down and badly pounded. It was also realized that some kind of joint was needed which would overcome the peening effect of the wheels causing the rails to arch up in the centre and which increased the bending down of the ends. Various kinds of

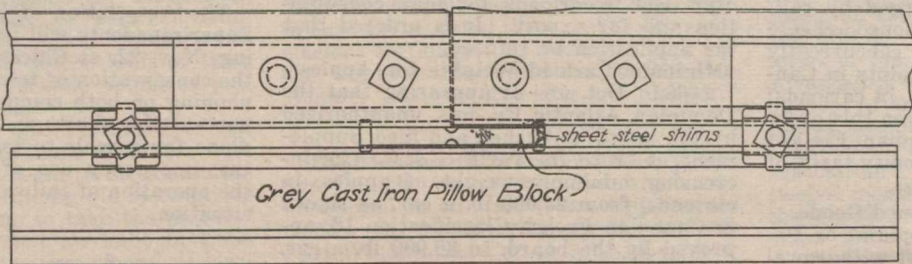
kind of joint that would hold the extreme ends of the rails rigid, and yet with some degree of independence of each other, to that the worn rail might be lifted more than the other.

With these conditions to meet various experiments were made which resulted in a joint shown in the accompanying illustrations. The essential feature of this joint is the special cast steel clip, which clamps the base of the running rail to the base of the inverted rail used as a truss. As these clips are drawn up, the slopes on the bases of the rail cause the truss rail to be raised. This motion is

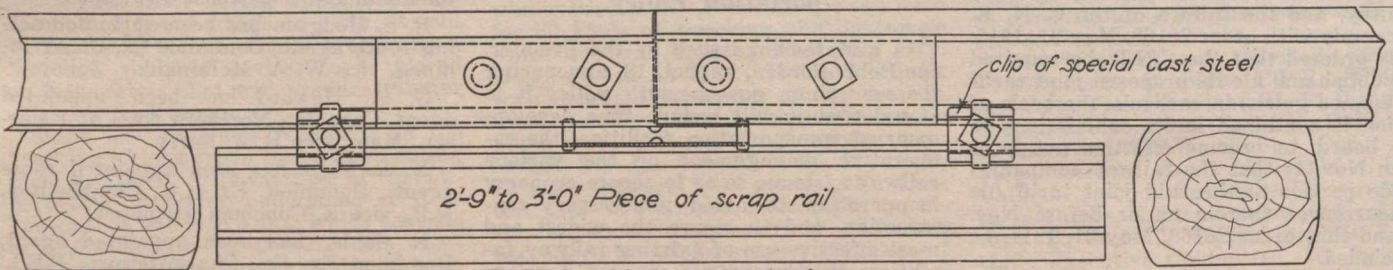
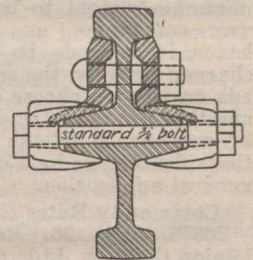
of the clip, it is, however, drawn up as close as possible with the bolt. For an 80 lb. rail, or lighter, a $\frac{3}{4}$ in. bolt has been found most satisfactory, but with a rail having a thicker base, a $\frac{5}{8}$ in. or even a $\frac{1}{2}$ in. bolt may be used. When using a $\frac{3}{4}$ in. bolt the pillow block used is $\frac{3}{4}$ in. also, to make a level joint, as is most desirable in laying new rail; but when repairing old rail, one or more sheet steel shims are used, in addition to the pillow block, in order to lift the ends enough, so that when ground off the joint will be level. This is illustrated in the accompanying drawing showing where the posi-



Position of cupped and depressed joint with plates removed before lifting



Position of cupped and worn joint after being lifted and made ready for grinding



Position of joint after grinding

Trussed Rail Joint, London Street Railway.

Old fish plates or angle bars must be changed from side to side or made smaller so as to permit the lifting of one rail as shown. Plates are needed in this joint to hold the rails in line only, so that common bar irons may be used as fish plates.

Insert, under pillow block casting, a steel shim, thick enough to raise the least worn rail so that

joints on the market had been tried but without success as they would loosen again in a very short time. It was found with all of those tried that the extreme ends of the rails would begin to loosen, as was shown by the green rust, soon found, for only an inch or so at the ends between the rail and the joint plates. This looseness would continue to grow away from the ends of the rails, even while the bolts were yet perfectly tight, until it reached the ends of the plates, when the bolts would begin to show signs of looseness, and then very shortly all the plates and bolts would become quite loose. This demonstrated that the rails needed some

when ground off the end will have a sharp corner.

Insert on top of pillow block casting, and under cupped rail only, a steel shim of proper thickness, so that when ground off the cup has disappeared.

To make a level joint, when no grinding is necessary, no steel shims are necessary.

transmitted to the ends of the running rails, through the cast iron pillow block which has been previously inserted between the truss rail and the ends of the running rails, thereby lifting the ends of the rails so as to take out the downward bends and to overcome the arching caused by the peening of the wheels. The extent of such lifting depends upon the thickness of the base of the rail, the thickness of the pillow block, and the extent to which the clips are drawn up. The size of the bolt may also influence this, so that these details must be adjusted for each joint, according to its worn condition. As it is desirable to make use of the full strength

Should the joint be inclined to rise above the level, break a pillow block, and insert one half outside the clips, at ends of truss rail, as shown by dotted lines.

In case of rail with a very thick base, a smaller diameter bolt, and a proportionately thinner pillow block, must be used.

tions of badly pounded rail are usually found; quite a distance below the original level. When the truss rail and pillow block with the necessary shims and clips are attached, the ends of the rail are bent upwards, so as to be slightly above the original level; just enough, however, so that, when this extra elevation is ground off, the cupping or other battering of the rail will have completely disappeared, as, or even better, than in new track. The truss rail used is scrap, equal in weight or heavier than the running rail, though it is not necessarily of the same section.

When the characteristics of this joint leaving the ends level, and just as good

are studied they are found to be peculiar and unlike those of any other joint now on the market. In any kind of angle bar, fish plate, or other similar joint, the stresses on the angle bar or fish plate are reversed when the load passes from one rail to the other, while in this trussed joint the stresses remain in the same direction. This seems to be the real reason this joint remains tight, while others loosen, and why no "working" of the part is possible. The constant spring tension tends to bend the ends of the rail upward, to bow the truss rail and also assist in holding everything tight.

Another peculiar feature is that the connecting member which bears the stresses, is attached to one part of the rail only—the bottom—and not to two

possible, to use other old fish plates, which are too small for the rail, or to provide plain flat bars of such width as to touch the web of the rail only. Such fish plates or bars are only required to hold the rails in line, as they carry none of the weight at all.

One very considerable advantage is that the same clips are used to make joints for any rail from 60 lbs. on up to 100 lb. and might be used on even heavier rail, although this has not been tried. The clip is so designed that the points will bend just enough to fit any angle the base of the rail may have, without weakening the yokes of the clip. They are used to make combination joints between rails of different sections, by shaping the shims and pillow blocks accordingly. This

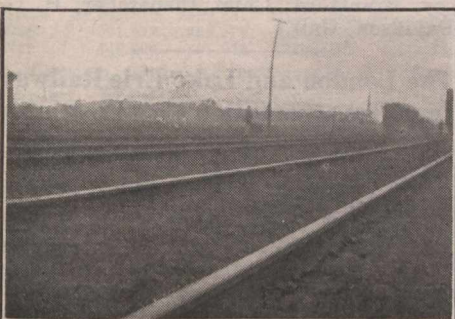
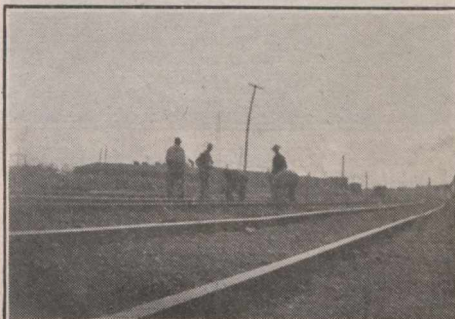
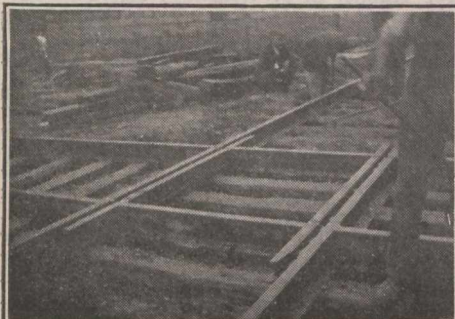
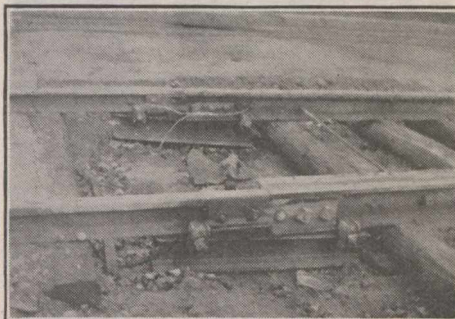
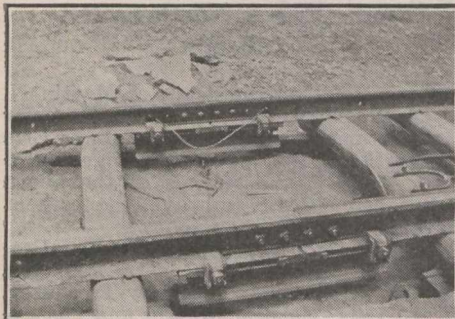
railway crossings. Truss rails from the scrap pile are put under the street railway rails, and between the ties of the railway long enough to extend under all the joints. The bases of the guard, and of the easier rails, are cut away with an acetylene torch, where it is desired to attach the clips to the base of the running rail. When the pillow blocks and the clip are placed so as to bind the several pieces of the running rail to the truss rail, the latter holds them as level and as rigid as in a new diamond. Two 60 lb. diamonds, crossing an industrial siding, were repaired in this way three years ago and then paved with brick. They have held so firmly that the bricks have not yet shaken loose, although single track street cars very frequently cross at full speed. Several new diamonds have been built by the London St. Ry. on this principal; two of them for crossing the G. T. R. main lines. In these two diamonds, 6 in. beam diamonds were made to take the place of the truss rail so that the steam railway rails would be held rigid, to prevent breaking where the street railway flangeways are cut. A feature of such diamonds is that when the steam railway rails become too badly pounded at these flangeways they may be readily replaced without having to renew the whole diamond.

When experimenting with these trussed joints some difficulty was found, due to breaking of the clips, but finally The William Kennedy & Sons, Ltd., Owen Sound, Ont., who make the clips for the London Street Ry., succeeded in getting such a steel mixture for them that they are now amply strong and reliable. Shop tests showed a pressure of 25 tons, necessary to have any effect upon such a joint, and successful test joints on 100 lb. rail under heavy steam railway freight traffic seemed sufficient proof of strength. Experimental joints put in three years ago showed no signs of loosening, so this method of repairing joints was adopted for this season's work, when over 5,000 clips have been used without any breakages.

The British Columbia Electric Railway's Position.

Geo. Kidd, General Manager, British Columbia Electric Ry., is reported to have said in a recent interview: "The company is in the peculiar position of having an increase in gross revenue, but a decrease in net revenue. Our traffic figures show that there are more people in the city. We carried 318,228 more persons in June this year on our city lines than in July, 1916, and 376,487 more persons in August than in the same month last year, over the same lines. This extra traffic increased our revenue, of course, but our expenses went up at even a higher rate."

Mr. Kidd pointed out that this anomalous condition, while existing for some time, has been especially noticeable since the recent strike, when the wages of all the company's street railway employes were increased materially. Together with wages, the increased cost of materials has made a much greater increase in operating expenses than the increased revenue which the company has received as a result of the slight betterment of conditions generally throughout the city. Unless some relief is afforded the company from the constantly accumulating deficit, as well as the continual increase in the cost of operating by the rise in the prices of labor and materials, has nothing but bankruptcy staring it in the face.



Trussed Rail Joint, London Street Railway.

Top row: No. 1. Straight or level trussed joint on new 80 lb. T rail. No. 2. Combination trussed joint, using 80 lb. T rail and 6 in. guard section.

Middle row. No. 3. New diamond, reinforced with truss rail and cast steel clips; 7 in. 80 lb. rail. No. 4. Loose and bent joint, 100 lb. T. rail, in main line, and under heavy railway service.

Lower row. No. 5. Same joint as shown in photograph 4, after being lifted with a trussed joint. No. 6. Broken and loose 60 lb. diamonds, still good three years after being reinforced with truss rail and steel clips and paved.

parts, as in the case of a fish plate, where it is, in effect, attached to the top and to the bottom. Being attached to the bottom only, it is possible to raise the more severely worn rail any amount required. When this is done, the old fish plates are reversed from side to side, so that the notches worn in them will fit under the head of the rail that is not lifted. When being bolted on in such a case, the bolts are not drawn up as tight as possible, otherwise one of the rails might be lifted off the pillow block, and the whole value of the trussed joint would be lost. For this reason it would seem better, where

has been done effectively when 60 lb. 4½ in. rail was joined to 80 lb. 7 in. rail and is done in all cases where T rail is joined to the girder guard section of special work. No drilling is required for this joint, no special tools are necessary, and all the parts may be used over and over. This is quite an advantage, where it may be desired to effectively patch up an old track, which may have to be renewed in a few years on account of street paving.

One very effective use to which the same clip and mechanical principal have been put is in the reclaiming, for much continued service, of broken and worn

Electric Railway Projects, Construction, Betterments, Etc.

The British Columbia Electric Ry. is relaying with new and heavier rails its tracks on Main St., Vancouver, between Seventh Ave. and Broadway. The estimated cost of this piece of work is \$6,000. (Sept., pg. 368.)

Guelph Radial Ry.—See Toronto Suburban Ry.

