

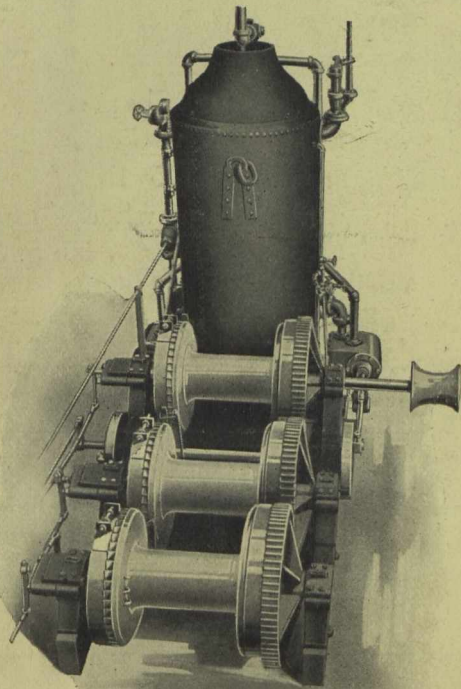
# Canadian Railway AND Marine World

ESTABLISHED 1898.

Number 207

TORONTO, CANADA, MAY, 1915

Subscription Rates, Page 179



Standard Triple Drum Hoisting Engine.

This season, as in the past, we are prepared to give prompt service, having a large stock of finished plant on hand.

Hoisting Engines, in sizes from 5 x 8 to 8 x 12, with or without boiler, all ready for shipment.

Large stock of Derrick Fittings on hand.

Prompt delivery on Centrifugal Sand and Water Pumps.

"Faivrette" Clamshell Buckets ready to go forward upon receipt of order.

Let us hear from you when your requirements call for standard or special equipment for Hoisting, Excavating, Dredging and Material Handling.

Send for General Catalogue No. 21.

## M. BEATTY & SONS, Limited

WELLAND

CANADA

— Established 1862 —

## The Low Cost of *Beatty-Made* Equipment

Don't make the mistake this season of permitting initial cost to control your selection of machinery.

Results prove that equipment of Beatty-Make is cheaper in the end.

### The Reason!

You are assured of Constant Service.

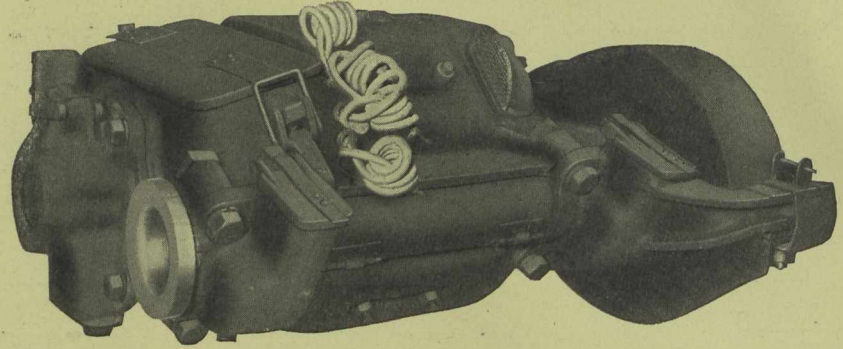
### Immediate Shipment



"FAIVRETTE" TYPE "D" Dredging Clamshell. For excavating and heavy handling duty.

We also make the "FAIVRETTE" in a lighter weight type for handling such materials as sand, gravel, crushed stone, coal, etc.

An exceptionally cool running railway motor; very economical in maintenance cost and power consumption—



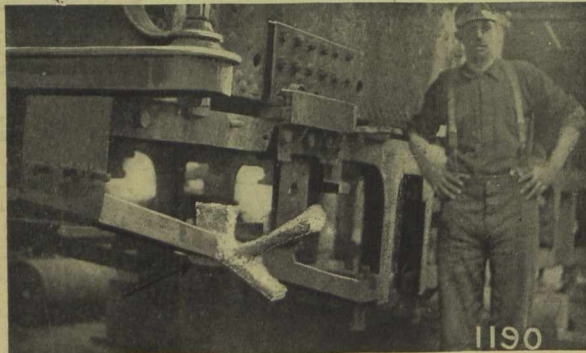
## Westinghouse No. 533 Commutating-Pole Railway Motor

Refinements in the manufacture of castings and the use of pressed-steel shapes made possible the production of a comparatively light-weight motor without any sacrifice in strength and durability. Weight, with gear case 2575 lbs. Capacity 45 h.p. at 500 volts, 54 h.p. at 600 volts. For minimum wheel diameter of 28 inches.

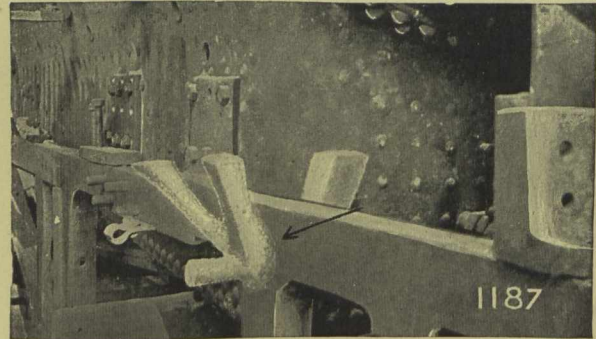
**Canadian Westinghouse Company, Limited, Hamilton, Ontario**

TORONTO MONTREAL OTTAWA HALIFAX FT. WILLIAM WINNIPEG CALGARY EDMONTON VANCOUVER  
Traders Bank Bldg. 52 Victoria Square Ahearn & Soper, Ltd. Telephone Bldg. Telfer Bldg. 158 Portage Ave. E. Grain Exchange Bldg. Dominion Bldg. Bank of Ottawa Bldg.

## Difficult Frame Welding Made Easy with Thermit



Finished Thermit Weld on Engine No. 802 of the Grand Trunk Pacific, Transcona, Man.



Frame Welded with Thermit by the Illinois Central, Centralia, Ill.

You can weld a frame quickly and economically with Thermit, whether it is broken in the splice, under the fire box, close up to the cylinder, or at any other point. It is not necessary to take the frame down, as all welds can be made with the frame in place.

No other process of welding is so quick and uniformly efficient and economical in operation as the Thermit Process. The proof is in the fact that to-day 435 railroad shops in North America are using Thermit and returning their engines to service in from 10 to 24 hours.

We have just issued a new pamphlet of instructions for the use of Thermit in railroad shops, known as Pamphlet No. 2144. This should be in the hands of every railroad man, as it tells how and why the Thermit Process of welding will save thousands of dollars every year in repair costs. Write for it to-day.

## GOLDSCHMIDT THERMIT COMPANY

103 Richmond St. W., Toronto, Ont.  
90 West Street, New York

WILLIAM C. CUNTZ, Gen. Mgr.

329-333 Folsom Street, San Francisco  
7300 South Chicago Avenue, Chicago

# Galena-Signal Oil Company

Works

**Franklin, Pa., and Toronto, Ont.**

Canadian Sales Office—603 Shaughnessy Bldg., Montreal, Que.

Sole manufacturers of the celebrated GALENA COACH, ENGINE and CAR OILS, and SIBLEY'S PERFECTION VALVE and SIGNAL OILS.

GUARANTEE COST per thousand miles for from one to five years, when conditions warrant it.

Maintain EXPERT DEPARTMENT, which is an organization of skilled railway mechanics of wide and varied experience. Services of Experts furnished free of charge to patrons interested in the economical use of oils.

## STREET RAILWAY LUBRICATION A SPECIALTY

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USE

### Galena Railway Safety Oil

in Headlights, Marker and Classification Lamps, to secure Efficiency of Service, Maximum Candle Power, Clearness of Light.

### Galena Long Time Burner Oil

for use in Switch and Semaphore Lamps, and all lamps for long time burning, to avoid smoked and cracked chimneys and crusted wicks.

Tests and Correspondence Solicited.

**S. A. MEGEATH,**  
PRESIDENT.

# The Steel Company of Canada, Limited

## HAMILTON, CANADA

### Special Steel Marine Forgings

When forgings are required to stand the strain of rough weather, and to prove themselves reliable and dependable, write us for particulars and prices.

We have the facilities for the production of heavy steel forgings of all kinds, including:

Connecting Rods

Crank Shafts

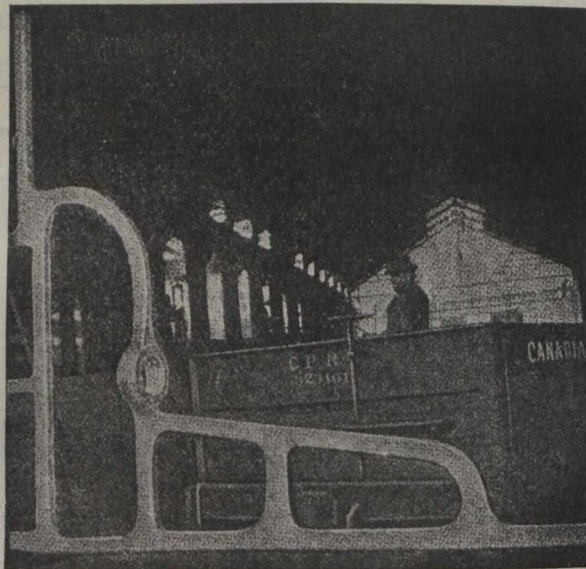
Eccentric or  
Cam Forgings

Marine Engine  
Forgings

Piston Heads

Piston Rods

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**Stern Frame of Steamship Hamonic**

Rounds

Squares

Rudder Frames

Stern Frames

Side Rods

Steam Engine  
Forgings

*District Sales Offices:*

**HAMILTON**

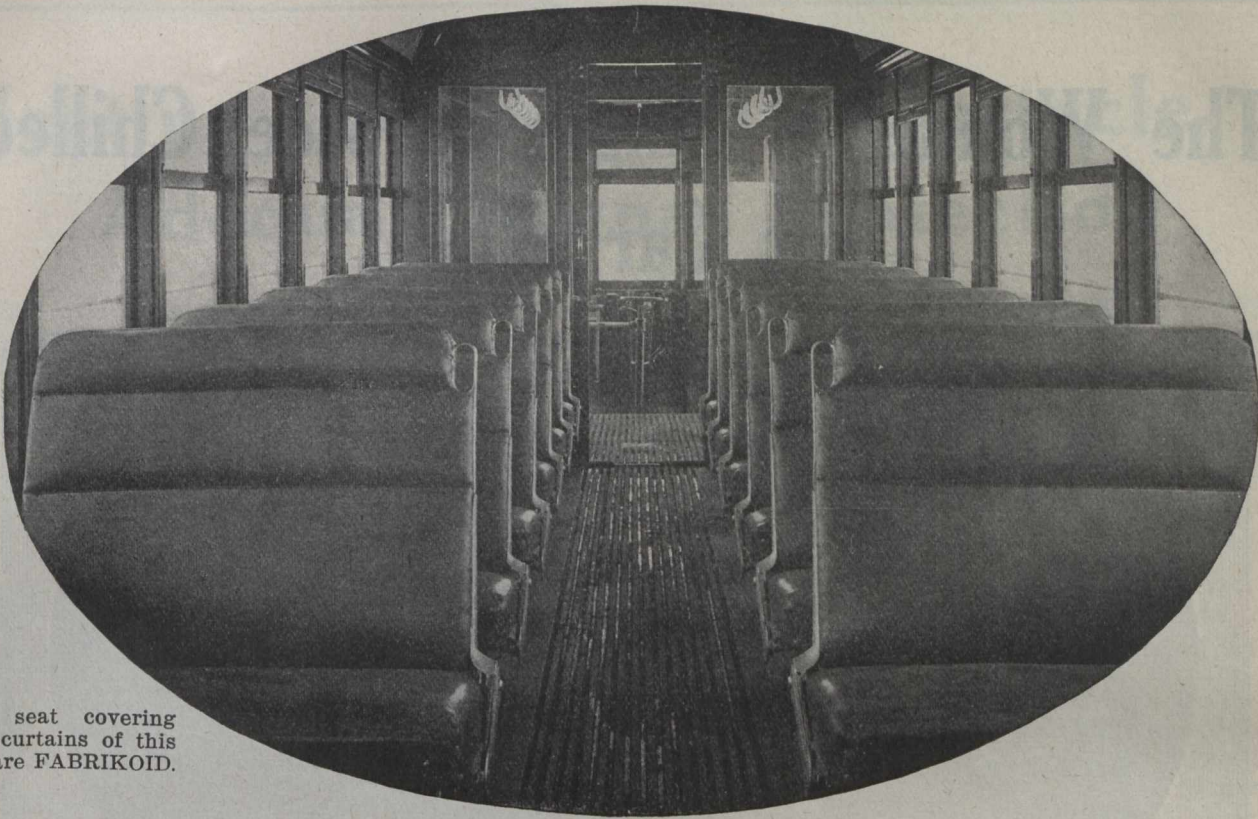
**MONTREAL**

**TORONTO**

**WINNIPEG**

W. A. MacLennan, Vancouver, B.C.  
J. B. H. Rickaby, Victoria, B.C.

H. G. Rogers, St. John, N.B.  
Geo. D. Hatfield, Halifax, N.S.



The seat covering and curtains of this car are FABRIKOID.