The Niagara, St. Catharines & Toronto Ry. has practically completed re-railing and rebonding its local line at Niagara Falls, Ont., from the Roman Catholic Church to Montrose, about 4½ miles. The portion of the line from the Roman Catholic Church to Bridge St. is already laid with 80 lb. T rails and 90 lb. girder rail in pavement.

Port Arthur Civic Ry.—We are officially advised that it is proposed to build a waiting room and shelter at the terminus. M. M. Inglis, Port Arthur, Ont., is Manager.

The Public Utilities Commission is reported to have let a contract to Stewart & McKenzie, Fort William, for the reconstruction of the McIntyre River bridge at an approximate cost of \$2,890. It is said that two bridges of British Columbia fir will be built, one for each track of the civic railway, taking the place of the present bridge, which is inadequate. (Oct., pg. 407.)

Quebec Ry., Light & Power Co.—At a recent meeting of the Quebec City Council the City Engineer reported that the extension of the line on St. Valier St. had been completed across the C.P.R., and was ready for the inspection by the Board of Railway Commissioners' engineers. The contract called for the putting in operation of this piece of line by Dec. 31, 1916, but work was delayed. The proposed extension of the Belvidere line to Bells Hill and to a junction with the St. Valier St. line has not yet been started. The contract calls for its completion by Sept. 1, 1918. (Feb., pg. 73.)

Sandwich, Windsor & Amherstburg Ry.—The extension of Ottawa St., authorized to be built under the bylaw approved by Walkerville, Ont., ratepayers, recently, will be about 2,000 ft. long. It will be of single track, standard construction, and will be laid with 60 lb. rails. Jas. Anderson is Manager, Windsor, Ont. (Oct., pg. 407.)

Toronto Civic Ry.—We are officially advised that work was started, Sept. 28, on half a mile of single track extension on the Bloor St. route, from the present Quebec Ave. terminus to Runnymede Road. The track will be laid with 56 lb. rails and ballasted with gravel. (Aug., pg. 324.)

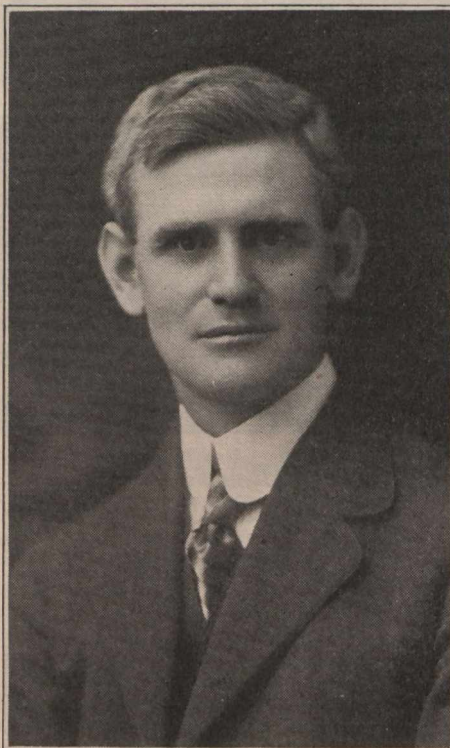
Toronto & York Radial Ry.—A Board of Railway Commissioners' engineers inspected recently the site of the piece of track in Aurora, Ont., to connect the T. & Y.R.R.'s Metropolitan Division and the Grand Trunk Ry. The cost is estimated at \$4,000. (Jan., pg. 31.)

Toronto Suburban Ry.—A press report states that a draft agreement between the T.S.R. and the Guelph Radial Ry. has been drawn up respecting the installation of a service between the city and the military hospital located on the old prison farm. The company's present station is halfway between the city and the Agricultural College, and it is desired to secure better facilities. The report says that the agreement provides that the T.S.R. shall be allowed to run its cars

along the city line to almost in front of the Royal Hotel, opposite the G.T.R. station. In return for this privilege it will be willing to allow the G.R.R. to run cars on the T.S.R. tracks to the Military Hospital. (May, pg. 203.)



Martin Milne Todd
President, Galt, Preston & Hespeler St. Ry., and
Vice President, Lake Erie & Northern Ry.



Matthew W. Kirkwood
General Manager, Galt, Preston & Hespeler
St. Ry. and Lake Erie & Northern Ry.

Toronto & York Radial Ry. officials have been making a general study of the operation of the Mimico Division, between Toronto and Port Credit, Ont., and propose to make a number of improve-

ments in a short time. The company has its own power station, in temporary quarters, at the corner of Queen St. and the Lake Shore Road, Humber Bay, and secures power from the Toronto Power Co. The improvements contemplated will include a better distribution of power by the re-location of the power station, but its new site has not been determined. It is also proposed to lay additional tracks to permit a closer headway than the present 20 minutes service. At the request of Port Credit municipality, a siding will be built off the highway at the terminus so that cars may stand clear of the Lake Shore Road. This will entail additional trackage of about 500 ft.

Galt, Preston & Hespeler St. Ry. and Lake Erie & Northern Ry. Officials.

Consequent on the death of Martin N. Todd, President, Galt, Preston & Hespeler St. Ry., and General Manager, Lake Erie & Northern Ry., several changes have been made in the officials of the above mentioned electric railways, the present organization being as follows:

Galt, Preston & Hespeler St. Ry., President, M. Milne Todd; General Manager, M. W. Kirkwood; Secretary-Treasurer, W. H. Lutz; General Freight and Passenger Agent, C. J. Whitney; Resident Engineer, F. H. Midgley, all at Galt, Ont.; Purchasing Agent and Storekeeper, F. Darnley; Roadmaster, J. Deans, both at Preston, Ont.

Lake Erie & Northern Ry., President, E. W. Beatty, Montreal; Vice President, M. Milne Todd, Galt, Ont.; General Manager, M. W. Kirkwood, Galt; Secretary-Treasurer, Lloyd Harris, Brantford, Ont.; Asst. Secretary-Treasurer, W. H. Lutz, Galt; General Freight and Passenger Agent, C. J. Whitney, Galt; Purchasing Agent and Storekeeper, F. Darnley, Preston, Ont.; Resident Engineer, F. H. Midgley, Galt; General Foreman, J. J. Morissey, Brantford; Chief Dispatcher, H. G. Davidson, Galt.

The London and Lake Erie Railway and Transportation Co's Position.

A conference between representatives of the bondholders and of the municipalities through which this railway runs was held at St. Thomas, Ont., Oct. 10. As the result of the deliberations the ratepayers of the several municipalities are being asked as to how far they are prepared to go to assist in maintaining the operation of the line. The people of St. Thomas are desirous of operation being continued and the other municipalities affect to be inclined to be favorable to this view if suitable terms can be arranged. The City of London is not undesirous of taking over the line from London to Talbotville, as that section serves a different community from that served by the London & Port Stanley Ry. The London Railway Commission has advised against the proposition that the city should take over the company's bonds at 60c on the dollar.

A St. Thomas press dispatch of Oct. 18 says: At a meeting here to-night of representatives of municipalities through which the L. & L. E. T. Co.'s line runs, it was pointed out by the management that operating expenses were approximately \$12,000 a year in excess of revenue, and for this reason the road would have to be closed unless financial aid was forthcoming. Representatives of St. Thomas, Port Stanley, Yarmouth and Westminster

were agreeable to making a grant divided proportionately among the municipalities to cover the deficit in the proceeds of five years, at the end of which time it was hoped some other solution of the difficulty could be found. London's representatives were non-committal, believing that a road which runs in competition with London's own line, the London & Port Stanley Ry., would never pay if operated as at present. Another meeting will be called in a few days, when President Wood's answer to the municipalities' proposal is received.

Electric Railway Finance, Meetings Etc.

British Columbia Electric Ry.:

	Aug. 1917	Aug. 1916	2 mths. to Aug. 31, '17	2 mths. to Aug. 31, '16
Gross . . .	\$454,425	\$423,738	\$892,803	\$835,585
Exp. . . .	396,168	349,604	776,222	698,251
Net	58,257	74,134	116,581	137,334

Cape Breton Electric Co.—

	Aug. 1917	Aug. 1916	2 mths. to Aug. 31, '17	2 mths. to Aug. 31, '16
Gross . . .	\$39,683.58	\$35,264.46	\$80,184.29	\$68,123.37
Exp. . . .	26,667.13	19,184.77	51,960.40	38,356.07
Net	13,016.45	16,079.69	28,223.89	29,767.30

Edmonton Radial Ry.—In a report issued by the City Commissioner, Oct. 14, it was stated that the deficit shown by the railway for the eight months ended Aug. 31 was \$11,524.35, against \$79,042.03 for the same period of 1916.

Regina Municipal Ry.:

	Sept. 1917	Sept. 1916	9 mths. to Sept. 30, '17	9 mths. to Sept. 30, '16
Revenue	\$17,185.62	\$14,742.46	\$169,206.81	\$145,896.01
Operating	15,112.93	13,737.96	145,896.01	145,896.01
Fixed charges	8,005.56	8,022.96	72,050.02	72,050.02
Deficit	5,932.87	6,977.15	48,739.22	48,739.22

At a meeting of the Regina, Sask., City Council, Oct. 16, it was reported that the loss on the operation of the Regina Municipal Ry. for the nine months ended Sept. 30 was \$48,958.95. The estimated loss for the whole year is \$55,874.76.

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

	Aug. 1917	Aug. 1916	8 mths. to Aug. 31, '17	8 mths. to Aug. 31, '16
Gross \$1,039,819	\$889,241	\$7,867,595	\$7,092,229	\$7,092,229
Exp.	591,013	462,179	4,172,715	3,634,674
Net	448,806	427,062	3,694,880	3,457,555

Toronto Civic Ry.—Revenue for September, \$24,029.23; passengers carried, 1,426,775.

Winnipeg Electric Ry.—The net earnings for August were \$39,457, against \$85,935 for Aug. 1916. From Jan. 1 to Aug. 31, the net earnings were \$506,701 against \$791,030 for same period 1916.

	Aug. 1917	Aug. 1916	8 mths. to Aug. 31, '17	8 mths. to Aug. 31, '16
Gross . . .	\$248,457	\$249,795	\$2,164,624	\$2,193,057
Exp. . . .	209,000	163,860	1,657,923	1,402,927
Net	39,457	85,935	506,701	791,030

Toronto Civic Ry. Wages.—The Toronto City Council has adopted the Board of Control's recommendation that the following scale of wages, based on the finding of the board of conciliation in the recent Toronto Ry. strike, be paid to civic railway employees, as from June 16: Motormen, conductors and motor and truck repair men, first six months, to apply only to me nemployed after this date, 30c an hour; second six months, 32c; second year, 35c; third and subsequent years, 37c; shed men, foremen, 37c; operating shed men, men doing general shed work, 33c; shed men, men doing general shed work but not operating cars, 32c; car cleaners, 31c. Motormen and conductors engaged in train work on Sundays, 4c an hour platform time in excess of weekday rates. Emergency crews of motor and truck repair men to receive time and one-fifth.

Mainly About Electric Railway People.

C. C. Weldon has been appointed Superintendent, International Transit Co., Sault Ste. Marie, Ont., vice J. Summerhayes resigned.

D. W. Houston, Superintendent, Regina Municipal Ry., Regina, Sask., has been elected an associate member of the Canadian Society of Civil Engineers.

Geoffrey Porter, who has resigned from the position of Chief Electrical Engineer, British Columbia Ry., Vancouver, was presented recently with a mantel clock by the staff. It is his intention to take up private practice as advising and contracting engineer, but in the meantime he is visiting Japan, with a view to establishing connections there.

Owing to the resignation of G. Porter, Chief Electrical Engineer, British Colum-

bia Electric Ry., there has been some rearrangement of duties, as it is not the Company's intention to make an appointment to that position at present. W. M. Fraser, Electrical Superintendent, has been given full charge of the operating end of the business, and F. S. Easton, Hydro-Electric Engineer, has been given full charge of the power producing plants, both with offices at Vancouver.

issue, was born in Quebec, Que., and after leaving high school, was for some time in the Bell Telephone Co.'s service. He was subsequently Electrical Engineer for the Public Service Commission of the First District, New York, N.Y.; Vice President and General Manager, Michigan United Rys.; General Manager and Treasurer, Chicago and Milwaukee Rd.; Vice President and General Manager, San Francisco-Oakland Terminal Ry., and Vice President and General Manager, Georgia Power Co. He has also served for the General Electric Co. in the construction and operation of electric systems in Brazil, the Argentine Republic, Peru, Costa Rica and Mexico.

Wilford Phillips, whose retirement from the position of General Manager, Winnipeg Electric Ry., was announced in our last issue, has been elected a director of the company. Sir Augustus Nanton, Vice President, said recently: "Everybody connected with the company will regret Mr. Phillips' retirement. He remains in office at the board's request and will stay with the company in an advisory capacity. He came to Winnipeg about seventeen years ago from the Niagara Falls Park & River Ry., which he had managed with success, and to him is very largely due the past great successes of the Winnipeg Electric Ry. in all its branches. He extended the railway lines, completed its power plant, built substations, built a suburban line, extended its gas mains—in fact, the company's properties when he arrived were of a minor character and have all been developed under his management."

Edmonton and Regina Municipal Railway Deficits.

The Regina, Sask., Leader says: "The Edmonton municipal street railway is in a pretty bad way, according to the Bulletin, of that city. The system is carrying 25,000 passengers a day, and losing one cent on each passenger it carries. If the number of passengers per day could be increased to 35,000, it is estimated the railway would break even, but this is not regarded as possible while war conditions continue. The Bulletin says the unpleasant alternatives are, to raise the rates, to cut down expenditure by cutting down service, or to go on ignoring the sinking fund which should be put aside to meet the bonds. It urges the taking of definite steps to make the system a self-sustaining business proposition, declaring 'a city with millions of back taxes cannot afford to run chances on the indefinite continuance of a loss of \$250 a day on its street railway system.'

"While Regina's showing is bad enough, it is not as bad as Edmonton's. According to figures submitted to the city council recently and certified to by the auditors, Regina's street railway loss for the nine months ended Sept. 30 was \$48,958, or an average loss of about \$180 a day."