## Cut Your Car Seating Maintenance Costs

You know what car seating maintenance costs! Besides, you surely know the initial cost of leather upholstery. Investigate.



REG. U. S. PAT. OFF.

Note its handsome appearance—soft, pliable and attractive; any shade and any grain you want. Bear these facts in mind:

- Fabrikoid Is Sanitary, Comfortable, Attractive.
- Fabrikoid Does Not Split or Crack.
- Fabrikoid Is Impervious to Water.
- Fabrikoid Can Be Cleaned with Soap and Water.
- Fabrikoid Is Made in Many Weights, Widths, Patterns and Colors.

Some of the leading railroads are using FABRIKOID for car seating and locomotive cab seats. Convince yourself and write for samples.

As one prominent railway man said: "The designs and patterns of Fabrikoid surprise me."

## DuPont Fabrikoid Company

WILMINGTON, DELAWARE

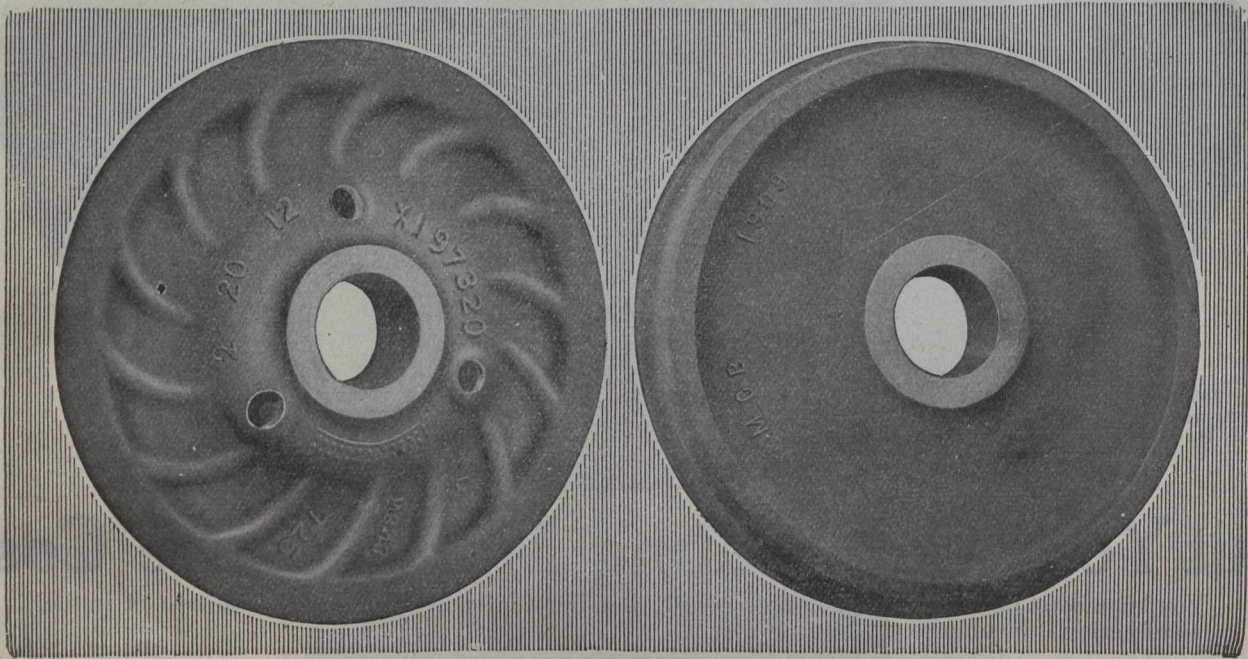
Factories at Newburgh, N. Y. and Toronto, Canada

WENDELL & MacDUFFIE CO.

R. R. Department Representatives

60 Broadway, New York, N. Y.

# The Wonderful Single Service Chilled Iron Car Wheel



**M.C.B. STANDARD 725-LB. CHILLED IRON WHEEL FOR 100,000-LB. CAPACITY CARS.**

Single service means a wheel applied and allowed to run its life without any repairs whatever, such as turning.

Contrasted with multiple wear wheels, this means that no heavy investment in lathes is necessary, and the maintenance expense is assured, because all Chilled Iron Wheels carry a minimum guaranteed mileage or time service.

It is a recognized fact that no other type of wheel can carry as heavy a burden as the Chilled Iron Wheel and maintain its rotundity, and the reason is that Chilled Iron will not crush or flow under heavy loads.

## **THE WONDERFUL SINGLE SERVICE CHILLED IRON CAR WHEEL.**

Twenty-five Million now running.

**Association of Manufacturers of Chilled Car Wheels**  
**1214 McCormick Building, Chicago**

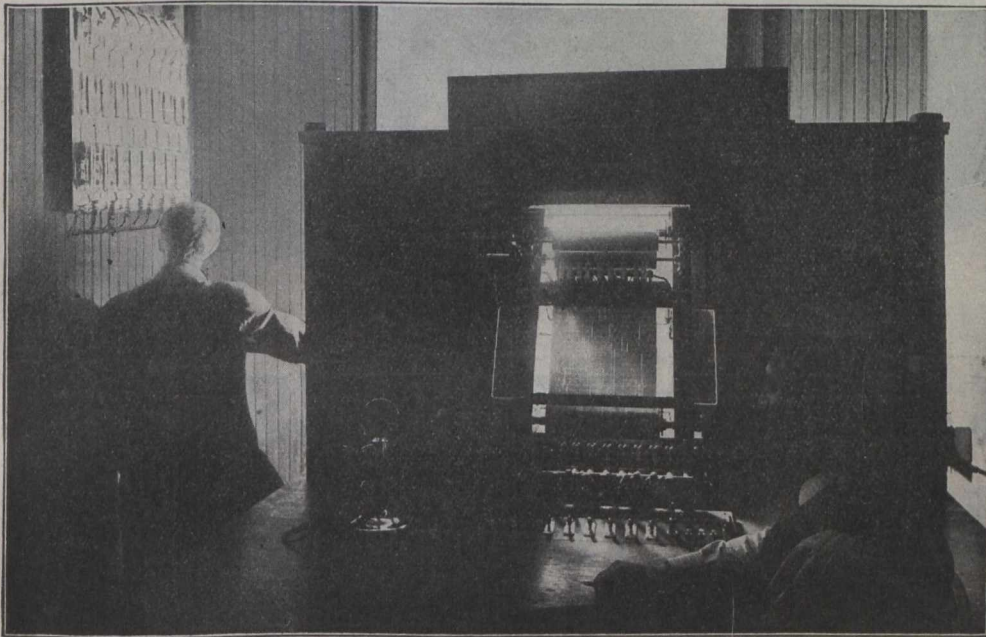
Representing forty-eight wheel foundries located throughout the United States and Canada. Capacity 20,000 chilled iron car wheels per day.

# Meeting One Financial Obstacle to Adequate Signal Protection

There is little doubt that there would be a tremendously greater amount of mileage protected by automatic block if first cost were the only difficulty to be encountered. The great difficulty, however, in the universal use of fixed automatic block signals is found in the continuous cost of maintenance.

The advantage in this respect of

## Simmen Automatic Block Cab Signals



is shown by the fact that none of the four roads which are operating the Simmen System have found it necessary to provide any special organization or additional labor for inspection purposes.

The reason for this is that the track and overhead installation of the Simmen System is so simple (involving no apparatus along the track except standard telephone overhead construction and simple signal rails) that the regular track and line maintenance labor is ample to care for these elements.

All operating electrical apparatus is either in the cab or in the dispatcher's office.

The cab apparatus is easily inspected when the car is in for regular inspection.

The apparatus in the dispatcher's office is readily inspected and cared for by the dispatcher, with the occasional assistance of a lineman.

This enormous comparative saving in maintenance costs is proved by the experience of the four roads on which the **Simmen System** is now, and has for some time been, standardized.

The importance of this fact in any signal installation is obvious.

## THE NORTHEY-SIMMEN SIGNAL CO., Ltd.

### TORONTO

Simmen Automatic Railway Signal Co., Buffalo



and travel via THE

## CANADIAN ROCKIES

to the

### PANAMA PACIFIC EXPOSITION

If you are planning your 1915 trip to San Francisco, make sure your ticket reads via Canadian Pacific, otherwise you will miss the grandeur beauty of nature's most stupendous works—The Canadian Rockies.

**BANFF LAKE LOUISE FIELD GLACIER**

Are important tourist stop-over points on the Canadian Pacific Railway route to the Pacific Coast. These have excellent hotel accommodation, with opportunities for riding, climbing, swimming, boating and golf.

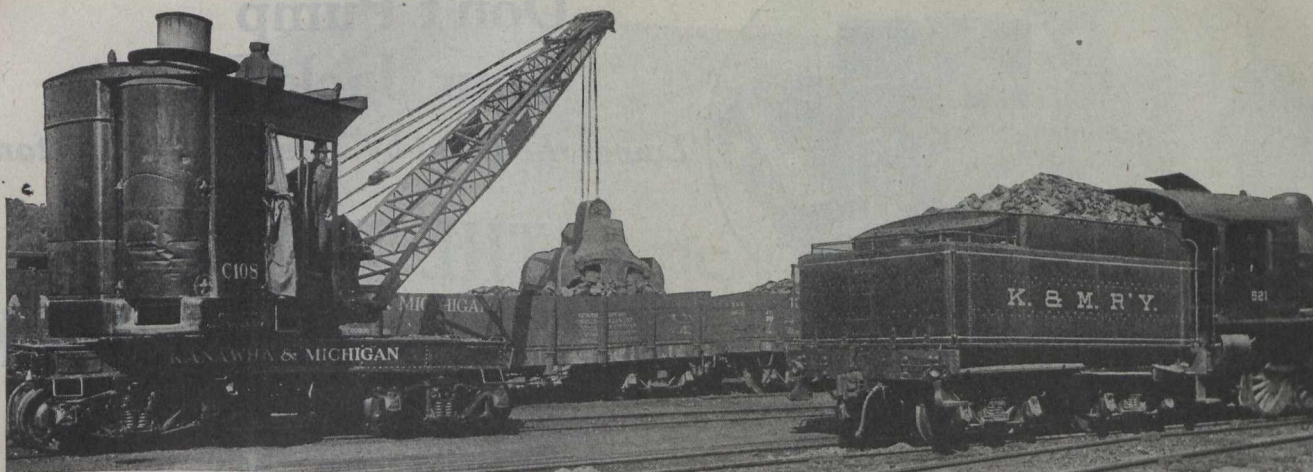
Agents will personally call on you to arrange your itinerary.

Write, phone or call on nearest C. P. R. Representative.

**W. FULTON**  
Asst. Dist. Passenger Agent  
Toronto

**M. G. MURPHY**  
Dist. Pass'r. Agent  
Toronto





When you are depending upon a locomotive crane for handling your coal you realize that it must be a **good** crane. You cannot have the crane continually breaking down, as it means a big loss in time.

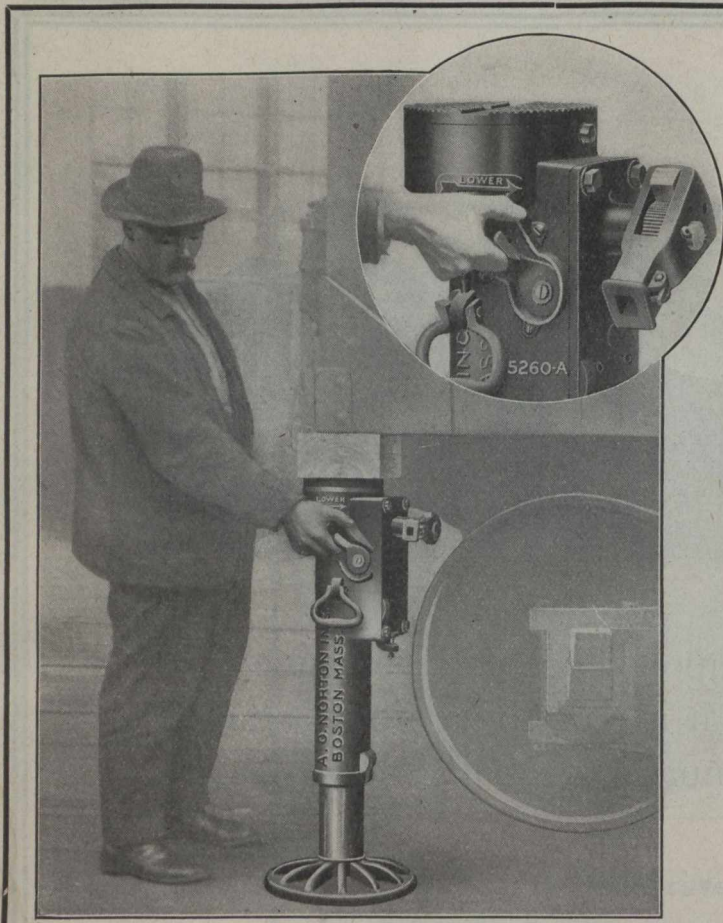
## BROWNHOIST Locomotive Cranes

are being used to-day by railroad men because they realize that these cranes will do their work as it should be done. One road uses thirty of them. These cranes are built for hard, continuous service. And records prove that they will stand up under the severe working conditions. Ask the owners—they will tell you what Brownhoist cranes will do.