Transportation of Postmen in Cape Breton.—Following the Nova Scotia Board of Public Utilities' decision forbidding the Cape Breton Electric Co. to sell tickets for postmen at reduced rates, on the ground that it was contrary to the company's act of incorporation and the Public Utilities Act, the company ceased to accept such tickets on Aug. 27 and took over from the Sydney postmaster those he had on hand unused. The postmen are now paying regular fares, the same as any other passengers.



A. W. McLimont
General Manager, Winnipeg Electric Railway

While Regina's showing is bad enough, it is not as bad as Edmonton's. According to figures submitted to the city council recently and certified to by the auditors, Regina's street railway loss for the nine months ended Sept. 30 was \$48,958, or an average loss of about \$180 a day."

Martin Milne Todd, whose appointment as President, Galt, Preston and Hespeler St. Ry., and Vice President, Lake Erie and Northern Ry., Galt, Ont., was announced in our last issue, and whose portrait appears in this issue, was born there, July 22, 1891. He graduated from McGill University with the degree of B.Sc. in May, 1915, and was from June 1 to Dec. 31, 1915, Assistant Electrical Engineer, Lake Erie and Northern Ry., Preston, Ont.; Jan. 1, 1916, to Aug. 31, 1917, Assistant Superintendent, Galt, Preston and Hespeler St. Ry., and Lake Erie and Northern Ry., Preston, Ont.

A. W. McLimont, whose appointment as General Manager, Winnipeg Electric Ry., Winnipeg, was announced in our last

Electric Railway Notes.

The Kingston, Portsmouth & Catarauqui Electric Ry. is employing some women conductors.

The Cornwall St. Ry., Light & Power Co., Cornwall, Ont., is said to be in the market for some cars.

The Vancouver Board of Trade is urging the British Columbia Government to appoint a public utilities commission.

The Ottawa Electric Ry. is reported to have carried 750,000 persons during the six days of the Central Canada Exhibition, 25,000 more than in 1916.

A board of conciliation is reported to have been appointed to arbitrate in a wages dispute between the International Transit Co., Sault Ste. Marie, and its employees.

The Montreal & Southern Counties Ry. has received one trailer car from Ottawa Car Manufacturing Co., completing the order for three, which were fully described and illustrated in our last issue.

The Niagara, St. Catharines & Toronto Ry. has, at the request of the Niagara Falls, Ont., City Council, put into effect nearside stops on its line in that city, between the Roman Catholic Church and Bridge St.

The Quebec Public Utilities Commission is hearing an application of the City of Montreal to compel the Montreal Tramways Co., the Montreal Public Service Corporation and other companies to bury all their lighting wires underground in District No. 4, Montreal.

Sir Lomer Gouin, Premier of Quebec, is reported to have stated recently that the commission appointed to draft a new franchise agreement for the Montreal Tramways Co. would probably complete its work before the legislature's next session.

F. Ford, K.C., has been appointed to represent the Edmonton Radial Ry., H. A. Mackie to represent the railway's employees, and Mr. Justice McCarthy has been chosen as chairman of the conciliation board to arbitrate between the railway and its employees on wages and other matters in dispute.

At the meeting of the Edmonton, Alta., City Commissioners, at which a new schedule for the Edmonton Radial Ry. was adopted, it was reported that during August the expenses were 6c per passenger and that in order to pay expenses at even a 5c fare the railway would have to carry 33,808 passengers a day.

The Moose Jaw, Sask., Electric Ry. is desirous of adopting one-man cars. The Saskatchewan Legislature is to be asked to amend one of the sections of the Railway Act, which requires that there shall be a motorman and a conductor in charge of each car. The Moose Jaw City Council will consider the matter of petitioning the legislature in support of the amendment.

The British Columbia Electric Ry. has resumed its technical classes in Vancouver for the instruction of its employees. The classes are in charge of J. G. Lester, a graduate of the Imperial College of Technology, London, Eng., who has acted as instructor since the company inaugurated the plan of providing a technical training for its employees.

The Calgary, Alta., City Council has adopted a resolution endorsing the operation of one-man cars on the Calgary Municipal Ry. by a majority of eight to one. This was in conformity with the recommendation of a special committee

which investigated the matter, the report of which appeared in Canadian Railway and Marine World for October, pg. 403.

The London Street Ry.'s 38 conductors planted with potatoes nine acres of land, the use of which was granted them by the company, and have secured a crop of about 800 bags. The men invested about \$7.50 each, besides their time, and have secured in addition to their own winter's supply of potatoes, a handsome return upon their investment.

The British Columbia Electric Ry. is reported to have under consideration the adoption of one-man cars on certain routes. The employees' representatives state that they will not discuss the matter until after the report of Adam Shortt on the transportation situation in Vancouver, Victoria and New Westminster has been received and considered.

The British Columbia Electric Ry.'s weekly sheet, the Buzzer, had an article recently on the abuse of transfers. It is pointed out that too many passengers on the city cars take the first car that comes along in the general direction in which they are going and demand a transfer, with the result that excessive use of transfers tends to delay the whole system as well as saddling a certain amount of needless expense upon the company. The wholesale demand for transfers, it is added, reduces the average fare for the city and suburban lines to about 3½c.

The Edmonton Radial Ry. put a new car schedule in operation Oct. 17. The important feature of the schedule is that a one-man car belt line will be operated, commencing at 111th Ave. and 95th St., travelling south on 95th St., west on Jasper Ave. to 101st St., then north and west on 107th Ave. to 124th St., then south and east on Jasper Ave. and north to 111th Ave., via 101st St. The service on this route will be operated by eight cars. One-man cars will be operated on the Highlands to Bonnie Doon line, and on the Calder-114th Ave. line. In announcing the new schedule the management asks the co-operation of the public to make the movement a success. Passengers are asked to have the exact amount of their fare ready when boarding cars and to ask for transfers only at point of intersection. The new schedule is estimated to save about \$90 a day in wages.

Quebec Ry. Light, Heat and Power Co's Annual Report.

The following are extracts from the report for the year ended June 30: The gross earnings from operation were \$1,832,031.93, compared with \$1,731,732.49 in 1915-16. Adding miscellaneous income of \$230,850.80, makes total revenue from all sources \$2,062,882.73, an increase of \$94,281.31. The operating and maintenance expenses were \$1,155,969.25 compared with \$1,029,750.96 in 1915-1916. The fixed charges and taxes were \$706,326.28, leaving a net surplus of \$200,587.20. After making provision for obsolete cars on Montmorency and City St. Ry. Divisions, discount account, etc., there remains a total at credit of surplus account, to date, of \$684,572.49.

The properties and plant of the company and its various subsidiary companies have been maintained in the same high state of efficiency as heretofore, as evidence of which there was expended dur-

ing the year on maintenance accounts \$226,366.07. During the year there was expended on capital account \$302,663.63.

It is with feelings of deep regret that your directors have to report the death on July 4, of H. G. Matthews, General Manager. They also regret to announce the death in Dec., 1916, of Hon. Robert Mackay, who had been a director of the company since its organization. At a meeting of the directors on July 18, W. J. Lynch, Treasurer and Comptroller, was appointed General Manager. The directors desire to express their appreciation of the efficient services rendered by the officials and staff.

The directors were re-elected, T. J. Donohue being added to the board, which is now composed as follows: President, Sir Rodolphe Forget; Vice President, L. C. Webster; other directors, C. Donohue, T. J. Donohue, P. Galibert, C. A. Lavigne, L. G. Morin, Arthur Picard, and L. J. Tarte. The other officers are W. J. Lynch, General Manager; Arthur Lemoine, Secretary; and R. A. Wilson, Treasurer.

Protection of Highway Crossings by Toronto Suburban Railway.

The Ontario Railway and Municipal Board had under consideration, recently, several complaints alleging danger at crossings of highways on the Toronto Suburban Ry.'s extension from Lambton to Guelph, Ont., and had the same inspected by its Vice Chairman, A. B. Ingram, and by its engineer, as a result of which it issued the following orders:

Level crossing on Dundas St., on hill above Lambton: Each eastbound car to slow down to not more than 5 miles an hour until past the crossing. A red light to be hung by the company over the centre of the highway to warn vehicles after dark. The light to be so hung that it can be seen by the motormen of eastbound cars, to warn them to slow down speed as directed.

Canning Ave. crossing, Islington, stop 8: Each car to come to a dead stop. Every eastbound car to be under complete control while crossing the highway. A red light to be suspended by the company at night so as to be seen by persons using the highway and by all motormen.

Crossing on Dundas St., at Islington, stop 9: Each car to come to a dead stop at this place, and each car to be under control when crossing the highway. A red light to be displayed as at stop 8.

Crossing on Centre Road, stop 7, near Hickey Farm: The bank at the northwest corner of the highway and railway right of way to be cut away and the trees removed to near the telegraph pole about 100 ft. north of the crossing, to the satisfaction of the board's engineer.

Dixie Crossing, stop 23: The speed of every car to be reduced when crossing the highway and every car to be under control.

Timber to be cut down on portions of s.w. ½ and n.w. ½, Lot 31, Concession 7, Nassagaway Tp., and in n.e. ½, Lot 19, Concession 7, Esquesing Tp., so as to give a clearer view of the railway and prevent accidents.

Postmen's transportation in St. John, N.B.—The Post Office Department having refused to pay the bulk sum asked by the New Brunswick Power Co. for carrying postmen on its cars, the postmen in St. John are now travelling on tickets, paying the same rate of fare as ordinary passengers.

Marine Department

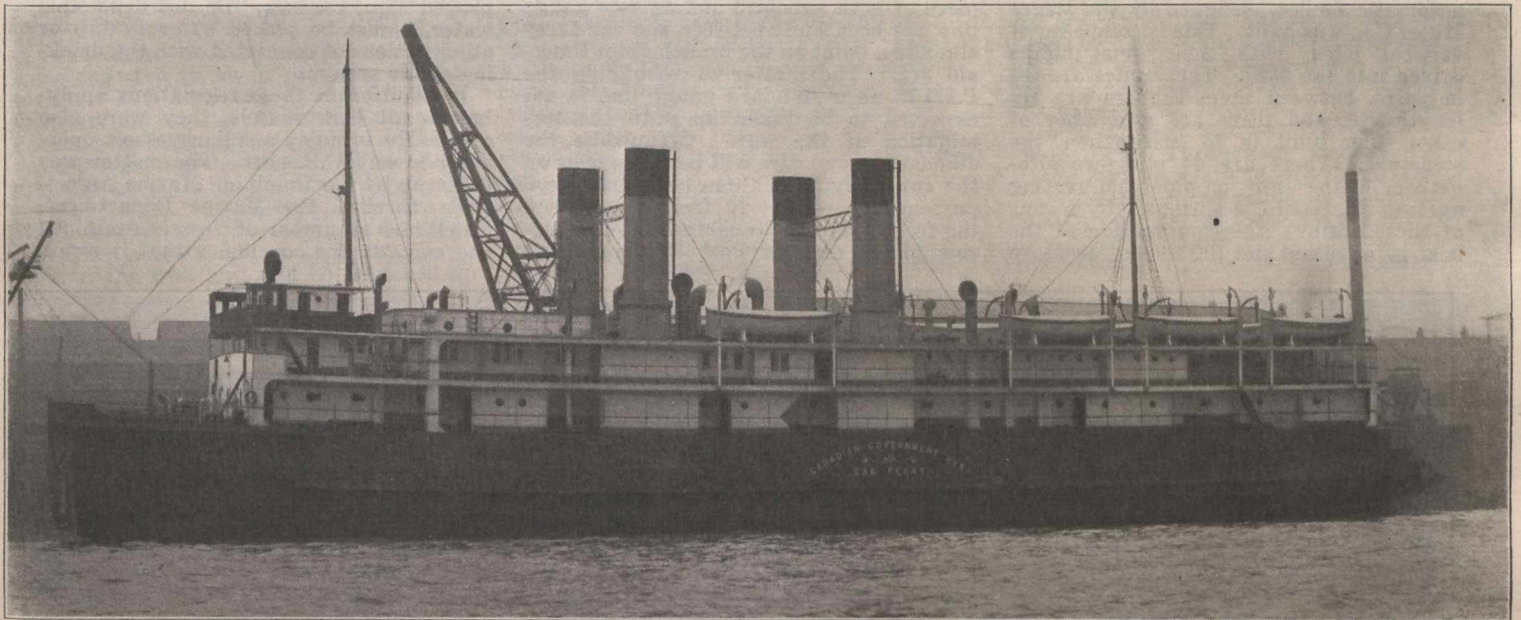
The Prince Edward Island Car Ferry and its Terminals.