Write for our Catalog K, which shows how and where the Brownhoist Locomotive Crane is used.

**THE BROWN HOISTING MACHINERY CO.**  
CLEVELAND, OHIO

MONTREAL OFFICE, 145 St. James Street



## Don't Pump Your Jack Down

*Lower the Load by "Pressing the Button"*

# THE NORTON SELF LOWERING JACK

is absolutely Safe and will do your work **Quicker** and **Easier** than you have ever done it before.

Send for Illustrated Catalogue No. 28

**A. O. NORTON, Limited**  
Coaticook, Prov. Que., Canada

Stock Carried by Canadian Agents: **MUSSENS LIMITED**  
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# GENERAL SERVICE CARS

## OTIS DUMP CARS

— PATENTED —

— PAMPHLET No. 16 TELLS ABOUT THEM —

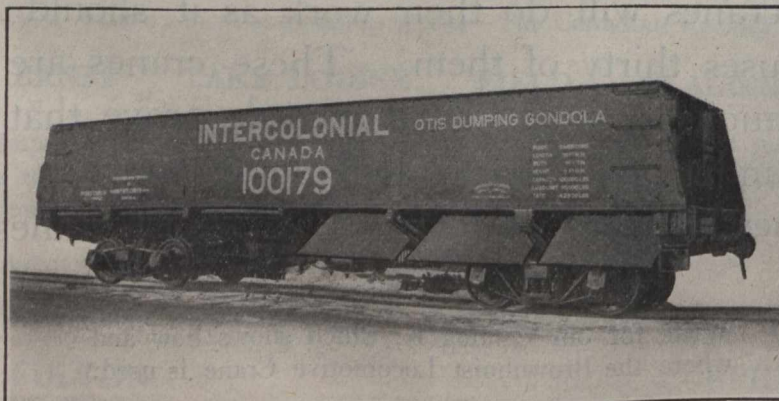
Always Ready For  
Use

One Man Operation

Simplest, Safest and  
Best Door Operating  
Gear

Largest Unobstructed  
Door Opening

Dumps Clear of the  
Rail



THE STANDARD COAL CAR ON CANADA'S LEADING RAILROADS.

Built in Any Size  
or Capacity

All Steel, Wood or  
Composite

For Standard or  
Special Service

Thousands in Use

THE MOST PRACTICAL CAR FOR ALL BULK FREIGHT.  
A DUMPING GONDOLA FOR ALL SERVICES.

DESIGNED AND BUILT BY

**THE HART-OTIS CAR CO., LIMITED : MONTREAL**

—SOLE PATENTEES FOR GENERAL SERVICE CARS FOR CANADA—



# Copper, Plus

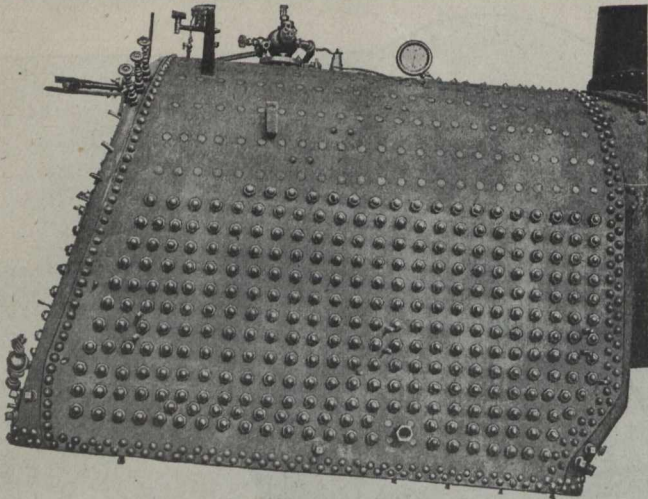
Copper + constant study of bonding problems and manufacturing methods + care in manufacture + rigid inspection + proper packing + the pride of a complete factory organization = O-B Rail Bonds.

All those things that we put into O-B Bonds result in actual service to the users.

*There is an O-B Bond for every condition.*

**The Ohio Brass Co.**  
Mansfield, Ohio





## The Perfect Stay

*For Locomotive Fire Boxes*

## Tate Flexible Staybolts

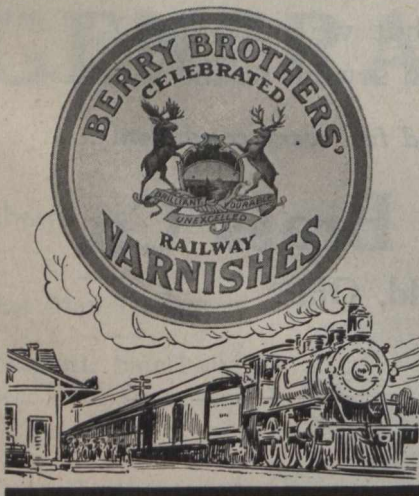
Are now in use on 425 Railroads of the United States as well as the main Railroad Systems of Canada.

RECOGNIZED AS THE MOST ECONOMIC FLEXIBLE STAYBOLT now in the market, because the Tate Bolt has demonstrated its true functions as a mechanical appliance to service fire box requirements.

MANY RAILROAD SYSTEMS have kept accurate service records and show remarkable increase in the earning power of the locomotives that have been equipped with complete installations of the Tate Flexible Staybolt.

**FLANNERY BOLT COMPANY, Vanadium Building, Pittsburgh, Pa.**

Manufactured and sold in Canada by Canadian Allis-Chalmers, Limited, General Offices, Toronto, Ont.



## Berry Brothers' Railway Varnishes

*(A combination of Efficiency and Economy)*

The use of Berry Brothers' Railway Varnishes is not only a measure of efficiency, but one of economy also.

Our Finishing and Rubbing Varnishes for coaches and locomotives are the perfected results of fifty-seven years' experience in varnish making.

They make the highest finishing possibilities sure and easy.

**Here are a few Berry Brothers' products you should know**

Outside Coach Finishing

Inside Coach Finishing

Locomotive Finishing

Outside Coach Rubbing

Inside Coach Rubbing

Locomotive Rubbing

*Let us send you a catalogue of our railway varnishes*

**BERRY BROTHERS**  
(INCORPORATED)  
**World's Largest Varnish Makers**

WALKERVILLE

ONTARIO

## The Science of Water Treatment

The Dearborn Company was organized because of the conviction on part of its founders that a scientific handling of the water treatment question was the only solution for the steam user of the troubles constantly arising as a result of scale formation, foaming, corrosion and pitting of boiler tubes, with all the attendant injury to the boilers, loss of heating efficiency, and waste of fuel.

Periodical removal of scale is unsatisfactory since there is a constantly increasing ratio of heat loss and fuel waste—as the scale gradually forms—aside from the injury to the boilers.

The Practical Method is **Prevention** and this can be effectively done only by attacking the mineral ingredients in the water with the proper reagents, changing their nature and character and eliminating their harmful qualities.

The application of scientific knowledge is most important in the choosing of reagents. Provision must be made for the various minerals present in the water, determined by analysis, as well as for the by-products that will be formed as a result of reactions brought about. Failure to give this phase due consideration may result in more serious trouble than the first condition of the water produced.

Unscientific "dope" compounds, ineffective and often harmful, have caused steam users endless annoyance and trouble.

We'd like an opportunity to demonstrate results by our methods. Gallon samples of the water supplies for analysis constitute the first step. May we have them?

### Dearborn Chemical Company of Canada, Limited

Office and Works,  
1220-1230 Dundas Street, TORONTO, ONT.



#### GRAND TRUNK HOTELS

**The Chateau Laurier, Ottawa, Ont.**  
Accommodation, 350 rooms. Rates  
\$2.00 per day and upwards, European Plan.

**The Fort Garry, Winnipeg, Man.**  
Accommodation, 300 rooms. Rates  
\$2.00 per day and upwards. European Plan.

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The Qu'Appelle, Regina.  
The Prince Rupert, Prince Rupert.

G. T. BELL,  
Passenger Traffic Manager,  
Montreal, Que.

#### EXCELLENCE COUNTS!

## Excellence in Railway Service

is expressed in what the

### Grand Trunk System The Double Track Route

is offering the Travelling Public of Canada.

**Unexcelled Road Bed**  
**Superior Dining Car Service**  
**Courteous Attention**  
**Modern Equipment**

The Grand Trunk System reaches all trade centres in Eastern Canada, and is now a large factor in Western Canada traffic through the Grand Trunk Pacific Railway, recently completed to the Pacific coast.

W. P. HINTON,  
Assistant Passenger Traffic Manager,  
Montreal, Que.

MODERN HIGH-CLASS  
**ROLLING STOCK**



Passenger, Freight  
 and  
 Electric Railway,  
 Car Castings,  
 Forgings and Repair  
 Parts.

**CROSSEN CAR COMPANY, LTD.**  
 COBOURG - ONTARIO

**"Made in Canada" for a Canadian Road**



Type of Caboose Car built for Pacific Great Eastern Railway

There is a "NATIONAL" Car for your requirements regardless of what they may be.

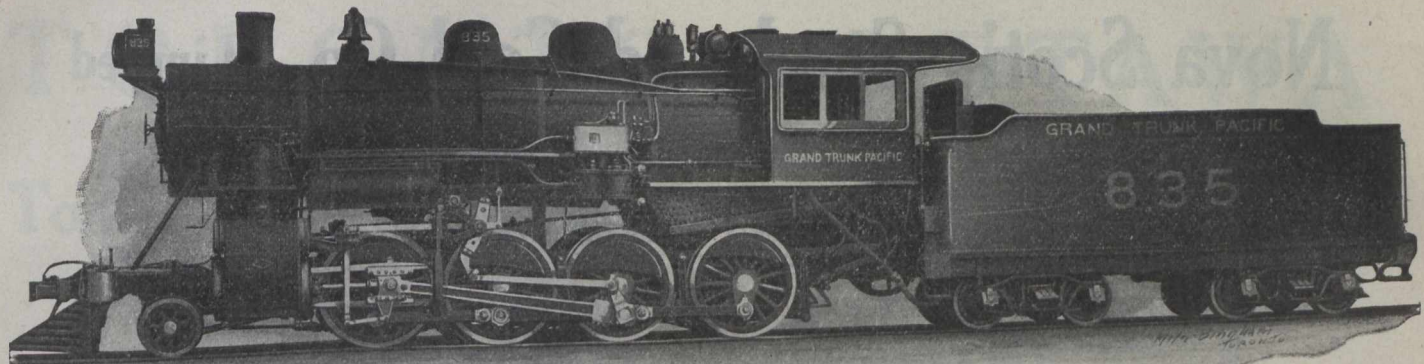
If your rolling stock bears a "NATIONAL" Trade Mark it is a sufficient guarantee that only first-class labor and materials have entered its construction.

**National Steel Car Company, Limited**

Montreal Office  
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Western Union Code  
 ADDRESS INQUIRIES TO HAMILTON

Works and Operating Offices  
 Hamilton, Canada



Consolidated Type Locomotive Built for Freight Service on the Grand Trunk Pacific Railway.

# LOCOMOTIVES

Long experience, new equipment, efficient management and expert workmen, are guarantees that our Locomotives will give record service. Over 1,200 Locomotives have been built at our Works since the erection of the plant. We are builders of Simple and Compound Locomotives adapted to every variety of service, for Railway Contractors, for Industrial Purposes, Mines, all classes of Railway Work, etc.

We are also builders of stationary boilers, suitable for contractors and industrial plants. Grey iron castings—any size or shape—ordinary or intricate—made promptly. New foundry, splendidly equipped. We would be pleased to quote on castings—singly or by contract. We also make drop forgings of all descriptions.

**CANADIAN LOCOMOTIVE CO., Limited, Kingston, Ontario**

# ANNOUNCEMENT

TO THE CANADIAN STREET RAILWAY COMPANIES

Wish to advise, we have opened a Canadian Plant for the manufacture of the

**KNUTSON Trolley Retriever**  
**IDEAL Catcher**  
**Pressed Steel Headlight**  
**SIMPLEX Trolley Base**

and other specialties and by February 25th, will be in a position to make shipment of our products from our Canadian Plant. Feel certain that this move will be appreciated by the Canadian Street Railway Companies and await the continuance of the valued patronage given us by the numerous lines in Canada.