The car ferry service between New Brunswick, on the mainland, and Prince Edward Island, was placed in operation, Oct. 16. This marks the completion of an important work in connection with the improvement of the communication with the Island province, a matter which has been the subject of continual agitation ever since the island entered Confedera-

tion. Even before that date there had been projects under consideration to make connection either by means of a tunnel or bridge. The latter project did not command any serious measure of support, but that for the boring of a tunnel is not

when Charlottetown was inaccessible on account of ice, they have run between Georgetown, P.E.I., and Pictou. When ice has prevented the steamships operating mails and some passengers have been conveyed in open boats over the ice and through the stretches of open water between Cape Traverse, P.E.I., and Cape Tormentine, N.B., the narrowest part of

Point, P.E.I., since named Port Borden, and Cape Tormentine, N.B. When this had been decided upon plans were prepared for car ferry terminals and contracts for the work were let in June, 1913, the Cape Tormentine work being let to A. T. Mackie, Toronto, and the Prince Edward Island work to the Halifax Dredging Co. Subsequently the latter work was taken

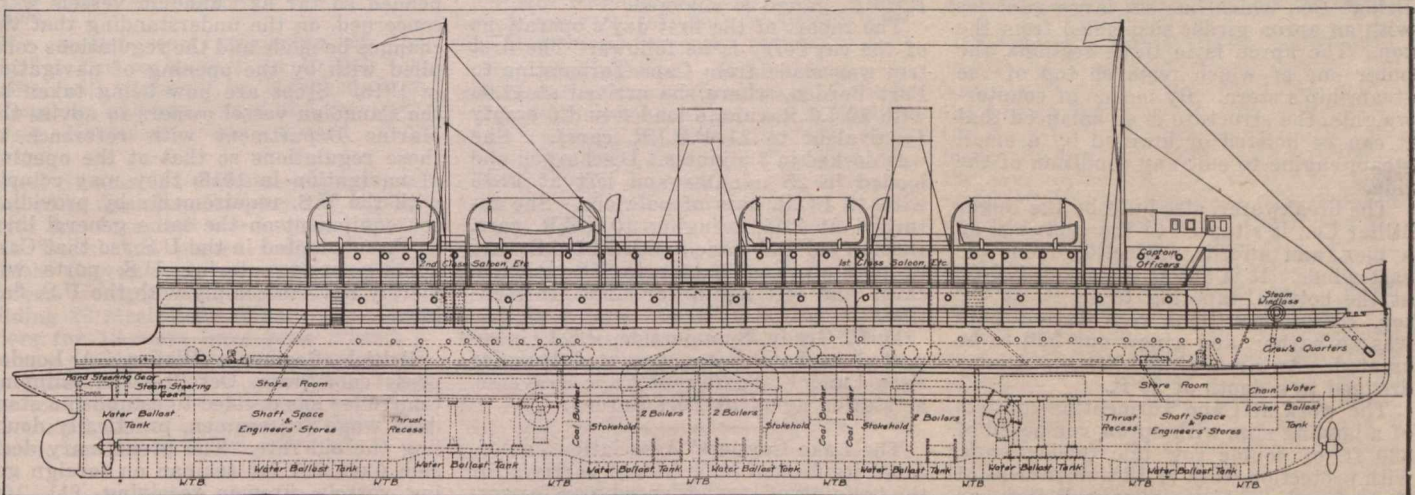


Car Ferry Steamship Prince Edward Island, Port Borden, P.E.I., to Cape Tormentine, N.B.

over by the Roger Miller Co. of Prince Edward Island, Ltd., of which Roger Miller, of Ingersoll, Ont., is President. The work done at Port Borden under the contract includes the construction of a pier 2,240 ft. long and 25 ft. wide on the

Northumberland Strait. From 1900 onward the matter was discussed almost annually in parliament, but it was not until the end of 1911 that definite steps were taken. In December of that year the Premier announced that the

work done at Port Borden under the contract includes the construction of a pier 2,240 ft. long and 25 ft. wide on the



Car Ferry Steamship Prince Edward Island.

without its advocates even today. The principal means of communication between the island and the mainland during the summer is by means of steamships running between Summerside, P.E.I., and Point du Chene, N.B., and between Charlottetown, P.E.I., and Pictou, N.S. During the winter steamships have run between Charlottetown and Pictou, and

Government had decided to construct a car ferry to be operated across the strait, and that the P.E.I. Ry. would be reconstructed as a standard gauge line, to permit of the interchange of traffic. In 1912 parliament voted \$400,000 to provide a car ferry, etc. After an investigation of the whole situation it was decided to operate the car ferry between Carleton

top inside the sea wall, at the outer side of which is the car ferry dock. This dock is composed of 9 concrete cribs, each 113 ft. long and weighing 2,500 tons, with 300 tons of steel in each for reinforcing. These cribs extend 22 ft. below low water mark and 13 ft. above. They rest on a foundation of rock, which had been levelled off to receive them. They were built

at Point du Chene, N.B., of cellular construction, some containing 27 pockets, others 30. After being towed over and placed in position, they were filled with concrete, thus making a solid mass. The core of the remainder of the pier is of stone, known as "quarry run." The slopes are laid with heavy Wallace stones, not less than five tons each, built to fit in with one another. These stones were laid by means of a cable-way, being handled by an endless chain, between two towers, one on the pier and the other on the bank, about 1,500 ft. apart. The pier is of curving formation, and has a J termination, the hollow part of which forms a dock for the steamer. In order to prevent the boat from being damaged by coming into contact with the concrete, an automatic fender, designed by the Roger Miller Co., was built. This is composed of vertical piles, with their steel points driven into the rock. These piles are set in pairs, between them timbers are set lengthwise, and there are a number of other piles built in to strengthen the structure. There are 64 plungers altogether, fitting into a pipe and resting against clustered car springs. By means of these springs, the compression of the boat is taken up, and 100 tons of pressure

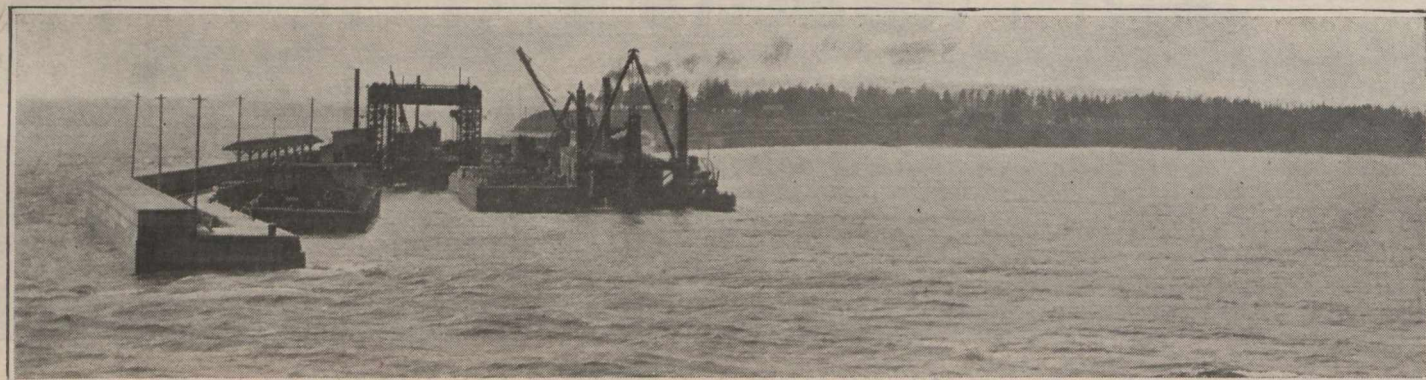
driven by three sets of triple expansion engines, driving two screws at the stern and the third driving another at the bow. A full description of the vessel and her machinery, with illustrations, was given in Canadian Railway and Marine World for November, 1914, pg. 518.

In order to provide direct connection with the Intercolonial Ry., the New Brunswick & Prince Edward Island Ry., extending from Sackville to Cape Tormentine, N.B., 38 miles, was acquired by the Dominion Government, under the authority of an act to acquire by lease or otherwise branch lines for the Intercolonial Ry. A considerable sum has been expended upon the line to bring it up to the standard necessary to carry the traffic. On Prince Edward Island, a short piece of both standard and narrow gauge line has been built between the car ferry slip and a point on the branch from Emerald Jct. The matter of rebuilding the P.E.I.R. as a standard gauge line is not expected to be taken up until the termination of the war. Meanwhile the standard gauge cars will be taken over on the car ferry, which can accommodate 6 passenger cars and 10 freight cars, and the freight will be transhipped to the narrow gauge cars at Port Borden. The

Pure Drinking Water for Great Lakes Vessels.

In March the Secretary of the Treasury for the U.S. issued a circular to owners, agents and masters of vessels operating on the Great Lakes, providing that on and after the opening of navigation in 1917, it would be necessary to furnish on all such vessels water for drinking or culinary purposes, which, if not obtained ashore, must be treated by an approved method, and if obtained ashore, must be from an approved source, and all the piping system on board such vessels must be so arranged that no connection can be made between the drinking water system and any other water system, and an approved sign, reading, "Do not drink this water," must be placed at every tap or other outlet not connected with the drinking water system.

In addition to these regulations applying to all U.S. vessels, they were also applicable to any Canadian vessels operating to any U.S. port. The matter was taken up by the Dominion Marine Association, through the Marine Department, which had a number of vessels examined and came to the conclusion that it would



Car Ferry Terminal, Port Borden, P.E.I.

will close the springs up a foot.

The cars are taken on and off the car ferry by means of a large steel transfer bridge or apron built by the Dominion Bridge Co., which has six large gantries with an apron girder suspended from the top. The apron is in three sections, the outer one of which rests on top of the steamship's stern. By means of counterweights, the structure is so balanced that it can be hoisted or lowered by a small steam engine to suit any condition of the tide.

The breakwater, also built by the Roger Miller Co., is situated to the eastward on a pier, and affords protection from the east winds. It is 585 ft. long and 110 ft. at the bottom, tapering to 18 ft. at the top. Before operations were started there was no harbor, and a new one had to be created. An area of 750,000 sq. ft. was dredged to a depth of 20 ft.

The work at Cape Tormentine consists of a landing slip, with apron, composed of 330 ft. of double row pile fender work, with protection work of 12 timber cribs of close faced cribbing. The old pier has been widened by the construction of additional cribs.

The car ferry was built from special designs by Armstrong, Whitworth & Co., Ltd., Newcastle-on-Tyne, Eng. The general dimensions are: Length, 300 ft. over fenders, 285 ft. between perpendiculars; breadth, 53 ft. 10 in. over fenders, moulded at deck, 52 ft.; depth, moulded, 24 ft.; mean draft when laden, 18 ft. She is

cars will also be reloaded at Port Borden. As the vessel has ample passenger accommodation, there will be no necessity for taking passenger cars across until the P.E.I.R. gauge is changed.

The report of the first day's operations of the car ferry is as follows: "The first trip was made from Cape Tormentine to Port Borden, where she arrived at 11.05 with 12 I.C.R. cars, 6 loaded and 6 empty (equivalent to 24 P.E.I.R. cars). She was docked in 8 minutes. Discharged and loaded in 25 minutes and left at 12.15 with 12 I.C.R. cars of potatoes. She returned at 2.45, bringing 10 I.C.R. cars. Discharged and loaded with 12 I.C.R. cars of potatoes (equivalent to 25 P.E.I.R. cars) and left again for Cape Tormentine."

H. H. Grady, Summerside, P.E.I., is reported to have been appointed transfer agent, and E. Crosby, of Cape Traverse, as station agent at Port Borden.

The Lake Carriers' Association has offered its fleet of bulk freight carriers for the training of inexperienced men for service for the U.S. merchant marine. It is provided that wages will be paid the men while training.

After-War Shipbuilding. — A British shipbuilding firm is reported to have placed a contract with one of the large shipbuilding companies in Great Britain, for the construction within a certain time of the close of the war, of a large steamship at a cost of £18 a ton deadweight.

be impossible to have the necessary alterations made in time for the opening of navigation. It was therefore arranged with the U.S. that the regulation be suspended so far as Canadian vessels were concerned, on the understanding that the changes be made and the regulations complied with by the opening of navigation in 1918. Steps are now being taken by the Canadian vessel owners to advise the Marine Department with reference to these regulations so that at the opening of navigation in 1918, they may comply with the U.S. requirements by providing the equipment on the same general lines as those adopted in the U.S., so that Canadian vessels entering U.S. ports will merely have to comply with the U.S. flag law.

British Seamen's Wages.—A London press cablegram, Oct. 9.—The Shipping Controller has decided to establish a standard wage for seamen, practically doubling the old rate. The preliminary decision fixes £11 for seaman on foreign going vessels, firemen receiving £11 10s. The rates of petty officers and stewards will be advanced in the same proportion. The rates of officers and engineers will also be reviewed immediately.

Lake Coal Shipments to U.S. ports during September were 3,413,932 tons, and to Canadian ports, 1,195,434 tons. About 3,000,000 tons were unloaded at Lake Superior ports and 926,063 at Lake Michigan ports.

Shipbuilding Activities Throughout Canada.

STEEL AND WOODEN STEAMSHIPS FOR BRITISH GOVERNMENT.

Engines for Wooden Steamships.—A contract is reported to have been awarded to Grant, Smith and Macdonnell Ltd., for the construction of a shed at Victoria, B.C., for housing and assembling the marine engine parts for the wooden steamships which are being built at various points in the Province for the Imperial Munitions Board. The shed is to be located on pier 2 and will be 703 x 200 ft., the walls being 22 ft. high under eaves and 29 ft. at the ridge, with an inside clearance of 16 ft. The building will be of wood, with complete arrangements for fire protection.

Foundation Co.—Planking operations were reported to be in progress at Victoria on hull no. 1, about the middle of October, and the steel keelsons were placed in two hulls. The ceilings of both vessels were well advanced and the stern and rudder posts in place and the counters in frame. Two other hulls are in frame and work is proceeding on the stem and stern post of hull no. 3. It is expected that the first hull will be launched in December.

Fraser Brace & Co., Montreal, are reported to have been awarded a contract by the Imperial Munitions Board, for the construction of four standard wooden steamships, at an approximate cost of \$1,000,000. The company will, it is said, build the hulls only, at its yard on the south bank of the Lachine Canal between Atwater and Cote St. Paul bridges. Keels are stated to have been laid for two of these vessels, and the keels for the other two are expected to be laid early in November.

William Lyall Shipbuilding Co.—Four steamships are reported to be under way at this company's yards at North Vancouver. The ceiling has been started on one of them, and the second is fully framed. The keels of the other two are bolted and ready for the frames. Two other keels will be laid as soon as the necessary lumber is available, and then work will proceed simultaneously on all six vessels.

The second steel steamship of the "War" series to be built in British Columbia, will probably be launched from J. Coughlan and Sons' yard at Vancouver, during November, and named War Champ.

Steel Steamships Ordered.—It was announced in Canadian Railway and Marine World for June that the Imperial Munitions Board had placed orders for the British Government, at various points between Montreal and Victoria, B.C., for building 26 steel steamships. Since then orders for 10 more have been placed, 4 of these during October. The tonnage of the steamships ordered runs from 1,800 tons to 8,800 tons dead weight capacity. Three steamships have already been delivered, leaving 33 to be delivered.