**THE TROLLEY SUPPLY CO., Canton, Ohio**

# Nova Scotia Steel and Coal Co., Limited

*Manufacturers of*

MARINE, RAILWAY AND GENERAL ENGINEERING FORGINGS OF ALL SHAPES AND UP TO 40 TONS IN WEIGHT, MADE FROM BEST ORDINARY OR HARMET FLUID COMPRESSED OPEN-HEARTH STEEL. OUR FORGE IS EQUIPPED WITH THE MOST MODERN STEAM HYDRAULIC PRESSES.

*RAILWAY TRACK MATERIAL, fish plate, tie plate, track bolts, spikes, tee rails—12 to 40 lbs. per yard.*

ROLLED STEEL FOR CAR BUILDERS' USE: Spring, machinery, tire, angle, and merchant bar steel, bright compressed shafting, rivets, tank plate—12-gauge up to 1" and 50" wide cold twisted steel bars for reinforced concrete work.

ALSO MINERS AND SHIPPERS OF THE CELEBRATED "OLD SYDNEY" COAL.  
HIGH CALIFORIC VALUE—LOW ASH—UNEXCELLED FOR STEAM-RAISING PURPOSES.  
BEST HOUSE COAL MINED IN CANADA.

Collieries, Iron and Steel  
Furnaces:  
SYDNEY MINES, C.B.

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Finishing Mills, Forge, and  
Engineering Shops:  
NEW GLASGOW, N.S.

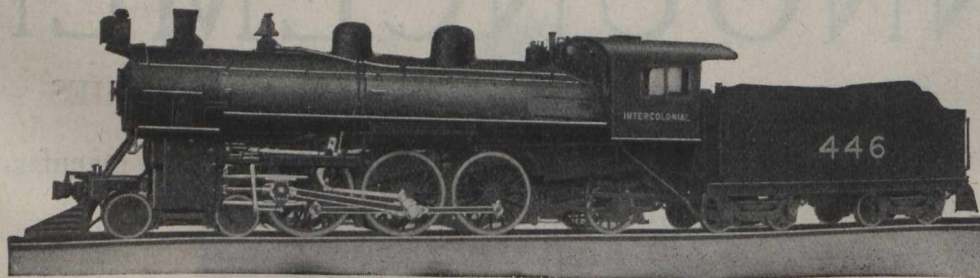
ENQUIRIES SOLICITED

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Head Office:  
**NEW GLASGOW, N.S.**

## Heavier Trains—Less Coal and Water Per Trip



PACIFIC TYPE LOCOMOTIVE — INTERCOLONIAL RAILWAY.

Total weight of engine, 243,500 pounds; weight on drivers, 154,000 pounds; diameter of drivers, 73 inches; boiler pressure, 180 pounds; cylinders, 23½ x 28 inches; maximum tractive power, 32,400 pounds.

On a 185 mile run at an average speed of 40 miles per hour, these new Pacific type locomotives handle 10 cars and consume 12,884 pounds of coal and 9,750 gallons of water per trip.

Pacific type locomotives built five years ago, handled 9 cars on this same run at the same speed, but consumed 17,620 pounds of coal and 14,250 gallons of water per trip.

This is a saving of 26.9 per cent. in coal and 31.6 per cent. in water, with one extra car.

**MONTREAL LOCOMOTIVE WORKS, LIMITED,**  
DOMINION EXPRESS BUILDING, MONTREAL, CANADA



# TORONTO - OTTAWA

SERVICE BETWEEN

## Toronto Union Station & Ottawa Central Station

In the heart of the Business District

Nearest to Principal Hotels and Places of Business

### ONE NIGHT FOR THE ROUND TRIP WITH A HALF DAY IN OTTAWA

Convenient Service to Port Hope, Cobourg, Colborne, Brighton, Trenton, Belleville, Napanee and Smith's Falls.

NIGHT TRAIN				DAY TRAIN			
	P.M.		A.M.		A.M.		P.M.
Leave TORONTO	11.00.....	Arrive OTTAWA	7.40	Leave TORONTO	10.20 .....	Arrive OTTAWA	7.05
Leave OTTAWA	11.00.....	Arrive TORONTO	7.30	Leave OTTAWA	NOON .....	Arrive TORONTO	9.15
	(Daily)				(Daily Except Sunday)		



Day trains leave at hours particularly attractive to ladies, also to business men who can attend to their morning mail before leaving Toronto.



## FOR PACKING



Style No. 3200

### THE GARLOCK PACKING CO.

HAMILTON ONTARIO

CALGARY  
TORONTO

BRANCHES:



MONTREAL  
WINNIPEG

Locomotive Throttles  
Use Garlock Style Number 3200.

Air Pump Piston Rods  
Use Garlock Style Number 2200.

Ball and Slip Joints  
Use Garlock Style Number 150.

Marine Engine Piston Rods  
Use Garlock Style Number 200.

Cold Water Piston Rods  
Use Garlock Style Number 99.

Inside Packed Plungers  
Use Garlock Style Number 260.

Outside Packed Plungers  
High Pressure Cold Water  
Use Garlock Style Number 960.

Outside Packed Plungers  
High Pressure Hot Water  
Use Garlock Style Number 1907.

These Packings are Guaranteed to give Satisfactory Service under the above conditions.

# PEDLAR'S "PERFECT" PRODUCTS

## MADE IN CANADA

### Permanent Construction on Right of Way

THE most effective and permanent construction on railway right of way obtained by installing

#### Pedlar's "PERFECT" Rivetted Culverts



They are thoroughly tested, and stand up under all kinds of climatic conditions.  
Made of extra heavy gauge "Toncan" Metal, in all sizes up to 84" diameter, with special deep and narrow corrugations, which will support heavy or continuous loads with a minimum of soil packing. The rivets also are heavily galvanized.

These culverts are rapidly laid; they reduce maintenance cost, and have the advantage over concrete of being frost-proof and plastic.

Pedlar's "Perfect" Perforated Drains, made from anti-corrosive "Toncan" Metal, eliminate all trouble at rail joints.

Large stocks always on hand for prompt shipment. Also made to order for special uses and specifications.

Write for Culvert Folder "R. M." and full information.  
Made in Canada.

#### The PEDLAR PEOPLE, Limited

Established 1861.  
Executive Office and Factories: Oshawa, Ont.  
Branches:  
Montreal—Ottawa—Toronto—London—Winnipeg.  
Address nearest Branch.



# MARTIN-SENOUR

## PAINTS AND VARNISHES

MADE IN CANADA



Marine Paint  
Deck Paint  
Hull Paint  
Copper Paint  
Seam Paint  
Mast Paint  
Dory Paint  
Signal Paint  
Smoke Stack Paint  
Bunker Paint

The Martin-Senour line of Marine Paints and Varnishes is the most complete line manufactured in Canada.

There is a Martin-Senour finish for every purpose from stem to gudgeon. Each product guaranteed to best serve the purpose for which it is made.

Write for our Marine Catalogue and Color Chart  
IT'S FULL OF INTEREST TO THE MARINE TRADE

Yacht Enamel  
Engine Enamel  
Canoe Enamel  
Deck Furniture Enamel  
Canvas Preservative  
Railing Black  
Ships Black  
Durable Boat Spar Varnish  
Boat Spar  
Cabin Finish

The MARTIN-SENOUR Co.

LIMITED

PRODUCERS OF PAINTS AND VARNISHES

CHICAGO    MONTREAL    WINNIPEG  
HALIFAX    • LINCOLN •    TORONTO




# The Sign of the Times



Enamelled iron signs are ideal for station name and station door signs.

They are much superior to a painted wooden sign, which has to be repainted at frequent intervals, and they last a lifetime.

There is absolutely no wear to them, and we guarantee that they will not fade or be affected by the weather in any way.

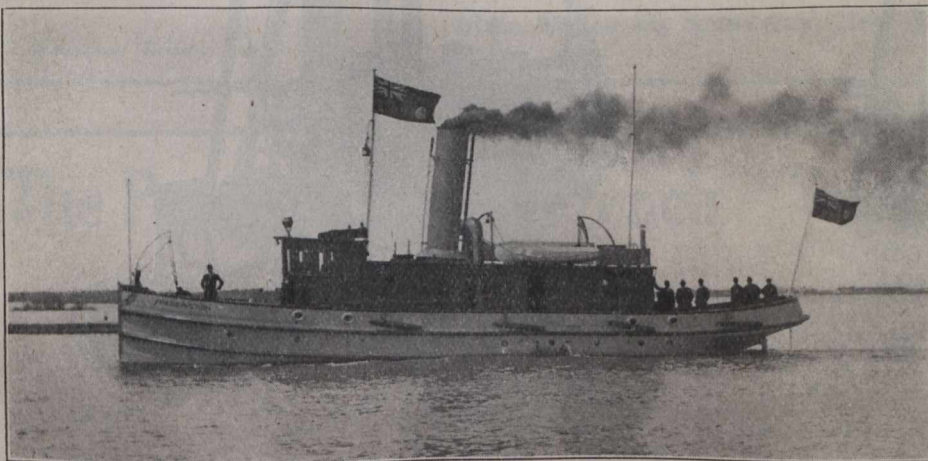
We will be pleased to quote you prices on request.

## Acton Burrows Limited

70 Bond Street, Toronto, Ont.

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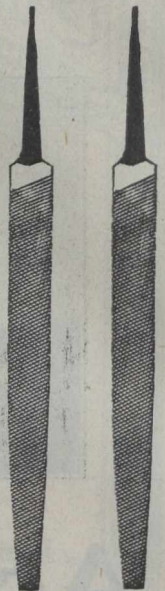
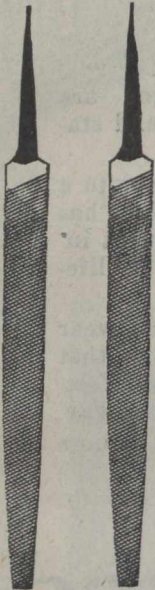
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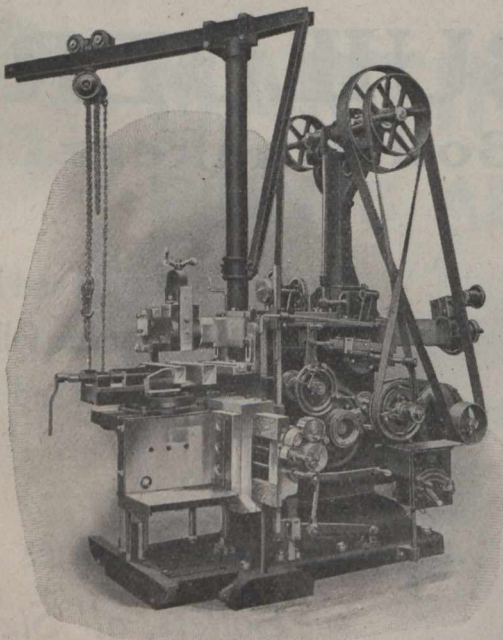
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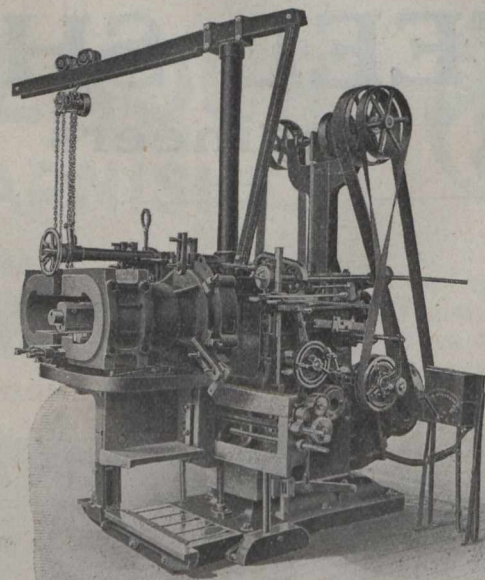
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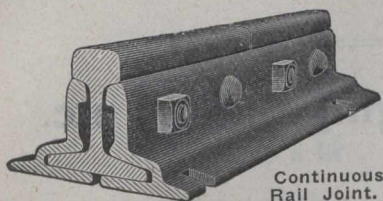
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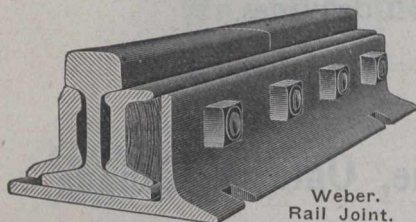
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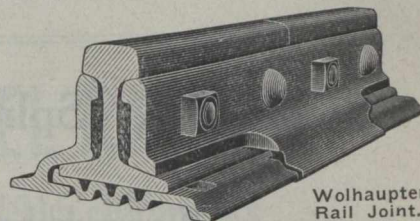
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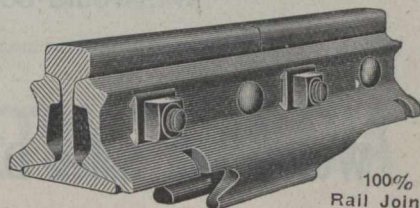
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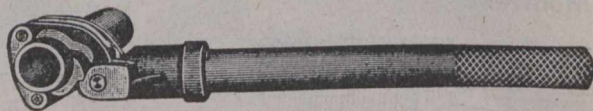
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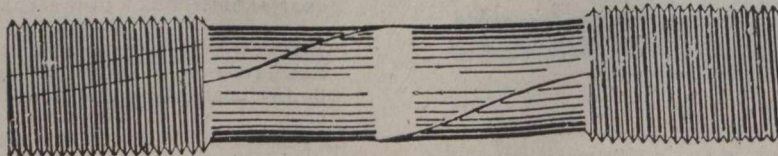
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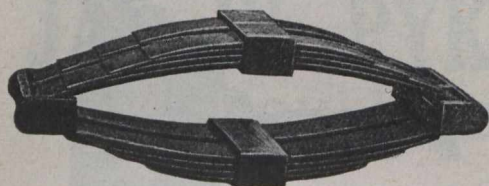
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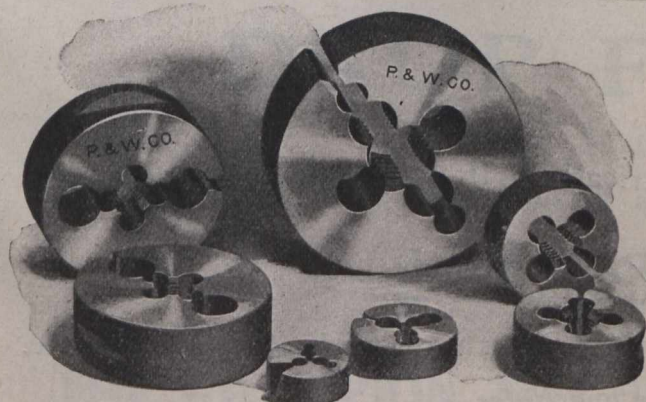
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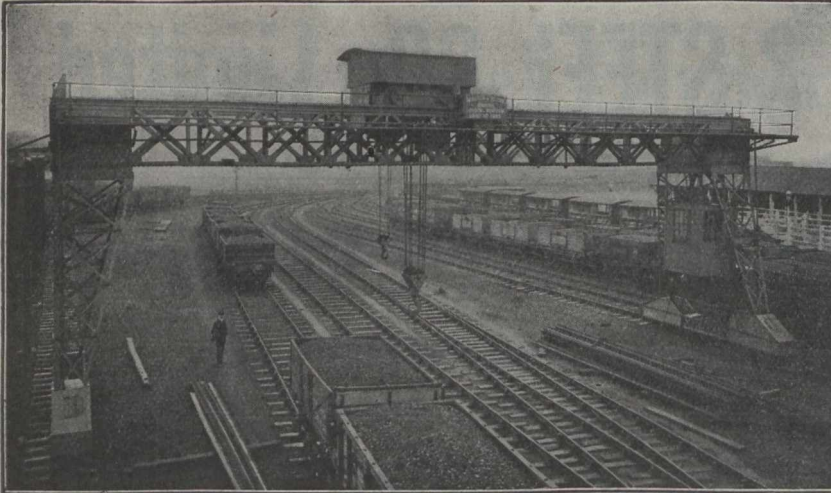
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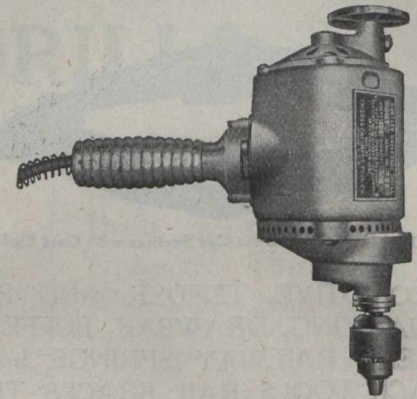
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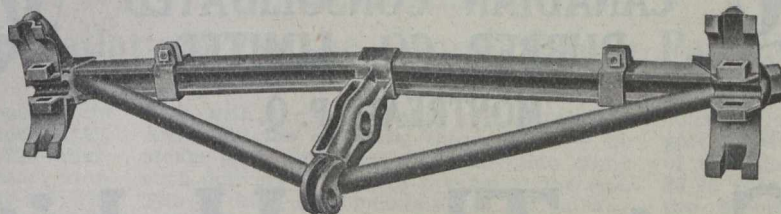


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# Canadian Railway and Marine World

May, 1915.

## Fuel Oil Installations on the Grand Trunk Pacific Railway.

The G.T.P. Ry. is planning to operate its newly opened line from Prince Rupert, B.C., as far east as Jasper, Alta., about 720 miles, with fuel oil, as soon as the necessary storage facilities are completed. The oil will be taken by vessel from Southern California to Prince Rupert, where large oil storage is being arranged by the oil company, as shown in the accompanying railway plan of Prince Rupert, fig. 1.

Adjoining the drydock property, there has been built an oil wharf, 80 x 150 ft., in line with section A of the drydock. On the other side of the oil wharf there are three tying piles at 75 ft. centres. Joining the wharf to the land, there is a 30 ft. wide pier, along one side of which, a timber ramp carries the five pipes shown in the lower right hand

each with a control valve, etc., as shown. Alongside the oil main, there is a 1½ in. steam pipe, with a ½ in. connection along each delivery pipe, with a valve at the end. The oil tank cars belonging to the railway company will be spotted under the delivery pipes, and when filled will be forwarded to supply fuel oil stations at Pacific, Smithers, Endako, Prince George, McBride and Jasper.

While oil has been used for locomotive fuel on other western roads for a number of years, it has not been under as extreme climatic conditions, the nearest approach being on the C.P.R., from 300 to 500 miles further south. The installations on the latter line were fully described in Canadian Railway and Marine World, Aug., 1912. Along the G.T.P.R., the temperature re-

construction, sheathed with corrugated galvanized iron, with an intervening layer of hair insulator. The smaller building is 20 ft. square and 35 ft. high, containing in the basement a receiving tank with a capacity for 8,400 imp. gals. (240 bbls.) On the ground floor level, there is a pair of 10 x 6 x 12 in. duplex pumps, with piping, etc., while elevated above on steel columns, there is a service tank, with a capacity for 21,000 imp. gals. (600 bbls.). The other building is of similar construction, but dodecagonal in form, 56 ft. across and 27 ft. high, containing a 52 ft. diam. storage tank, with a capacity for 350,000 gals. (10,000 bbls.). Both buildings rest on concrete foundations.

The unloading track as mentioned is be-

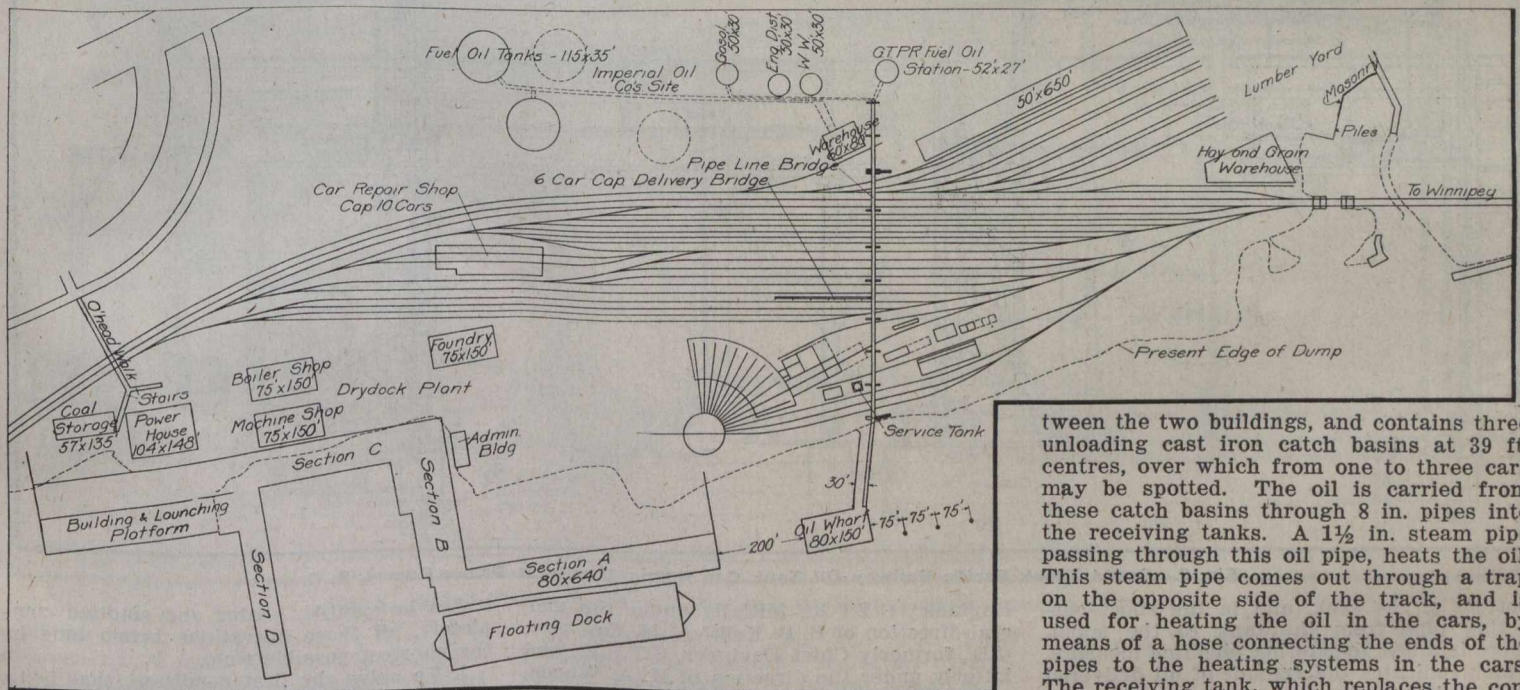


Fig. 1. Grand Trunk Pacific Railway Terminals at Prince Rupert, B. C., with Special Reference to the Oil Handling Facilities.

corner of fig. 2, to a bridge that crosses the tracks with a clearance of 22½ ft. above the rails. A cross section of this bridge is shown in the above view of the five pipes. It consists of six 74 ft., and three 83 ft. wooden through spans, 10 ft. deep between chords, and 5 ft. centre to centre of trusses. Between the trusses, there are carried three 8 in. pipes, with a 12 in. pipe on either side. Over top of the piping, there is a 3 in. flooring. Oil is taken over the bridge in these pipes to the several tanks located on the other side of the tracks.

For loading the tank cars for shipping the oil to the several divisional points, there is a delivery bridge, branching off from the pipe line bridge, with a capacity for 6 cars. This is shown in elevation in fig. 2. It consists of a timber bridge of 10 spans, 19½ ft. centres. From the left hand pipe, shown in the section of the oil bridge in the lower right hand corner of fig. 2, a 12 in. pipe leads off along the delivery bridge as shown, with 6 in. swing oil spouts at every 39 ft.,

mains around zero for weeks at a time, frequently dropping as low as 40 degs. below. California crude oil has the consistency of molasses, and cannot run or be pumped unless it is at a temperature of 60 degs. Fahr. This oil, to be delivered from the service tank to the locomotive, must be heated to at least 100 degs. Fahr., and not more than 110 degs. Fahr., as a higher temperature would cause the evaporation of the volatile constituents, thus reducing the efficiency of the oil as a fuel. From the foregoing, it is evident that the proper heating of the oil is a question of great economic importance.

Fig. 3 shows the fuel oil station design that has been developed to meet these conditions. Each fuel station is located at 400 ft. from the centre of the locomotive house, near the boiler room, from which the necessary supply of steam for heating is obtained. The station consists of two buildings on either side of an unloading tank. Both these buildings are of frame

tween the two buildings, and contains three unloading cast iron catch basins at 39 ft. centres, over which from one to three cars may be spotted. The oil is carried from these catch basins through 8 in. pipes into the receiving tanks. A 1½ in. steam pipe passing through this oil pipe, heats the oil. This steam pipe comes out through a trap on the opposite side of the track, and is used for heating the oil in the cars, by means of a hose connecting the ends of the pipes to the heating systems in the cars. The receiving tank, which replaces the concrete sump generally used, will overcome the difficulty of heating and maintaining a concrete structure, which is almost impossible to maintain water or oil tight, especially when the ground is soft as it is at McBride and Smithers.