GENERAL SHIPBUILDING NOTES.

Bentley and Smith are reported to have reopened an old ship yard at Quaco, Nfld., and to have commenced wooden shipbuilding there.

Cameron-Genoa Mills Shipbuilders, Ltd.—Steel keelsons were placed in two wooden hulls during October, and considerable progress was made on hull no. 7. Hull no. 9 was in frame about the middle

of the month and the keel sticks were in course of preparation for hull no. 10, it being anticipated that the keel would be laid in November.

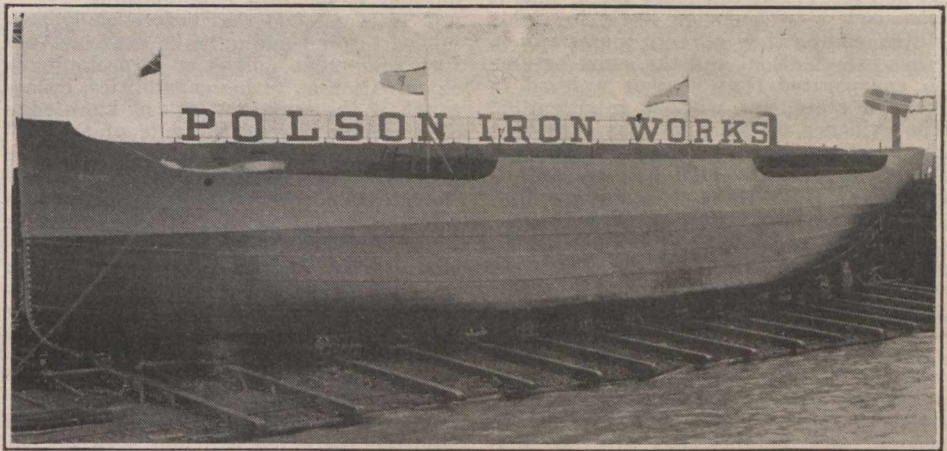
Canada West Coast Navigation Co.'s last vessel of the schooner type was launched from the Wallace Shipyards, North Vancouver, Sept. 29, and named Marie Bernard. She is the sixth vessel of this type built at these yards for the same company. Owing to the difficulty of getting the auxiliary engines, it is likely that her first voyage will be made under sail.

Canadian Allis-Chalmers Ltd., a subsidiary of Canadian General Electric Co., Ltd., Toronto, is re-opening the shipbuilding yard, on the Niagara River, near Bridgeburg, Ont., which was established in the early nineties by Canadian Shipbuilding Co., Ltd., another subsidiary, and which went into liquidation some ten years ago, since which the yard has not been operated. A Angstrom, who managed Canadian Shipbuilding Co., and who has been Naval Architect, Canadian Northern Ry., for some time past, has been appointed Manager of Canadian Allis-

Ltd., a company which was incorporated recently with the view of taking over a contract made by Lamond and Harrison, with the Dominion Government for the construction of an auxiliary power schooner, but which was eventually cancelled, will, it is reported, amalgamate with the Pacific Construction Co., which was announced a short time ago to be building two wooden steamships at Coquitlam, B.C., for the Imperial Munitions Board. Harrison and Lamond Shipbuilders Ltd., are also stated to have a similar contract, and in addition to be negotiating with the Dominion Government for a contract on a cost and percentage basis.

W. R. Huntley & Sons, Parrsboro, N.S., launched the schooner Annie B. Anderson, Oct. 2, for Anderson and Tyrer, Sherbrooke, N.S. She is 142 ft. long, 35½ ft. beam and 13 ft. depth of hold, and of 460 tons register. The builders have laid a keel for another schooner for C. T. White and Son, Sussex, N.B. She will be 175 ft. long, 39 ft. beam and 17 ft. in the hold, and of about 800 tons register.

Shipbuilding Throughout Canada.—It is stated that there are 74 vessels of 126,000 tons, under construction in Canadian shipyards and that of these, 25 are being built on the Atlantic coast; 30 on the Great Lakes, and 19 on the Pacific coast.



The Steamship Tento on the Ways at Toronto, just prior to launching, Oct. 22.

Chalmers' shipbuilding department, which has a contract for four Welland Canal size steamships for ocean service.

The Collingwood Shipbuilding Co. launched two steam trawlers at Collingwood, Ont., Oct. 1. They are a portion of an order for six placed by J. W. Norcross, Vice President and Managing Director, Canada Steamship Lines, acting as Director of Naval Construction on behalf of the Naval Service Department. Orders have been placed at other yards for similar vessels, the Dominion Government having undertaken to have 36 of them built for service. They are of the regular North Sea trawler type. The dimensions are, length over all 135 ft., length between perpendiculars 125 ft., beam 23½ ft., depth 13½ ft. They are to be equipped with triple expansion engines, with cylinders 13¾, 21½ and 35 ins. diam., by 24 ins. stroke, of about 500 h.p., and steam will be furnished by one boiler 13½ x 10½ ft., at 180 lb. pressure. Accommodation is provided for a crew of 17. The Naval Service Department is supervising construction, and purchases the materials, including engines and other machinery, and supplies them to the builders. An illustrated description of similar vessels was given in Canadian Railway and Marine World for April.

Harrison and Lamond Shipbuilders,

The s.s. Tento Launched at Toronto.

The ocean going cargo s.s. Tento, built under Dominion Government license for Norwegian owners, but requisitioned for the British Government, was launched at the Polson Iron Works, Toronto, Oct. 22, being christened by Mrs. Refnes, wife of the Norwegian captain, who has been watching the construction. The vessel's principal dimensions are: Length over all, 261 ft.; length, b.p., 251 ft.; breadth moulded, 43½ ft.; depth moulded, 23 ft.; deadweight capacity, 2,500 tons; mean draught, 19½ ft.

The vessel is of the Frederickstad single deck type, built on the deep frame principle, with cellular double bottom all fore and aft, and peak tanks. There are 4 watertight bulkheads, 2 masts, and 6 steam winches, one at each mast and derrick. She is built of steel to class highest class Bureau Veritas for ocean service and will have steam and hand steering gear, electric light, evaporating outfit. The propelling machinery will consist of triple expansion engine, having cylinders 20½ and 33 and 54 in. x 36 in. stroke. She will have 2 Scotch marine type boilers, 14 ft. diam. by 12 ft. long, built for 180 lb. working pressure. She will be completed and delivered this autumn.

Wreck Commissioner's Investigations and Judgments.

Royal Transport-Korana Collision.

An investigation was held at Quebec, recently, into the cause of the collision between the steamships Royal Transport and Korana in Quebec harbor, June 11, resulting in the beaching of the former vessel. Capt. L. A. Demers, Dominion Wreck Commissioner, presided, and was assisted by Commander E. G. O. Elliott, R.N.R., and Capt. C. Keonig, as nautical assessors. The evidence showed that at the time of the collision, both vessels had pilots aboard, and in each case they were on the bridge with the master. The pilot of the Royal Transport, A. Lachance, was given the privilege of giving his evidence and of being examined in French, but he preferred being questioned in English. In the course of his evidence, the court considered it advisable that he be examined in French, but his examination proved impossible in French, and so inconsistent with his first statements, and as his words could not be given the meaning in the interpretation that they implied, an adjournment was made to permit of his direct examination in French. On the resumption, he was recalled and examined in French, but the court found that it was useless to make an analysis of his statements as they differed materially in cross examination, and the court became so exasperated that he was ordered to make a statement without interruption. The evidence of the pilot was such that the court wondered which of the four different statements could be accepted as plausible. He mistook the Korana's light for another, and when he found his mistake, he attempted to cross her bows, which is in violation of articles 19 and 25 of the rules of the road. The unintelligent manner in which he gave his evidence, with the discrepancies in various statements, led the court to doubt whether he sounded a two blast signal as he stated. He also attempted to lead the court to think that lights could not be seen at any distance, but this was disproved by Pilot Angers, of the orana, and other witnesses. Another point in dealing with Lachance's evidence astonished the court, which was his apparent gross ignorance of the chart. The plotting of the point of collision inside of Beaufort Flat, and again close to the breakwater, are irrefutable proofs of his ignorance of a subject of paramount importance to his occupation. With such limited knowledge, it is to be wondered at that he did not come to grief earlier.

Notwithstanding that there was a pilot aboard, the court felt that the master was responsible, and while having great sympathy with masters, under the conditions which they have to face at present, feared that a combination of laissez faire and confidence in the pilot sometimes causes a relaxation of that keen attention which must be the watchword of navigators. A serious collision occurred in a well lighted port, and sentiment must be put on one side. An indifferent lookout was kept on the Royal Transport, and had the pilot kept a proper lookout, he would have, in the transition from green to red on the orana, kept his course and shown his red to the Korana's red, as the latter was gradually going toward the centre of the channel on her course outward. The court, Commander Elliott dissenting, therefore found that the Royal Transport was solely to blame for the collision, and suspended the pilot, Arthur Lachance's, license for two years from

June 21, and ordered that before he is again allowed to pilot, at the expiration of his suspension, he be examined on chart work. The master of the Royal Transport, W. C. Davidson, had his certificate suspended for one month from June 21, and the master and officers of the Korana and all other officers were exonerated from all blame for the casualty.

Commander Elliott, in dissenting from the foregoing judgment, considered that both vessels were to blame, the Royal Transport being on her right side, and the Korana on her wrong side, and that an outgoing vessel, manoeuvring on the wrong side of the channel would be very bewildering to an incoming vessel. The collision was due to inefficient lookout on both vessels, accompanied by weather conditions, and partly by allowing custom to become law with the pilots, in keeping to the north side of the channel for changing pilots. This practice is strongly to be deprecated, as there is no reason why an outgoing vessel should do so. Regarding Pilot Lachance, he said: "This man is the result of a system which has granted licenses as fully qualified pilots on very elementary examinations . . . and I recommend that before being permitted to pilot again, he be examined before competent judges on a preliminary examination as to his capabilities, on account of the apparent lack of knowledge of anything beyond the rule of thumb." Commander Elliott also considered the pilot of the Korana should be censured for not keeping to his own side of the channel, and that the masters of the Royal Transport and orana should be censured for not keeping a better lookout on their respective vessels, especially in view of the weather conditions prevailing on the night of the casualty.

Keybell-A. E. Ames Collision.

As the result of an investigation at Montreal, into the collision between the Keystone Transportation Co.'s s.s. Keybell and Canadian Northern Steamships' s.s. A. E. Ames, west of Point Peter in Lake Ontario, June 29, the Dominion Wreck Commissioner, Capt. L. A. Demers, has rendered judgment, concurred in by Capt. C. Lapierre and F. Nash, acting as nautical assessors. After hearing and examining the evidence, the court finds that whilst the collision is trifling from the point of damages, which is not the court's concern, it cannot arrive at any other conclusion than that the s.s. Keybell, by violation of article 19 regarding speed and bearing of sounds, invited the collision, therefore the master, George Bunting, certificate 6714, is found in default and his certificate is suspended for one year from July 30, 1917, for what the court declares to be a gross, wilful violation of the rules of the road, in force on the Great Lakes. The master and officers of the s.s. A. E. Ames are exonerated from blame. The logs of each vessel were kept in an unsatisfactory manner, especially that of the s.s. Keybell. The s.s. A. E. Ames did not comply with article 34, but is exonerated by article 37. The masters of both vessels evaded the provisions of sec. 920 of the Canada Shipping Act, leaving each other in the fog, without making enquiries, and therefore, both are guilty of misdemeanor. While the court holds the master of the s.s. A. E. Ames is not to blame for the collision, he is found in default for not obeying sec.

920 of the Canada Shipping Act, and consequently is severely reprimanded, and had the collision been of a more serious nature, his certificate would have been dealt with. The reprimand also to the master of the s.s. Keybell.

Heathcote-Kelbergen Collision.

An enquiry into the cause of the collision between the s.s. Heathcote and the s.s. Kelbergen, off the Newfoundland coast, July 25, whereby the s.s. Heathcote was lost, was held at Quebec, Aug. 21, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. C. Lapierre and F. Nash as nautical assessors. The court finds that the evidence was contradictory in regard to locality, differing in respect to climatic conditions and range of visibility, but that the Kelbergen is mostly to blame for the disaster. From the first hearing of the Heathcote's fog signal, the Kelbergen's duty was plain, according to article 16, and no excuse can be found for the casualty. In view of this the certificate, no. 033,236 of the master, John Samuel Ledson, is suspended for three months from August 3. For a violation of article 27, and for the observance of article 21, which did not apply in his case, the certificate, no. 024,009, of the master of the Heathcote, Andrew Dalrymple Muir, is suspended for one month from Aug. 3, and he is censured for not saving the ship's papers, log books, etc., during the time he was on board, prior to the vessel sinking, which the court considered ample. The first officer of the s.s. Kelbergen, George Gill, is severely censured for his indifference to the carrying out of his duties.

The court points out that the lenient sentence imposed on the master of the Kelbergen is due to the fact that he passed through a severe ordeal at an earlier part of the voyage, in combatting and evading an enemy submarine, and for this action, though not concerned in this casualty, the court praised his action in this respect, and owing to his bravery, the court regrets the suspension of the certificate, but the circumstances of the collision warrants it.

Stranding of s.s. Arigair.

At Halifax, N.S., before Capt. L. A. Demers, Dominion Wreck Commissioner, and Commander E. Wyatt, R.N.R., and Capt. C. Adam, as nautical assessors. The stranding occurred on Amherst Island, one of the Magdalen Islands, Aug. 28. The court states that the master of the Arigair, Capt. W. Mackintosh, made a very frank and straightforward statement, and did not try to hide any facts, but it felt in duty bound to censure him for not taking more soundings when certain distances had been run, and cautioned him that in future, when a distance has been run, it is a proper action to stop, sound and circle around, and that this is more necessary where an erratic current is known to exist.

Aranmore-Cyrene Collision.