The oil in the receiving tank is heated if necessary, by a set of steam coils placed in the centre, the temperature being maintained at a constant heat of 60 degs. Fahr. by an automatic temperature regulating device. From the receiving tank, the oil may be pumped either directly to the service tank, or to the storage tank, in either case through a 6 in. pipe, which ends in an articulated galvanized iron spout, to the extremity of which is attached a float, which keeps the outlet end from 2 to 3 ft. below the surface all the time. To the float is attached an indicator cable, which connects with an indicator in the main floor of the receiving tank building, on the walls of which are indicators for the three tanks. Each pump is capable of filling the service tank in 2 hours. Both pumps may be operated together, or either pump may shut down, allowing the other to work,

a complete system of piping and valves making the arrangement very flexible for operating.

When there are no oil cars available, oil is drawn from the storage tank and pumped directly to the service tank, an 8 in. suction line leading from the floor of central sump of the storage tank, directly under the track to the pumps. Both the inlet and outlet suction pipes, together with the steam lines passing between the buildings, are enclosed in wooden conduits. A system of steam coils with a regulating valve, is placed in the storage tank, to maintain the temperature of 60 degs. Fahr., required by the suction pipe.

A set of steam pipes with a regulating valve, giving a constant temperature of 100 to 110 degs. Fahr. is also placed in the service tank. The oil from the service tank is delivered directly through a spout to the locomotive placed on the outbound track, on the opposite side of the building from the receiving track. This spout, when not in use, is raised and protected from the weather in a recess built into the side of the building. The oil is drawn from the

order to connect the different segments together in the field by riveting. The whole bottom has a slight grade towards the centre, which is made of a shallow tank, 1 ft. deep, shop riveted, and with the top angle turned inside; to this latter the narrow ends of the segments are riveted. This arrangement allows the foundation, made of gravel and sand, to be well prepared, and rolled to a true surface after the placing of the centre part. The different segments are then placed side by side, temporarily bolted, and the riveting completed without disturbing the bottom. In case of an accident, the replacing of a part is easily accomplished by cutting the rivets in the vertical legs of the angles.

The locomotive tenders are being equipped with 3,000 gal. oil tanks, fitted with direct steam heaters. Burners are being placed at the front end of the firebox, the types to be used being the Economy and the Von Boden Ingles. The present intention is to equip each locomotive with one 3 in. burner.

The design of the oil stations was made by J. G. Legrand, M. Can. Soc. C.E., Bridge

very objectionable, especially in very cold weather. These tank cars are not provided with steam heating pipes, and the outlet being only 4 ins. and exposed to the cold weather, it takes a long time to empty the car, and it is almost impossible to empty it completely, the bottom of the car being level, which means that a great quantity of the thick oil stays inside. This quantity may amount to several hundred gallons, according to the severity of the weather, and, of course, quite a reduction in the capacity of the car, outside of having to carry this oil back and forth on the line. To obviate all the above objections, a tank car has been designed as follows

1. On account of the long haulage, the tank car has a capacity of 10,000 imp. galls. The dome is provided with an opening 18 x 36 ins., the cover being hinged and hermetically closed by means of eye bolts and hand nuts. This arrangement will allow an easy opening of the cover in any kind of weather. The opening in the dome is long enough to facilitate the spotting of the car at the oil delivery. The car is so designed that when arriving at a fuel station

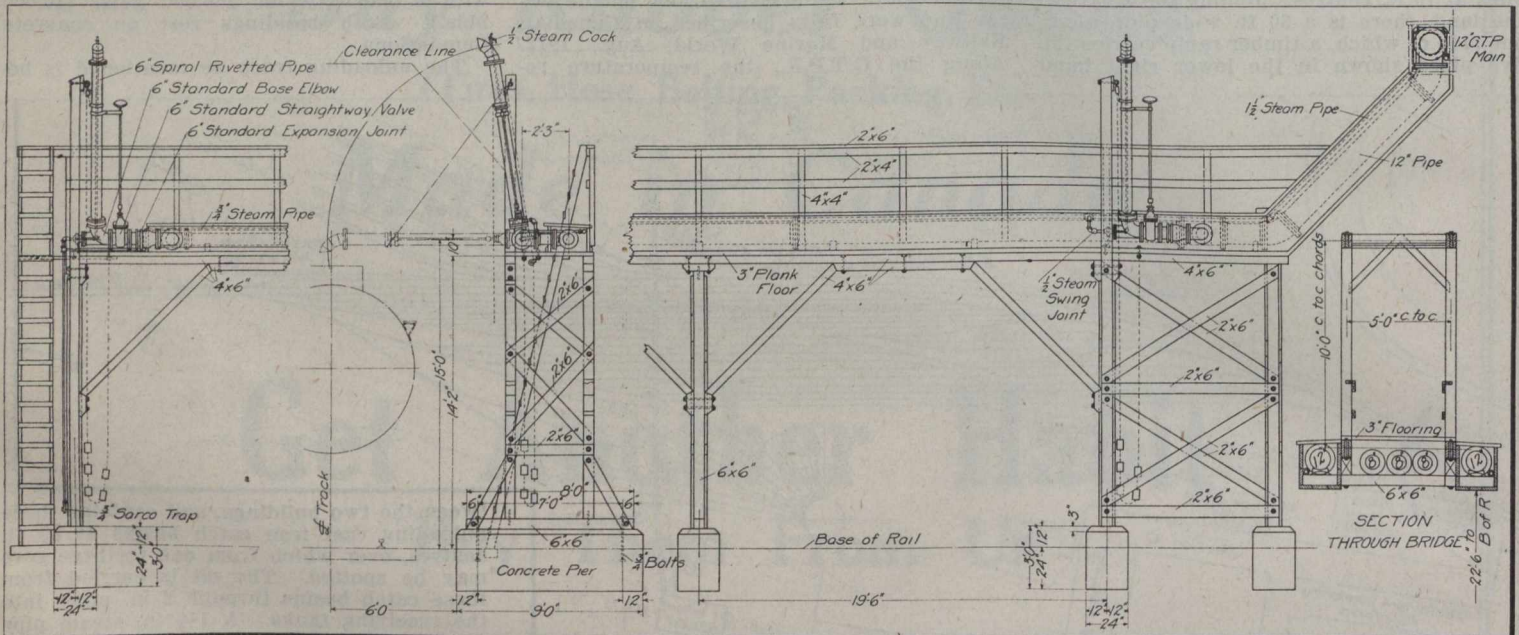


Fig. 2. Grand Trunk Pacific Railway Oil Tank Car Filling Trestle at Prince Rupert, B. C.

bottom of the tank, and in the short connecting pipe from the tank to the spout, there is a self registering pipe line measure, which indicates the amount of oil delivered to each locomotive.

The receiving and storage tanks include a new feature in the design of their bottoms. Usually, these large tanks have a bottom composed of rectangular plates with lap joints, which must be assembled and riveted in the field. The assembling and riveting of such a large bottom is very difficult, and has to be done on staging, which must later be removed while lowering the bottom to the ground. This is often the cause of deformation and rupture of rivets and plates, and the disturbance of the foundation ground, which ought to be well levelled. It is not an unusual occurrence to be obliged to raise the tank several times before water tight joints are finally obtained. Besides these difficulties it is very hard to completely clean the bottom of the tank when necessary, or to replace parts affected by rust or other causes of deterioration. To overcome all of these difficulties, the bottom of the tank is divided into segments of such a size as to be readily furnished by the mills. These segments have small angles shop riveted on them, the vertical legs of which are punched in

Engineer, G.T.P.R., initially under the general direction of B. B. Kelliher, M. Can. Soc. C.E., formerly Chief Engineer, G.T.P.R., and latterly under the direction of H. A. Woods, M. Can Soc. C.E., Assistant Chief Engineer, G.T.P.R.

All the above conveniences to handle oil properly would be offset if the proper cars to transport the oil from Prince Rupert to the different divisional points were not provided. The ordinary oil tank car which is generally used is certainly not suitable for this country, and especially for a long haul, economical handling, and a quick service such as is required on a line like the G.T. P.R. The ordinary tank is usually of too small a capacity, i.e. 8,000 U. S. galls, which would mean transportation of a comparatively heavy dead load for a light quantity of fuel. This would not be economical on a long distance. A great objection to the ordinary car also is that the valve is located about 2 ft. off the centre line, which means that in making up a train careful attention has to be taken to have the car headed the same way, which in railway practice is almost an impossibility. Another great objection to the ordinary tank car is the small opening in the dome, which is generally closed by a round cover, provided with a thread. This arrangement is

it can be spotted, heated and emptied completely, all these operations being done in the shortest possible time.

2. To solve the first condition, that is to say the spotting of the cars, which will be three at a time, the car has been provided with the outlet valve exactly in the centre, and the steam inlets for heating the car, also placed exactly on centre, one on each side of the car. In short, the car has been designed so as it can be headed either way.

3. To solve the second condition, i.e. heating, the car is provided with the piping so arranged that the steam starting from the centre will travel at once towards the two ends, and then come back to the centre around the outlet valve which is provided with a steam jacket, the condensation water being discharged on the ground through a sarco valve with ample capacity to avoid any water remaining in the pipes.

4. To solve the third condition, that is to say the complete emptying of the car, the tank is provided with a trough running longitudinally between the bolsters. This trough, 8 ins. wide, riveted to the bottom of the tank, has a semi-cylindrical bottom and a depth of 6 ins. at the outside extremity and 1 ft. in the centre. The outlet valve is riveted to this trough. Six 6 in. diameter holes and one 6 x 18 in. hole in the centre

will let the oil run through the whole length of the car into the trough. The return steam pipe is placed in the bottom of this trough, and is connected to the steam jacket of the outlet valve. With such an arrangement the oil will be heated thoroughly, and, therefore, run quickly, and the 6 in. fall of the trough towards the outlet valve will allow the car to be emptied completely.

In designing this car, the trough placed under the tank was considered in figuring the thickness of the shell of the tank, and it was found that the strength of such section was 30% stronger than similar section of tank without the trough. This allowed to make this tank with a shell of 5-16 in. throughout, except the two ends, which are 3-8 in. in thickness. The body of the car is composed of a centre sill and two body bolsters, the whole resting on trucks. The centre sill 37 1/4 ft. in length out to out of

of the same capacity being about 44,000 lbs. The car is provided with necessary walking planks to pass from one car to another, and a platform on the top around the dome to facilitate the operation of filling the tank.

Only 40 cars of such a design will be required to take care of the fuel oil necessary for running trains between Jasper and Prince Rupert, this allowing three cars at each of the six divisional points, while 18 empty cars are going back to Prince Rupert for filling purposes, leaving four cars to spare in case of repair or accident.

**Birthdays of Transportation Men in May.**

Many happy returns of the day to:—

- Jas. Bain, General Superintendent, Halifax and South Western Ry., Bridgewater, N. S., born at Pictou, N. S., May 24, 1860.
- W. R. Baker, Secretary, and Assistant to President, C.P.R., Montreal, born at York, Eng., May 25, 1852.
- G. S. Cantlie, ex-General Superintendent Car Service, C.P.R., Montreal, now in military service with Canadian Overseas Forces, born at Montreal, May 2, 1867.

J. Irwin, Superintendent, District 3, Canadian Northern Ry., Dauphin, Man., born at Clinton, Ont., May 28, 1866.

S. McElroy, Trainmaster, Canadian Northern Ry., Rainy River, Ont., born at Lindsay, Ont., May 1, 1875.

J. N. Murphy, Trainmaster, C.P.R., Medicine Hat, Alta., born at Mooretown, Ont., May 10, 1879.

A. C. Shaw, General Passenger Agent, Western Lines, C.P.R., Winnipeg, born at Detroit, Mich., May 12, 1865.

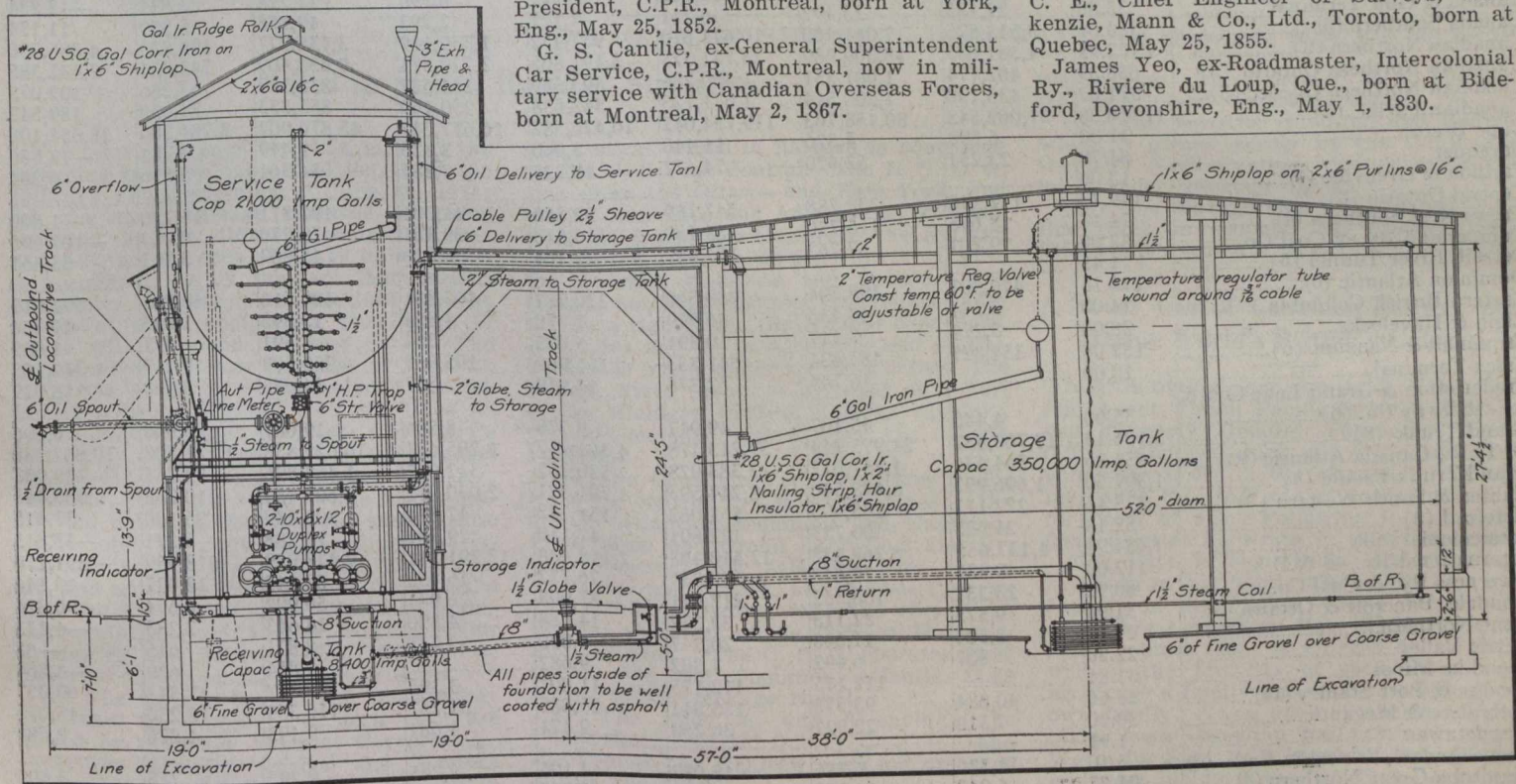
W. Stapleton, District Passenger Agent, Canadian Northern Ry., Saskatoon, Sask., born at Bristol, Eng., May 20, 1884.

E. Tiffin, General Western Agent, Canadian Government Railways, Toronto, born at Hamilton, Ont., May 5, 1849.

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

H. K. Wicksteed, B.A.Sc., M. Can. Soc. C. E., Chief Engineer of Surveys, Mackenzie, Mann & Co., Ltd., Toronto, born at Quebec, May 25, 1855.

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



**Fig. 3. Grand Trunk Pacific Railway Fuel Oil Station at Six Divisional Points.**

striking plates, which means 39 ft. c. to c. of couplings, is made of two 12 in. at 40 lbs. ship building channels (Carnegie section) spaced 12 7/8 in. back to back. The two ends of the centre sill up to the bolsters is covered top and bottom by a 1/2 in. cover plate. Between the bolsters, the bottom flanges of the two channels are strongly latticed together, and the top flanges are reinforced by two 8 x 3 1/2 x 1/2 in. angles. The tank is strongly riveted in the centre to the sill in order to transmit any shock which might occur in shunting. The tank rests on two body bolsters. This arrangement allows free expansion from the centre towards the ends. The centre sill as a column will have a safe capacity of 458,000 lbs. (approximately 230 tons), which means a breaking capacity of more than double, which is ample to resist the ordinary impact due to shunting. The body bolsters have cover plates extended in order to act not only as splices for the main material of the centre sill, but also to be able to resist the strain due to "poling." The casting which is placed at each end of the bolster is provided with a pocket to receive the "pole."

The saving of weight due to this kind of design is about 3,500 lbs. per car, the approximate weight of an ordinary tank car

M. Donaldson, M. Can. Soc. C.E., Vice President and General Manager, Grand Trunk Pacific Ry., Winnipeg, born near Edinburgh, Scotland, May 1, 1851.

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

G. C. Dunn, Division Engineer, G.T.P.R., Winnipeg, born at Quebec, May 13, 1862.

G. I. Evans, Superintendent, Angus Locomotive Shops, C.P.R., Montreal, born there, May, 1880.

M. A. Fullington, A.M. Can. Soc. C.E., Assistant Superintendent, District 4, Eastern Division, C.P.R., Ottawa, born at Johnson, Vt., May 12, 1880.

J. Graham, Assistant Roadmaster, C.P.R., North Bend, B.C., born in Ontario, May 22, 1870.

G. H. Hedge, Master Mechanic, Central Division, Canadian Northern Ry., Winnipeg, born at Neath, Wales, May 26, 1865.

T. Henry, Passenger Traffic Manager, Canada Steamship Lines, Ltd., Montreal, born there, May 29, 1865.

W. T. Huggan, Division Accountant and District Passenger Agent, Prince Edward Island Ry., Charlottetown, P.E.I., born at Halifax, N.S., May 24, 1851.

**Northern Pacific Railway's New Coast Line.**

The new double track, low grade cutoff line of the Northern Pacific Ry. between Tacoma and Tenino, Wash., 44.3 miles, completes the reconstruction and double-tracking between Seattle, Wash., and Portland, Ore. It also gives a direct train movement through the station at Tacoma, while the old line required a reverse movement of trains. The old line was single track, with 1% grades in both directions and with 2.2 mi. of 2.2% grade ascending southward out of Tacoma. The tonnage rating southbound was 2,000 tons, and three pusher engines were required to help the full tonnage trains on the heavy grade at South Tacoma. The principal comparative features of the old and new lines are as follows:

	New Line	Old Line
Distance, miles	44.30	41.26
Max. grade	0.3%	2.20%
Max. curve	3°	10°
Total curvature	1347'	824'
Total rise and fall	421 ft.	1244 ft.

The Grand Trunk Ry. System has opened a new city ticket office at 687 Market St., San Francisco.

## Steam Railway Statistics for Year Ended June 30, 1914

In the following table the column headed gross earnings includes passenger and freight earnings, as well as miscellaneous earnings; the latter not being shown separately; the next four columns give the operating expenses classified under their various headings, while the last gives the net earnings, which are arrived at by deducting the totals of the four columns referred to from the figures in the gross earnings column. The minus mark (—) before figures in the net earnings column shows that there was a deficit in the operations of the line to the extent of the figures given. The numbers in brackets—thus (1)—after the name of the railway refer to notes on page 163. The cents have been omitted in all cases, and the figures in the totals show the aggregate earnings, etc., including the cents, omitted from the detailed items.

Name of Railway	Mileage	Passenger Earnings	Freight Earnings	Gross Earnings	Maintenance of Way and Structures	Maintenance of Equipment	Traffic and Transportation Expenses	General Expenses	Net Earnings
Algoma Central & Hudson Bay(1)	242.07	\$ 78,913	\$ 794,102	\$ 955,375	\$ 157,302	\$ 103,587	\$ 373,411	\$ 103,227	\$ 217,846
Algoma Eastern (1)	32.08	21,551	159,915	183,169	25,002	23,241	51,485	7,863	75,577
Atlantic, Quebec and Western.(2)	104.50	37,900	28,628	66,681	26,104	16,146	50,851	12,373	—38,794
Bay of Quinte (3)	86.00	46,533	153,355	202,374	49,686	23,187	125,167	8,196	—3,863
Bedlington & Nelson (4)	12.04	158	682	837	9,315	432	770	766	—10,448
Brandon, Sask. & Hudson Bay (4)	69.45	33,936	26,373	60,345	51,906	10,256	55,189	4,879	—61,886
British Yukon	101.12	72,291	134,190	209,681	19,614	9,334	49,168	14,204	117,360
Brockville, Westport & N.W.(3)	45.00	37,773	32,902	70,742	46,721	6,796	27,228	3,831	—13,834
Canada & Gulf Terminal	35.80	22,135	23,492	46,211	7,727	2,293	19,158	5,859	11,174
Canada Southern (5)	380.04	3,513,825	7,041,480	10,613,610	957,452	1,339,119	3,738,277	191,830	4,386,930
Canadian Northern (3)	5,122.95	4,331,633	18,309,989	23,781,328	3,191,805	2,779,374	9,634,409	743,334	7,432,385
Canadian Northern Ontario (3)	658.39	402,774	1,007,551	1,460,286	393,539	254,627	838,509	63,286	—102,075
Canadian Northern Quebec (3)	371.02	438,190	1,200,514	1,671,723	342,638	230,169	855,333	54,039	189,542
Canadian Pacific (6)	11,950.38	37,069,548	80,458,763	119,754,042	16,426,582	16,617,247	45,876,902	2,781,286	38,052,108
Cape Breton	31.00	6,598	4,376	11,440	8,066	3,176	9,449	3,284	—12,536
Caraquet	84.78	23,251	52,420	74,672	18,225	7,281	34,364	8,516	6,264
Carillon & Grenville (7)	13.00								
Central Ontario (3)	149.73	112,143	232,788	347,759	92,850	41,301	197,871	14,236	1,500
Crows Nest Southern (4)	74.18	18,645	116,750	135,730	116,513	39,151	79,776	8,083	—107,695
Cumberland Ry. & Coal Co.	32.00	19,201	87,762	107,419	22,164	4,816	45,809	3,267	33,361
Detroit River Tunnel (5)	1.45								
Dominion Atlantic (6)	274.16	470,507	498,394	980,560	220,981	105,331	421,516	40,711	192,019
Eastern British Columbia	14.00	3,274	43,456	46,999	7,770	4,854	13,595	1,045	19,734
Elgin & Havelock	28.00	3,274	7,117	10,391	5,075	354	3,591	327	1,042
Esquimalt & Nanaimo (6)	152.00	334,827	483,434	841,833	136,969	105,969	252,509	6,219	340,165
Essex Terminal	10.00		46,744	52,378	13,919	2,887	14,083	3,408	18,079
Fredericton & Grand Lake Coal & Railway Co. (6)	35.00	4,440	45,107	49,947	9,778	8,506	19,087	5,968	6,606
Grand Trunk (8)	3,106.13	13,703,832	24,975,944	39,213,178	4,301,747	6,295,654	16,621,835	1,121,802	10,862,138
G. T. R., Canada Atlantic (8)	456.26	564,434	1,757,017	2,383,028	530,252	342,087	1,467,896	72,784	—29,993
Grand Trunk Pacific (8)	1,397.50	1,696,997	6,415,546	8,244,593	1,701,321	2,070,012	3,607,454	210,258	653,445
Halifax & South Western (3)	378.46	272,177	285,005	561,052	151,142	47,524	302,539	26,130	33,415
Hereford (9)	52.18	21,525	100,723	122,801	47,110	29,881	76,288	5,371	—35,815
Intercolonial (10)	1,454.94	4,137,655	8,168,438	12,410,408	2,118,438	2,791,241	7,473,039	318,959	—291,270
International Ry. of N.B.	112.00	49,437	79,642	130,339	26,772	16,152	62,142	12,027	13,244
Inverness Ry. & Coal Co.	60.91	23,231	188,352	212,911	37,998	26,901	50,992	6,694	90,324
Irondale, Bancroft & Ottawa (3)	51.90	9,575	22,113	32,332	14,688	4,890	14,643	2,283	—4,173
Kent Northern	27.00	8,704	11,543	20,247	7,090	3,725	8,871	645	—83
Kettle Valley	22.20	807	6,492	7,302	9,682		1,854	629	—4,864
Klondike Mines	31.81		112,175	112,175	11,807	3,395	25,372	11,542	69,057
London & Port Stanley (14)	23.66	40,884	93,373	135,841	25,088	31,257	116,339	8,230	—45,073
Lotbiniere & Megantic	30.00	7,310	22,927	30,259	9,471	4,681	9,193	4,226	2,687
Magnetawan (8)	1.91								
Maine Central, Princeton Brch. (9)	5.10	11,326	6,756	18,082	2,106	2,265	9,292	718	3,699
Manitoba Great Northern (4)	91.77	6,942	36,552	44,007	60,869	8,961	38,966	4,393	—69,112
Maritime Coal, Ry. & Power Co.	15.00	7,420	63,823	71,244	15,303	5,367	24,595	2,547	23,430
Massawippi Valley (11)	35.46	70,839	139,971	212,199	56,479	42,450	117,266	11,110	—15,106
Midland of Manitoba (4)	6.40	188,695	127,735	326,865	119,217	48,042	265,677	15,891	—121,964
Moncton & Buctouche	32.00	10,586	18,122	29,762	11,630	2,052	15,479	2,630	—1,541
Montreal & Atlantic (6)	163.40	243,348	751,153	1,018,077	365,129	115,883	522,405	33,740	—19,081
Montreal & Province Line (8)	58.60	60,342	74,893	137,588	52,215	4,876	43,934	2,429	34,132
Montreal & Vermont Jct. (8)	23.60	62,346	69,758	132,273	29,721	10,386	42,400	4,532	45,231
Morrissey, Fernie & Michel	10.85	13,516	136,627	150,144	13,915	28,393	63,241	21,902	22,692
Napierville Junction (12)	27.06	8,651	96,243	105,054	9,885	6,349	36,836	3,183	48,798
National Transcontinental	286.30	12,706	61,790	75,067	54,069	3,641	47,580	414	—32,638
Nelson & Fort Sheppard (4)	55.42	27,030	36,558	66,331	62,254	7,207	42,471	5,043	—50,644
New Brunswick & P.E.I.	36.00	13,180	32,968	46,353	14,303	7,696	16,150	3,193	5,008
New Brunswick Coal & Ry. Co.(6)	58.00	14,864	35,910	55,458	29,998	17,523	24,352	6,456	—22,872
New Westminster Southern (4)	23.73	10,494	33,791	47,324	13,316	3,229	13,015	2,381	15,380
North Shore	8.63	205	619	825	70		899	18	—163
Northern New Bruns. & Seaboard	19.80	2,989	18,505	21,494	3,775	996	7,927	2,035	6,759
Nosbonsing & Nipissing (13)	5.50								
Ottawa & New York (5)	56.90	94,009	150,244	260,123	88,582	37,056	127,381	9,141	—2,038
Pere Marquette Rd. (14)	198.81	197,970	2,151,848	2,362,025	243,456	578,323	908,784	73,927	557,533
Phillipsburg Ry. & Quarry Co. (7)	6.00								
Pontiac & Renfrew (7)	4.25								
Prince Edward Island (10)	279.23	216,383	184,342	414,911	153,263	96,350	312,628	16,777	—154,109
Quebec & Lake St. John (3)	286.40	317,285	602,641	934,777	221,276	129,485	449,205	45,847	88,962
Quebec Central (6)	253.00	457,087	1,092,900	1,568,020	198,315	176,794	654,577	63,776	474,556
Quebec, Montreal & Southern (12)	192.18	161,121	244,774	411,635	184,173	145,098	187,960	18,419	—122,014
Quebec Oriental (2)	100.00	57,692	77,072	134,825	35,480	15,238	61,905	13,170	9,029
Quebec Ry., Light & Power Co.	30.82	13,380	72,732	87,159	10,424	15,204	36,146	8,296	17,088
Red Mountain (4)	9.50	3,177	11,818	15,246	15,167	907	14,331	1,243	—16,404
Roberval & Saguenay	36.80	4,875	26,211	31,950	8,695	6,083	19,177	2,814	—4,820
Rutland & Noyan (5)	3.39	9,315	5,597	14,912	3,587	2,295	5,991	656	2,384
Salisbury & Albert	45.00	12,364	25,021	36,140	9,557	3,432	14,118	3,238	5,793