At Charlottetown, P.E.I., Aug. 31, before Capt. L. A. Demers, Dominion Wreck Commissioner, and Capt. A. McLeod and J. Lumsdane, as nautical assessors. The casualty occurred in Pictou Narrows, at 27, and resulted in the sinking of the schooner Cyrene. The court, after reviewing the evidence, commented on the manly and straightforward statement of the master of the s.s. Aranmore, Capt. D.

M. MacDonald, but held him in default for daring and foolhardy navigation, bordering on carelessness, and suspended his certificate for nine months, from Sept. 1, 1917, to June 1, 1918. Regarding the schooner Cyrene, the master made a distinct breach of one of the rules of the road in changing her course when she should have kept, and the court found her partly to blame, but as the master has no certificate, he cannot be dealt with. The court added that the quartermaster of the s.s. Aranmore is unfit to be a member of the crew, declaring that if he did not see or hear anything when the casualty occurred, he is non compos mentis, and if he did hear and see what occurred, he should have given more satisfactory answers under examination.

Stranding of the s.s. Frankmere.

At Halifax, N.S., Sept. 11, before Capt. L. A. Demers, Dominion Wreck Commissioner, and Commander E. Wyatt, R.N.R., and Capt. A. Adams, as nautical assessors. The casualty occurred Aug. 8, on Erion Island, one of the Magdalen Islands, in the Gulf of St. Lawrence. The court found that there was a serious lack of judgment and prudence in navigation, for which, as there was an uncertificated officer in charge on the bridge at the time, the captain, D. T. Evans, must be held accountable. The court considered the straightforward statement made by him and the high reference made by his employers, and for these reasons did not deal with his certificate, but severely censured him and reprimanded him for injudicious navigation.

Celia-Katie D. Collision.

At Montreal, Aug. 18, before Capt. L. A. Demers, Dominion Wreck Commissioner, and Capts. F. Nash and C. Lapierre, as nautical assessors. The collision between the British s.s. Celia and the barge Katie D., in tow of the steam tug J. H. Hackett, occurred Aug. 3, at Isle à la Pierre, in the River St. Lawrence. The court came to the conclusion that the s.s. Celia was alone to blame for the casualty through a wrong action and violation of local regulations. The vessel was in full charge of D. J. Perreault, pilot, whom the court found wanting in judgment and suspended his license for one month and ordered him to pay the costs of the investigation, and in addition fined him the maximum, \$40, for a violation of the local regulations governing the particular place where the casualty occurred. The master and officers of the Celia were exonerated from blame. The expenses of the investigation were \$160; the fine imposed, \$40, and the cost of French evidence, \$137; total to be paid by the pilot, \$337.

The Stuart W. Collision with Barges.

At Montreal, Sept. 25, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capts. F. Nash and C. Lapierre, as nautical assessors. The Stuart W., which is owned by the Stuart W. Co., a subsidiary Company of Canada Shipping Co., Montreal, while down bound, July 20, collided with three barges in tow of the tug Sin-Mac, near McCoy Island in the St. Lawrence River. The court found that both vessels were to blame, the Stuart W. for breach of rules of the road 29, 37, and 38, and the Sin-Mac for rules 25, 29, 37 and 38. E. Tremblay, master of the Stuart W., was reprimanded for maintaining speed when danger was possible, and for availing himself of the privileges of rule 25. The

court found that the master of the Sin-Mac could not be held responsible for the casualty, as he was taking a well earned rest, leaving matters to the pilot. The breach of the rules therefore rests with the pilot, Leduc, who, as he possesses no license as such, was severely censured for his actions.

Stranding of s.s. S. V. Harkness.

At Montreal, Aug. 20, before Capt. L. A. Demers, Dominion Wreck Commissioner and Capts. F. Nash and C. Lapierre, as nautical assessors. The U.S. s.s. S. V. Harkness, built three months ago on the Pacific coast, while inward bound from Puget Sound with oil, stranded on Red Island in the River St. Lawrence, Aug. 23. She was in charge of pilot Adjutor Lachance, who, though notified to be present at the enquiry, failed to attend, sending a doctor's certificate as to his state of health. After hearing the evidence, the court decided that the pilot alone was to blame for an uncalled for casualty. Mental aberration was mentioned as an excuse for the mistakes made, but the court could not accept this alone, for at one time the pilot headed north right across the river, he maintained full speed through dense fog, and stopped the sounding of the vessel's whistle, on the indefensible ground that he would be unable to hear the fog signals. As the pilot's record was not above reproach, the court felt it its duty to cancel his license forthwith.

Atlantic Harbors and Canadian Export Trade.

In a discussion in the House of Commons recently on the estimates connected with harbor improvement work at St. John, N.B., some interesting information was given in regard to a possible transfer of the shipment of merchandise, etc., for war purposes, from Canadian ports to Portland, Me. During the debate, it was stated that the U.S. authorities had been informed that if they would dredge out Portland harbor to a depth of 35 ft. for larger vessels, the Canadian Government would, during the year, avail itself of that harbor in connection with Canadian export trade. This matter was commented on by the British Ambassador at Washington, D.C., in correspondence with a U.S. senator, and a question was asked in the Senate as to the Ambassador's interference in a U.S. internal matter. The Ambassador, in his letter, is reported to have stated that he was authorized by the Canadian Government to say that if the Portland harbor is deepened to 35 ft., the government will use it for a large part of the winter trade. The Minister of Public Works said that the dredging of Portland harbor was entirely a U.S. Government matter, and he was unaware that there was any proposal to adopt Portland harbor as against St. John and Halifax. St. John harbor is being dredged to a depth of 32 ft. at low tide, and if it is necessary to go deeper, provision will be made and an additional depth of 3 ft. obtained. The Minister said that when he was in England recently, a proposal was made, that in case of rush orders, it might be convenient that some of the trade should be shipped through other ports than St. John or Halifax, especially during the winter; he had registered a strong objection to such a proposal, and he had not heard of it since. The matter had not been brought to his department's attention in any other way.

Another Power Dam Proposal for the St. Lawrence River.

It was announced by Montreal daily papers recently that a project has been quietly set going during the past few months for the organization of a company having for its main object the construction of a dam at the Coteau Rapids, in the St. Lawrence, for the purpose of power development. The Power Development Co., Ltd., was incorporated by Dominion letters patent in June, with a nominal capital stock of \$500,000, and it is stated that preliminary steps were taken with the utmost secrecy, and that the promoters expected by about Oct. 22 to apply to the Dominion Government for the necessary authority to build a dam, with a lock for vessels to pass through.

Various schemes have been brought forward during the last few years, covering proposals to dam the St. Lawrence at different points, but, so far, all such projects have been stopped, owing to the strong opposition of the marine interests, and the Dominion Government's dictum that the interests concerned with the navigation of the St. Lawrence are paramount.

The Long Sault Power Development Co., a U.S. corporation, made a prolonged fight for permission to build a dam, without which its franchise was useless, and after strong Dominion representations, the U.S. authorities cancelled the franchise and finally disposed of the company's case.

The Beauharnois Light, Heat & Power Co. also planned to build a dam across the river, but has not been able to obtain the necessary permission. The matter was taken up by the Dominion Marine Association, which was assured by the Dominion Government that no steps will be taken in any such application until plans and proposals were submitted and the association permitted to make representations in the matter.

The present scheme provides for the construction of a power house, with a lock, and tail race embankment, about 200 ft. long, extending from the north shore a little west of Coteau du Lac, and a series of dams connecting the small islands to Clarke's Island. The incorporators of the company are employees of a legal firm in Montreal, which acts for certain interests associated with other power proposals.

The Mayor of Toronto, on Oct. 11, telegraphed the Dominion Premier in relation to the matter, urging that no steps be taken to grant the required permission without giving Ontario municipalities an opportunity of voicing their objection to any proposal which, it was claimed, would interfere with other power development schemes of the Hydro Electric Power Commission of Ontario. The Premier telegraphed in reply that there was no application for such a scheme before the government.

Dominion Government Shipyard at Sorel, Que.—A press report states that the Sorel shipyard, one of the oldest ship-building plants in Canada, has been acquired by the Dominion Government, to which it has been under lease for several years. We are officially advised that no change has taken place in regard to the shipyard. The plant which has been in operation for many years is controlled by the Marine Department of the Dominion Government. The property was originally owned by the McCarthy Estate and some considerable time ago it was appropriated for Government use.

Reinforced Concrete for Steamship Hulls.

Some details were given in Canadian Railway and Marine World for October relative to the use of reinforced concrete for the hulls of steam driven and other vessels, and also of the vessel of this type under construction at Montreal. A series of organized movements are under way with the object of placing a number of these vessels in service so that actual tests may be made under various conditions.

It is announced that the U.S. Bureau of Standards at Washington, D.C., is preparing a 9 ft. model of a reinforced concrete ocean going steamship, at the request of the U.S. Emergency Fleet Corporation, to test the claims of engineers that a seaworthy vessel may be built of concrete, that it can be built cheaper than one of wood, and that it will weigh less than one of wood of the same tonnage.

It is also stated that the Standard Oil Co. has ordered a reinforced concrete vessel of about 5,000 tons to be built in San Francisco, and that this has been taken over by the U.S. Emergency Fleet Corporation for a series of tests under actual operation when completed.

The Torcrete Shipbuilding Co., mention of which was made in our last issue, is stated to be negotiating for a site in Detroit, Mich., for a yard for the construction of reinforced concrete vessels on a special principle, the concrete to be applied from the inside of the hull under air pressure.

Marine Slip, Docks, etc. at Ojibway.

The Canadian Steel Corporation, Ltd., Ojibway, Ont., has given a contract to the Great Lakes Dredging Co., Ltd., of Port Arthur, Ont., for the construction of a marine slip or harbor and unloading docks or wharves to provide for the unloading and storage of ore, limestone and coal. The marine slip or harbor will extend about 2,403 ft. inland from the harbor line, along the left bank of the Detroit

River. Its width, from face to face of the concrete walls, which will be 9 ft. high by 12 ft. wide, will be 400 ft. This will reduce to 202 ft. between walls, at a distance of 303 ft. from the harbor line. It will continue at the width of 202 ft. for a further distance of 2,100 ft. inland from this point. The depth will be 23 ft. measured from the mean water level of the Detroit River. All piles supporting concrete walls will be approximately 80 ft. in length and will be driven to rock. Ore and limestone will be unloaded and stored on one side of this slip and coal for by-product coke ovens and general plant use on the other side. The work does not include piling or concrete walls for support of bridges; neither does it include any unloading machinery.

Steamships Commandeered by U.S. Government.

The U. S. Shipping Board issued the following early in October: The U. S. Shipping Board hereby gives notice to all owners of ships registered and enrolled under the laws of the U. S. that the requisition of all American steamers described below and of which previous announcement has been made will become operative and effective on Oct. 15, at noon.

The ships affected by said requisition and included therein are: All cargo ships able to carry not less than 2,500 tons total dead weight, including bunkers, water and stores. All passenger steamers of not less than 2,500 tons gross register.

As to all steamers in or bound to American ports on Oct. 15, requisition becomes effective after discharge of inward cargo and ship is put in ordinary good condition. As to steamers which have started to load their outward cargo requisition becomes effective at noon on Oct. 15, and accounts as to hire and expenses will be adjusted from time steamer began to load. Steamers, trading to and from American ports, that have sailed on their voyage prior to Oct. 15, 1917, at noon, are to complete that voyage as promptly as possible and report for requisitioning. Steamers that are occupied

in trades between foreign ports shall be requisitioned as of Oct. 15, 1917, at noon, and accounts adjusted accordingly.

Owners whose steamers are operating in their regular trades are to continue the operation of their steamers for account of the government, as they have been doing for themselves, until they receive further instructions. Owners whose steamers are chartered to others will apply to the Shipping Board for instructions regarding the future employment of said steamers.

In reference to the foregoing notice it is said that the commandeering will apply to about 500 steamships.

The Port of Quebec and Ocean Shipping Facilities.

The Quebec Board of Trade, of which J. G. Scott, ex-General Manager, Quebec and Lake St. John Ry., is President, made a number of suggestions to the Dominion Government recently, in connection with the increasing of shipping facilities at Atlantic shipping ports. Among these suggestions are, the building of grain storage of 10,000,000 bush. at each of the ports of Quebec, Halifax and St. John, with steamship docks at Quebec and St. John, similar to those now under construction at Halifax. It is also suggested that the Dominion Government should control insurance rates of vessels using Canadian ports on the seaboard and in the St. Lawrence, so that they should, at all seasons of the year, be the same as those charged for vessels running to and from New York. It is claimed that the discrimination against Canadian ports by the underwriters is driving vessels from those ports, and though this control of the rates might cost the Government something, the result would justify any expenditure that might be necessary. The government is also asked to compel all government subsidized vessels to accept the same rates for ocean freights to and from Canadian ports as are current month to month at New York, and it is suggested that this might be regulated through the Board of Railway Commissioners.

The Board of Trade has also asked the government to build and operate, in connection with the government railways, not less than 10 large ocean freight steamships of from 1,000 to 15,000 tons capacity for a semi weekly service from Quebec in the summer, and from Halifax or St. John in the winter.

Forwarders Ltd. has been incorporated under the Dominion Companies Act, with \$250,000 capital and office at Ottawa, to build and operate steam and other vessels, and to carry on the business of common carriers within and without Canada, and of towing and wrecking; also to build and operate grain elevators, warehouses, and flour mills. The incorporators are, W. H. Dwyer, J. H. Hall, A. Blackburn, J. R. Osborne and S. R. Broadfoot, Ottawa. This is a reincorporation of a company of the same name, of which W. H. Dwyer is President, and which had its office first at Kingston and later at Ottawa. In Nov., 1909, it bought the s.s. Port Colborne, which was built in England for the lake trade and brought to Canada as a speculation. The steamships Port Dalhousie and W. H. Dwyer were subsequently purchased, and later all three of the company's vessels were operated between New Brunswick and Maine in the pulpwood trade, and later were transferred to Europe for service there, since when the company has operated no steamships.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during September

ARTICLES		CANADIAN CANAL	U. S. CANAL	TOTAL	
Flour	Eastbound	Barrels	398,200	520,450	918,650
Wheat		Bushels	3,184,621	5,380,556	8,565,177
Grain		Bushels	827,150	3,496,335	4,323,485
Copper		Short tons	379	11,804	12,183
Iron ore		Short tons	1,288,192	8,010,619	9,298,811
Pig iron					
Lumber		M. ft. b.m.	2,882	49,311	52,193
Stone		Short tons			
General merchandise		Short tons	10,633	34,673	45,306
Passengers		Number	2,444	894	3,338
Flour	Westbound	Barrels		450	450
Grain		Bushels		450	450
Coal, hard		Short tons	17,150	385,174	402,324
Coal, soft			204,870	2,856,620	3,061,490
Iron ore		Short tons	7,546	12,096	19,642
Manufactured iron		Short tons	2,505	9,619	12,124
Salt		Barrels	7,000	75,340	82,340
Oil		Short tons			
Stone		Short tons			
General merchandise		Short tons	33,279	103,853	137,132
Passengers		Number	2,244	829	3,073
SUMMARY					
Vessel passages	Number	693	2,572	3,265	
Registered tonnage	Net	1,402,058	7,615,659	9,018,717	
Freight—Eastbound	Short tons	1,457,857	8,441,808	9,899,665	
— Westbound		266,350	3,378,671	3,645,021	
Total freight		1,724,207	11,820,479	13,544,686	

The United States Government's Shipbuilding Work. Atlantic and Pacific Ocean Marine.

Rear Admiral Capps, Chairman of the United States Emergency Fleet Corporation, issued the following statement at the end of September, since which no further statement has been made public:

During the past two months the Emergency Fleet Corporation has awarded contracts for 118 wooden vessels of 3,500 tons dead weight capacity each to 27 different shipyards. There had previously been awarded contracts for 235 wooden vessels of similar type to the above, and for 58 vessels of composite construction, thereby making a total award to date of 411 wooden and composite vessels of an aggregate dead weight tonnage of 1,460,900. During the past two months the designs for machinery have been completed for the manufacture of engines, boilers and other articles of equipment for these vessels, for which the facilities available of machine shops and boiler works throughout the country have been availed of. Specifications have been prepared and negotiations outlined and initiated for the assembly and installation of machinery in wooden vessels, the most of which have been or are being constructed as "hulls only." Great difficulty has been experienced on the Atlantic coast in obtaining suitable lumber for these ships, and it is anticipated that there will be greater delay in their completion than was expected when this movement was begun, notwithstanding every possible effort on the part of the corporation and its contractors.

Since Aug. 1 there have been awarded contracts for 155 steel cargo vessels of 1,076,800 tons dead weight tonnage, distributed among 6 shipyards. The most important of these contracts are for vessels of the so called fabricated type, and special shipyards are being prepared for them. Contracts for the boilers and machinery and steel construction of these vessels have been placed, and the contractors are actively at work preparing sites for the assembling of these ships. The best efforts of the Emergency Fleet Corporation are devoted to expediting these great shipbuilding projects. Previous to Aug. 1, 70 steel cargo vessels of 587,000 tons total dead weight capacity had been contracted for. These vessels were distributed among 10 shipyards. Therefore at present the total number of steel vessels under construction for the U.S. is 225, with a total aggregate dead weight tonnage of 1,663,800.

By proclamation of Aug. 3, 1917, the Emergency Fleet Corporation, under authority delegated by the President, under the provisions of the emergency act, approved June 15, 1917, requisitioned all vessels under construction in the shipyards of the U.S. of 2,500 tons dead weight capacity and above. By this act the U.S. acquired a total number of 403 vessels, determined by the progress reports obtained from the various shipyards to be actually under construction; in many cases where keels had not actually been laid, engines, boilers, equipment and materials, all of which were also requisitioned, are in various stages of progress; and in comparatively few cases contracts existing for vessels not actually begun, which may or may not be proceeded with, as the merits of the case, compared with what is desirable construction, are considered. The total dead weight tonnage under construction thus acquired, and on which orders have been issued to proceed with the maximum expedition, exceeds 2,000,000 tons dead weight.

There are now under construction for

the Emergency Fleet Corporation as follows:

Type of vessel.	Number.	Total dead-weight tonnage.
Wood	353	1,253,900
Composite	58	207,000
Steel	225	1,663,800
Requisitioned	403	2,800,000
Grand total	1,039	5,924,700

In addition to the above Congress in a pending bill is authorizing the construction of additional vessels whose total dead weight capacity will be nearly 5,000,000 tons. Plans for the major portion of these additional vessels are in course of preparation and many of them will be of special types adapted to particular necessities of war, and while substantially cargo carriers, will have much greater speed than the cargo vessels now under construction.

The corporation has ascertained from the builders of requisitioned vessels their demands for structural steel, machinery, and various items of equipment, and is endeavoring to regulate the supply of items to provide for the individual needs of the shipbuilders in accordance with their programme of capacity, so far as the country's resources are available. And it is apparent that with the similar needs of the naval service and the War Department, with which the Emergency Fleet Corporation is working in harmonious co-operation, every mechanical resource of the U.S., with considerably increasing development, will be necessary for the realization of this programme and what must follow in continuation of it.

The Emergency Fleet Corporation has instituted an industrial service department, which, by co-operation with the Department of Labor, is undertaking to assist shipbuilders and others in the employment of suitable labor and to initiate an extensive system of vocational training with the purpose of adapting allied trades and unskilled labor for service in shipyards, and through co-operation with the Y.M.C.A. organization throughout the U.S. to give attention to the housing and personal affairs of the men recruited for shipbuilding work. The vast development of shipbuilding essential to this emergency necessitates an agency of this kind, because up to this time the thinning out of unskilled men in the older shipyards over a large territory is, in many instances, resulting in greatly decreased production. It has been estimated that 150,000 new men are necessary for full production.

With the passage of the pending bill, Congress will have authorized \$1,799,000,000 for the Shipping Board and the Emergency Fleet Corporation, and the actual appropriations made, including those in the pending bill, reach a total of \$1,085,000,000.

U. S. Government Merchant Fleet.—E. F. Carry, car manufacturer, Chicago, who is a member of the Shipbuilding Wage Adjustment Board, is reported to have been appointed Director of Operations for the United States Shipping Board. He will be directly in charge of the operation of the government's merchant fleet.

Marine Signals on Quebec Bridge.—Two white lights are being exhibited, one at the interior of each extremity of the central span, 760 ft. from each other, and 150 ft. above high water. Red lights are also shown from the cantilever arms, 1,300 ft. from each other, 88½ ft. above high tide.

Frank Waterhouse & Co., Inc., carrying on business at Seattle, Wash., has been licensed to also carry on business in British Columbia, with office at Vancouver.

The Great Northern Steamships Co.'s steamships Great Northern and Northern Pacific, which were taken over by the U. S. Government recently, are in yards in Puget Sound for extensive alterations. It is announced that they are to be used as transports.

The s.s. Soukahras, which was built recently at a U.S. shipyard on the Great Lakes, is being cut in two for passage through the Welland Canal to a Canadian yard, where she will be rejoined, and, in all probability, sail for New York, and thence to France, under the ownership of the Oriental Navigation Co., of Nantes, France, and New York. She was originally ordered for a private firm, and was acquired by the Oriental Navigation Co. while on the stocks, as were also two other vessels under construction in Canadian shipyards. Her dimensions are, length 387 ft. over all, width, 43.9 ft. depth 28 ft.; 3,819 gross tons. At the time of writing it had not been announced whether this vessel would be taken over by the U. S. Government under the recent order taking over all vessels under construction in U. S. yards. The builder completes his contract when the vessel is delivered complete and ready for ocean service.

Maritime Provinces and Newfoundland.

An Ottawa press dispatch of Oct. 13 stated that the Public Works Department had intimated that tenders would be invited for the completion of the harbor works at St. John, N.B., the Norton Griffiths Co. having abandoned this contract. On Oct. 20, we were officially advised that no such decision had been arrived at.

Mathers & Co., Halifax, N.S., are reported to have bought the steam yacht Thomas B., which was purchased in the U.S. about a year ago by the Halifax Dredging Co. It is stated that all the deck cabins have been removed and that the vessel is to be used in the freight trade, probably between Canadian and U.S. ports. Under U. S. ownership she was named Cora.

Salvaging operations are proceeding on the Anchor-Donaldson Line s.s. Letitia, which was wrecked near Portuguese Cove in Halifax harbor, Aug. 1. A considerable portion of the machinery has been removed and the upper portion of the hull tightened up for the use of compressed air. It is said that a large rock which pierces the bottom, is to be blasted within the hull, and the hole filled with cement.

It is reported from New Brunswick that it is apparent that a halt has been called in the inflated prices being paid for schooners. An instance is given of the schooner Persis A. Colwell, 440 tons register, built in 1904, for which \$62,000 was paid in the summer, and which has been lying idle for several weeks owing to her owners not being able to turn her over at a profit, the price required being \$70,000. It is said that it is doubtful if she could be sold today for \$50,000. Possibly the regulation prohibiting the use of sailing vessels within the submarine zones may account for the decreased demand. However, there is plenty of room for utilizing sailing vessels to and from other ports. The schooner named has been chartered for a West Indies service.

Province of Quebec Marine.

Up to Aug. 31, 48,792,624 bush. of grain were exported through Montreal, 30,718,360 bush, passing through the Harbor Commissioners' elevators and the balance through the G.T.R. elevators.

Ontario and the Great Lakes.

The U.S. steamships Saxona and Pen-tecost Mitchell, which collided and sank in the St. Marys River, near Watson reef, May 13, have been raised.

The Ogilvie Flour Mills Co. has deposited plans of a dock it proposes to build in the Kaministikwia River at Fort William, in front of its present mill site, on the easterly side of Front St.

The Northern Navigation Co.'s s.s. Hamonic, while running to Windsor, Oct. 15, struck a hidden obstruction and broke her propeller. She was dry docked at Detroit, Oct. 16, for repairs.

The s.s. Western Star, owned by the Cadillac Steamship Co., Cleveland, Ohio, which went ashore on Robertson Rock in Georgian Bay, Sept. 24, 1915, has been salvaged by the Great Lakes Towing Co.

A press dispatch from Port Huron, Mich., October 17, stated that an oil burning ship named Ada, being one of the vessels built at Superior, Wis., for the U. S. Emergency Fleet Corporation, had passed down en route to New York.

The Ontario Car Ferry Co., operating two car ferries, Ontario No. 1 and Ontario No. 2, between Cobourg and Genesee dock, Rochester, N.Y., made the last trip of the season on regular schedule, Sept. 29. Since that date, trips are made only on an irregular schedule solely for freight traffic.

The Lehigh Valley Rd. has announced that owing to the commandeering by the U. S. Government of its lake vessels, its service in the merchandise package trade between Buffalo, N.Y., and Chicago, Ill., has been discontinued. Four steamships were operated in this service, and these have been taken over by the U.S. for Atlantic service.

The U. S. Lake Survey reports the levels of the Great Lakes in feet above mean sea level for September as follows: Superior, 602.73; Michigan and Huron, 581.68; St. Clair, 576.23; Erie, 573.28, and Ontario, 246.93. Compared with the average September levels for the past ten years, Superior was 0.03 ft. above; Michigan and Huron 1.06 ft. above; Erie 0.94 ft. above, and Ontario 0.75 ft. above.

The s.s. Richard W., owned by Richard W. Ltd., Quebec, Que., and managed by the Canadian Shipping Co., which is controlled by the Canadian Import Co., Montreal, ran aground about four miles below Long Island, near Kingston, Oct. 14, while coal laden for Montreal. Her cargo had to be removed before she could be got off, when it was found that her shoe had been fractured. The s.s. Richard W. was formerly the s.s. Pueblo, and was at one time owned by the Canada Cement Transport Co., Ltd., Montreal.

A deputation of business men from towns and cities along the Lake Erie & Northern Ry. met at Port Dover, Oct. 16, to discuss with Dominion Government representatives, who were there looking over the harbor conditions, the need for further work and government aid for the betterment of harbor facilities there. It was pointed out that the docks have deteriorated owing to non-use, and the harbor has silted up. Parliament has voted \$6,000, but considerably more is required

to develop the harbor to its proper capacity.

The Montreal & Cornwall Navigation Co.'s s.s. St. Laurent was burned to the waters' edge while at her moorings in the Cornwall Canal, Oct. 19. She was built at St. Nicholas, Que., in 1880, and originally named Brothers. She was overhauled in 1900 at Montreal, and again at Sorel, Que., in 1909. She has been operated between Montreal and Cornwall for several years, and was used previously as a ferry at Montreal. Her dimensions are: Length, 127 ft.; breadth, 24.6 ft.; depth, 8.3 ft.; tonnage, 349 gross, 189 register, and she was equipped with engine of 43 n.h.p. driving paddle wheels.

The Valley Camp Coal Co.'s s.s. William S. Mack is reported to have been sold to the Sault Shipping Co., Sault Ste. Marie, Ont. The first named company is associated with the Great Lakes Transportation Co., of which Jas. Playfair is President and General Manager, and the Sault Shipping Co. is controlled by the Lake Superior Corporation. The s.s. William S. Mack was built at Lorain, Ohio, in 1901, on the channel system, with steel tank top, where no wood ceilings are fitted, three watertight and two non watertight bulkheads, steel boiler house, steam pump wells, electric light, etc., and the hull is divided into four compartments with hatches 24 ft. centres. Her dimensions are: Length, 346 ft.; breadth, 48 ft.; depth, 28 ft.; tonnage, 3,720 gross, 2,785 register, and she is equipped with triple expansion engines with cylinders 20, 33½ and 55 in. diam. by 40 in. stroke, 1,000 i.h.p. at 80 r.p.m., and supplied with steam by two Scotch boilers, 12 ft. 10 in. by 13 ft., at 175 lb.

A Washington, D.C., press dispatch of Oct. 5, said: "Enlargement of locks on the Welland Canal, to permit construction of bigger ships on the Great Lakes, for ocean service, is under consideration by American and Canadian government officials." The question of getting the larger vessels now operating on the Great Lakes, through to the ocean, where they could be used to great advantage, is without question engaging the attention of both governments. The Canadian Government as most people are aware, has under construction a ship canal, which, when completed, will be quite capable of taking the largest vessels through from the Great Lakes. This work is suspended, and will probably not be resumed until after the war. The question of enlarging the existing locks on the present canal, with other necessary work following would seem to be as large a job as completing the new canal now partially built. In the meantime certain vessels are being cut in two and towed through the canals to St. Lawrence ports where they are to be re-connected, and sent on to the coast.

British Columbia and Pacific Coast.

The Norwegian s.s. Niels Nielson, which struck a rock recently in Puget Sound, was taken to Esquimalt, Oct. 11, and placed in Yarrows' dock for bottom repairs.

A contract is reported to have been awarded recently for \$37,750, for salvaging the s.s. British Columbia, which sank at the docks at Hastings Mills, B.C., while loading cargo, at the end of August.

The C.P.R. and Grand Trunk Pacific Coast Steamship Co.'s steamships, operating along the British Columbia coast, have ceased supplying intoxicants on their vessels, following the passing of a prohibition law in the province.

The Union Steamship Co.'s s.s. Casiar, which was wrecked near Privett Island at the end of August, has, it is reported, been taken over by the owning company, from the underwriters. The estimate for repairing is about \$30,000, equal to the amount of the insurance.

A British Columbia court has decided that both the Canadian Pacific Ocean Services' s.s. Empress of Japan and the s.s. Belridge were to blame for a collision between them on Jan. 31, off Trial Island, during a snow storm. The liabilities connected with the collision are to be divided equally and each side pays its own costs.

The South Vancouver, B.C., council passed a resolution recently, in favor of submitting a bylaw to the ratepayers to exempt the shipbuilding site known as the Robson site, from taxation during actual shipbuilding operations, the total exemption not to exceed ten years and the bylaw not to be submitted to the vote until the plant is built on the site.

At a recent meeting of representatives of the pilotage boards of Victoria, Vancouver, New Westminster and Nanaimo, to consider a number of proposed changes in the system of pilotage, it was proposed that the four districts be amalgamated, but it was decided not to do so, as the desired results could be achieved by amendments to the Canada Shipping Act giving the British Columbia authorities the same discretionary powers as possessed by those on the Atlantic coast.

The Union Steamship Co. has purchased the steamships Santa Maria and Selma from the All Red Line, Ltd., Vancouver, and will continue to operate them in the coast trade. Both vessels are of the private yacht type, and were brought from England a few years ago as a private venture, and a company incorporated under the title of All Red Line Ltd., for operating them in the coast service as far north as Powell River.

An order in council has been passed defining a permanent harbor head line beyond which wharves, piers, breakwaters and other similar structures shall not be built on the south shore of the Fraser River, opposite New Westminster, from Port Mann to the Government wing dam at Annieville bar. The head line was approved by the New Westminster Harbor Commissioners, and recommended by the Marine Department's Chief Engineer.

A deputation representing the Chamber of Commerce, Tacoma, Wash., waited on J. W. Troup, Manager, British Columbia Coast Service, C.P.R., at Victoria, recently, requesting that a direct steamship service be given to Tacoma, if possible, between Tacoma and Burrard Inlet, instead of between Tacoma and Victoria. It is stated that the three main points which guided the deputation in arguing their case for a direct service were, that it is usual for the C.P.R. to lay up one of its steamships at this time of the year, the impossibility of creating travel between Tacoma and British Columbia unless a first class steamship is put in service, and the fact that U.S. regulations do not permit of Canadian vessels calling at two consecutive ports in the U.S. The last mentioned difficulty may be removed shortly, as the U.S. Government is considering the modification of its regulations so as to permit Canadian vessels to engage in U.S. coasting service, except between Alaska ports.

The International Shipbuilding Corporation, Ltd., which was incorporated recently with head office at Montreal, has removed its head office to Newcastle, N.B.

Great Lakes Vessels for Ocean Service.

Following the lead given by several of the Dominion transportation companies operating on the Great Lakes the United States Emergency Fleet Corporation is arranging for all available U. S. vessels used in Great Lakes service to be transferred to salt water. On Oct. 12, thirteen steamships of 32,768 gross tons, had been ordered to proceed to dry docks, there to be cut in two to allow of passage through the Welland Canal. These vessels are all of the passenger and packet freight type, as the intention is to interfere with the bulk freight traffic as little as possible. Following are the names of the vessels, with the owning companies: Great Lakes Transit Corporation—Codorus, Mahoning, Northern King, Northern Light, Northern Queen, Northern Wave, North Wind; Lehigh Valley Transportation Co.—Bethlehem, Saranac, Seneca, Tuscarora; Crosby Transportation Co.—America; Chicago, Milwaukee and Racine Line—Minnesota.

Some of these vessels have already been, and the others will be, cut in two, at some U. S. port on the Great Lakes, and rejoined at a Canadian port on the St. Lawrence. The Dominion Government, through the Marine Department, is working with the U. S. Shipping Board in transferring the vessels, and it is announced that some of them will be rejoined at the Canadian Vickers yards at Maisonneuve, Montreal, and some at the Dominion Government dockyard at Sorel, Que., and negotiations are in progress with a view to ascertaining whether the dry dock at Quebec will be able to take care of a number of these vessels. It is also stated in a press dispatch from Buffalo, N.Y., that the U.S. Government has taken over the ship repair equipment of the Lake Shipbuilding Co., there, for transfer to Montreal, to assist in joining the vessels there, that a staff of 100 expert ship mechanics will accompany the plant to Montreal, and that the work will be under the general supervision of John Smith, marine surveyor, Cleveland, Ohio.

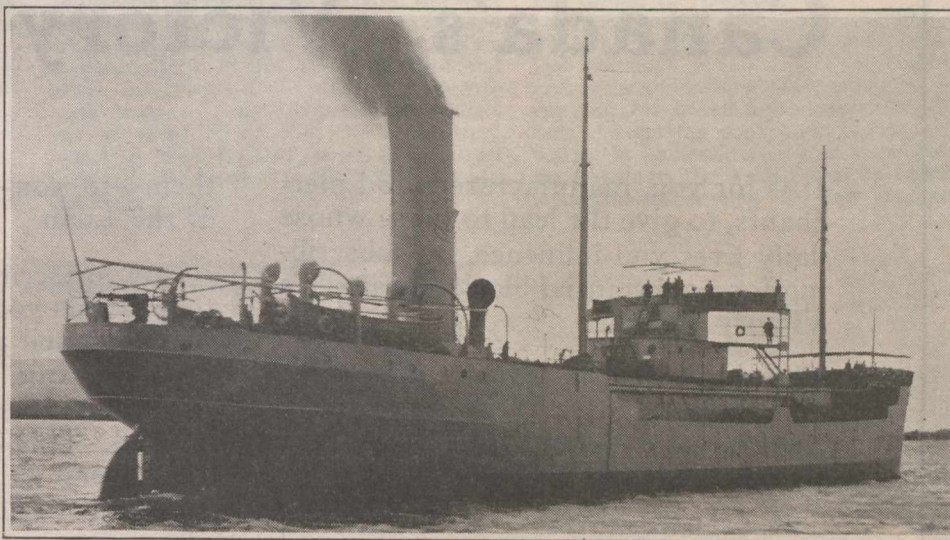
As announced in Canadian Railway and Marine World for October, arrangements have been made for the utilization of several of the steamships under the management of Canada Steamship Lines, Ltd., in ocean service. Three vessels owned by Canadian Northern Steamships Ltd., viz., A. E. Ames, Beaverton and H. M. Pellatt, and managed by Canada Steamship Lines, are practically ready for ocean service. The s.s. H. M. Pellatt was overhauled and strengthened at Kingston, Ont., and then proceeded to Oswego, N.Y., for coal for Montreal, after which she proceeded to the coast. The s.s. A. E. Ames was at Kingston during October for general overhaul and preparation for similar service, and the s.s. Beaverton was handled at Buffalo, N.Y. The steamships Calgarian and Hamiltonian, owned by Canada Steamship Lines Ltd., are also being overhauled for ocean service, and it is stated that all five vessels will be cleared for the ocean before the close of the St. Lawrence season.

Of the three other steamships owned by Canadian Northern Steamships Ltd., which it was stated in our last issue would be transferred to ocean service, it is reported that a decision has been arrived at that in the case of the s.s. J. H. Plummer, the cost of the necessary alterations to fit her for ocean service was considered too great, and she has therefore not been taken. The steamships

Mapleton and Saskatoon have been running during the summer between Sydney and Montreal in the coal trade, and as soon as navigation on the St. Lawrence is closed for the winter, they will be placed in ocean service.

Imperial Oil Co's Tank Steamships.

The Imperial Oil Co.'s oil tank s.s. Reginolite was given her trial trip on Sept. 30 by the builders, the Collingwood Shipbuilding Co. The vessel, which is intended for ocean service exclusively, is 250 ft. long, 43¾ ft. broad and 25 ft. deep. Her length is divided into five cargo tanks and a longitudinal centreline bulkhead running the full length making 10 oil tanks in all. A fuel oil bunker is fitted immediately in front of the boiler room and



The Imperial Oil Co.'s Steamship Reginolite on her trial trip, Sept. 30, 1917.

a cofferdam separates this from the main cargo tanks.

The main propelling machinery consists of one set of triple expansion engines, having cylinders 18, 30 and 50 in. by 36 in. stroke, steam being supplied by 2 single-ended Scotch boilers, 13½ ft. diam. by 11 ft. long, the steam pressure being 180 lb. working under natural draft. The oil pumping arrangement is of the most elaborate kind of design to handle the cargo in the most expeditious manner.

The trials, although carried out in stormy weather, were highly successful, the guaranteed speed being exceeded by 1½ knots. This is the fourth oil tank steamer the Imperial Oil Co. has had built at Collingwood. The fifth vessel, the Tal-aralite, precisely similar to the Reginolite, was launched Oct. 18.

Mainly About Marine People.

R. S. Gourlay, one of the Toronto Harbor Commissioners, has been re-appointed for three years, by the Dominion Government.

F. H. Sheppard, M.P. for Nanaimo, B.C., in the last Parliament, has been appointed Inspector of Dredging in British Columbia.

M. Cussen, Assistant to Comptroller, Canada Steamship Lines, Ltd., Montreal, has also been appointed General Traffic Auditor, Northern Navigation Co.

W. J. Connors, of Buffalo, N.Y., will probably be put in charge of unloading U.S. transports and supply ships in

France and to supervise the work of three regiments of stevedores and longshoremen now about organized.

Michael P. Fennell, Jr., who has been appointed Secretary-Treasurer and Comptroller, Montreal Harbor Commission, Montreal, was born there, Mar. 13, 1885, and entered transportation service in 1902, after completing a course at McGill University. He was, from Jan. to Sept., 1902, secretary to Master Mechanic, G.T.R., Montreal; Sept., 1902, to Apr., 1903, secretary to Freight Traffic Manager, G.T.R., Montreal; Apr., 1903, to Jan., 1907, secretary and accountant, Engineering Department, Montreal Harbor Commission; Jan., 1907, to June, 1909, Assistant to President; June, 1909, to Sept. 24, 1917, Assistant Secretary-Treasurer. He is also Hon. Secretary-Treasurer of the Navy League of Canada; Hon. Secre-

tary of the British Sailors' Relief Fund, and Hon. Provincial Naval Recruiting Secretary.

Lights and Signals on the Great Lakes.

All Canadian lights and fog alarms on Lake Superior will be kept in operation until the close of navigation, with the exception of those at Caribou Island, Otter Island, Quebec Harbor, Michipicoten Island, Michipicoten Island east end, Gargantua, Michipicoten Harbor, Corbeil Point and Ile Parisienne, which may be closed Dec. 20; and those at Slate Island, Battle Island, Lamb Island, Shaganash, Point Porphyry, Thunder Cape, Welcome Island, Pie Island and Victoria Island, which will be closed after the last sailing to or from Port Arthur and Fort William.

All Canadian lights and fog alarms on Lake Huron, Georgian Bay, Lake St. Clair, Lake Erie, Lake Ontario and connecting waters, will be maintained in operation until the close of navigation, except the southeast shoal lightship on Lake Erie, which will be removed Dec. 12, and the Lonely Island light, Georgian Bay, which may be closed before the general close of navigation.

All gas buoys and other floating aids to navigation will be maintained in position as long as ice conditions will permit, and in cases where it is necessary to remove gas buoys before the close of navigation, the more important points will be marked by spars.

Canada is Now a Creditor Nation

Help Her to Maintain this Position
By Subscribing for Large Blocks of

Canada's Victory Bonds

It is for you, manufacturers and merchants, to give the lead to those whose daily lives you influence, by subscribing for a substantial block of Canada's Victory Bonds.

The simple fact is, Canada must have more money to carry on her part in the war and extend credit to Great Britain and our Allies.

This Canada must do if our industrial, commercial and agricultural activity is to be maintained.

Since Canada can no longer borrow abroad, the money must be secured here.

Fortunately the money is here. It only remains to get the hundreds of thousands of people with savings to realize what it means to Canada—to

them—to you—to insure the success of the Loan.

By subscribing for Canada's Victory Bonds yourself, and tactfully explaining their merits to your employees—you can insure the Bond issue becoming an overwhelming popular success. This Canada relies upon you and every other manufacturer and merchant to do.

So surely as Canada's Soldiers in the Front line trenches are fighting for Freedom, so in a lesser degree do they fight who lend their money to support Canada's Armies in the field.

Money fights to-day, and it is the bounden duty of every Canadian to back Canada's part in the war by buying Canada's Victory Bonds.

Decide now that your concern will take a big block of Canada's Victory Bonds and that your whole establishment will be organized in support of the Loan.

Issued by Canada's Victory Loan Committee
in co-operation with the Minister of Finance
of the Dominion of Canada.