(Continued on page 163)

Steam Railway Statistics for Year Ended June 30, 1914 (Continued from page 162)

Name of Railway	Mileage	Passenger Earnings	Freight Earnings	Gross Earnings	Maintenance of Way and Structures	Maintenance of Equipment	Traffic and Transportation Expenses	General Expenses	Net Earnings
Schomberg & Aurora.....	14.40	\$ 6,103	\$ 7,901	\$ 14,005	\$ 6,544	\$ 314	\$ 7,207	\$ 166	—227
Stanstead, Shefford & Chambly (8)	43.00	41,277	49,107	89,960	49,440	6,532	39,715	2,316	—8,038
St. Clair Tunnel (8).....	1.13	72,790	273,531	347,770	17,435	14,389	72,561	3,289	240,095
St. Lawrence & Adirondack (5).....	46.12	281,056	369,882	653,538	109,743	13,483	346,249	13,833	168,227
St. Martins.....	30.00	5,772	8,626	14,551	5,221	833	6,958	976	561
Sydney & Louisburg.....	69.95	55,528	725,116	807,167	101,544	172,277	276,101	30,695	226,547
Temiscouata.....	113.00	65,871	200,945	271,776	52,041	27,568	101,629	18,917	71,819
Timiskaming & Northern Ontario	334.03	638,750	975,842	1,690,688	440,322	260,034	685,142	107,388	196,901
Thousand Islands.....	6.33	13,446	23,594	40,683	7,712	2,660	14,979	4,077	11,254
Toronto, Hamilton & Buffalo 5,6,15	80.15	450,551	1,040,305	1,502,331	276,331	198,086	565,975	44,923	417,014
Vancouver, Victoria & Eastern (4)	236.31	253,197	495,520	770,594	423,610	93,647	389,796	31,282	—167,743
Victoria & Sidney (4).....	15.97	30,519	24,987	56,468	45,824	4,467	26,652	4,923	—25,399
Victoria Terminal Ry. & Fy. Co. (4)	0.99	2,446	1,746	4,876	909	282	1,686	311	1,686
Wabash Rd. in Canada (16).....	.....	690,404	1,831,217	2,526,897	298,180	607,555	1,324,458	105,597	191,095
Wellington Colliery Co.....	10.75	4,342	100,237	104,579	19,782	39,637	45,159	.....	.....
York & Carleton.....	10.50	2,085	3,592	5,677	1,199	205	2,306	20	1,945
	30,794.54	\$72,564,203	\$ 165,753,730	\$ 243,083,539	\$35,292,226	\$36,375,330	\$ 100,665,669	\$6,642,032	\$64,108,280

Notes to Steam Railway Statistics.

The total mileage of 30,794.54, given in the foregoing table, is the actual length of the railways being operated at June 30, 1914; but the total mileage reported as being operated by the different companies was 31,483.03, a difference of 688.49 miles. This is accounted for by the fact that various companies operate over portions of the tracks of other companies, particulars of which will be found in these notes. The total railway mileage reported at June 30, 1913, was 29,303.53, which included the following mileages omitted from the lines reported June 30, 1914: Bessemer and Barry's Bay Ry., 5 miles; Bruce Mines and Algoma Ry., 17.28 miles; Victoria Copper Co.'s Ry., 12 miles, railways which while still existing had not been operated for some years.

The following railways appear in the report for the first time: Detroit River Tunnel, 1.45 miles; Fredericton and Grand Lake Coal and Ry. Co., 35 miles; National Transcontinental Ry., 286.30 miles; Northern New Brunswick and Seaboard Ry., 19.80 miles; Roberval and Saguenay Ry., 36.80 miles.

(1) The Algoma Central and Hudson Bay Ry., and the Algoma Eastern Ry. are owned by the Lake Superior Corporation.

(2) The Atlantic, Quebec and Western Ry., and the Quebec Oriental Ry. are operated jointly.

(3) The Canadian Northern system embraces the following lines: Bay of Quinte; Brockville, Westport and Northwestern; Canadian Northern; Canadian Northern Ontario; Canadian Northern Quebec; Central Ontario; Halifax and South Western; Inverness Ry. and Coal Co.; Irondale, Bancroft and Ottawa; Quebec and Lake St. John. The Bay of Quinte operates 19.00 miles; the Canadian Northern 6.60 miles, and the Halifax and South Western 2.30 miles, under trackage rights.

(4) The Great Northern Ry. (U.S.A.) owns the following lines in Canada: Bedlington and Nelson; Brandon, Saskatchewan and Hudson Bay; Crows Nest Southern; Manitoba Great Northern; Midland Ry. of Manitoba; Nelson and Fort Sheppard; New Westminster Southern; Red Mountain; Vancouver, Victoria and Eastern Ry. and Navigation Co.; Victoria and Sidney; Victoria Terminal Ry. and Ferry Co. The Manitoba Great Northern operates 0.99 mile; the Midland of Manitoba, 69.02 miles; the Nelson and Fort Sheppard, 5.42 miles; the New Westminster Southern, 1.48 miles; and the Vancouver, Victoria and Eastern, 1.48 miles, under trackage rights.

(5) The Canada Southern and the Detroit River Tunnel are owned by the Michi-

gan Central, which in its turn is controlled by the New York Central. The N. Y. C. R. also owns the Ottawa and New York, and the St. Lawrence and Adirondack, and controls the Rutland, which owns the Rutland and Noyan. It also owns, with the C.P.R., the Toronto, Hamilton and Buffalo. The Canada Southern operates 16.76 miles under trackage rights; the Ottawa and New York, 1.94 miles, and the St. Lawrence and Adirondack, 8.50 miles, under trackage rights. The Detroit River tunnel is operated as a part of the Michigan Central, and the earnings, etc., are included with those of the Canada Southern.

(6) The Canadian Pacific operates under lease or control the following lines: Dominion Atlantic; Esquimalt and Nanaimo; Fredericton and Grand Lake Coal and Ry. Co.; Montreal and Atlantic; New Brunswick Coal and Ry. Co., and Quebec Central. The C.P.R. also owns with the New York Central, the stock of the Toronto, Hamilton and Buffalo. The C. P. R. operates 93.90 miles; and the Dominion Atlantic 14.29 miles, under trackage rights.

(7) The Carillon and Grenville, the Phillipsburg Ry. and Quarry Co.'s line, and the Pontiac and Renfrew were not operated during the year.

(8) The Grand Trunk system includes the following lines: Canada Atlantic, Montreal Province Line, Montreal and Vermont Jct., Stanstead, Shefford and Chambly and St. Clair Tunnel. The G.T.R. also owns the Grand Trunk Pacific. The G.T.R. operates 10.10 miles, and the G.T. Pacific 6.20 miles, under trackage rights. The statistics of the operation of the Magnetawan are included in the G.T.R. ones.

(9) The Hereford, and the Maine Central (Princeton branch, New Brunswick), are owned by the Maine Central.

(10) The Intercolonial and the Prince Edward Island are owned by the Dominion Government. The Intercolonial operates 40.30 miles, under trackage rights.

(11) The Massawippi Valley is owned by the Boston and Maine. It operates 2.95 miles under trackage rights.

(12) The Napierville Jct. and the Quebec, Montreal and Southern are owned by the Delaware and Hudson Co.

(13) The Nonsbonging and Nipissing, 5 miles, is included as railway mileage, but we were officially informed, Dec. 10, 1913, that the track was removed during the summer of that year. (Jan., 1914, pg. 25.)

(14) The Pere Marquette also operates over 136.78 miles under trackage rights. The P. M. operates the London and Port Stanley

under lease. The L. and P. S. R. operates 0.42 mile under trackage rights.

(15) The Toronto, Hamilton and Buffalo, which is owned jointly by the C.P.R. and the New York Central, also operates 4.36 miles under trackage rights.

(16) The Wabash does not own any main line track in Canada, but operates over 245.40 miles, which it leases from the G.T.R.

A Novel Use of Canadian Railway and Marine World's Birthday Column.

A little over a year ago G. W. Vaux, General Agent, Union Pacific System, Chicago, and formerly General Passenger Agent, G.T.R., Montreal, took out a life assurance policy for \$5,000 in the Manufacturers Life Insurance Co., and was of course called on for proof of age. Following is an extract from a letter he wrote in this connection:

"We have a large Bible History, which has been in our family since 1873, in which appears in my mother's hand writing the entry that I was born Mar. 21, 1866. In the same volume there is entered in my hand writing the birthday of each member of my father's family and each member of my own family. Then again I enclose a page taken from Canadian Railway and Marine World for Mar. 1915, in which you will find my name included showing that I was born on Mar. 21, 1866, under the heading 'Birthdays of Transportation Men in March.' This latter information has appeared in the same publication for at least five years, probably longer. Under these circumstances, will you, if necessary, take up with the Manufacturers Life and ascertain if this information will be regarded as satisfactory proof of age."

The information Mr. Vaux gave as above was accepted as satisfactory and a certificate was issued admitting proof of age.

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

	Acres.
Calgary and Edmonton Ry. ....	5,598.00
Canadian Northern Ry. ....	2,880.00
Canadian Pacific Ry. ....	159.00
Edmonton, Dunvegan and British Columbia Ry. ....	12.27
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co. ....	321.00

Total ..... 8,970.27

The brick arch in locomotives is a great aid in smoke elimination, as it increases the travel of the gases, and gives them a chance to combine with the oxygen of the air before coming in contact with the comparatively cool firebox sheets.

### A Consideration of Railway Operating Rules.

By Geo. Bradshaw, Safety Engineer, Grand Trunk and Grand Trunk Pacific Railways.

**Time Service Rules and Methods.**—Time service is an important consideration on a railway from the standpoint of both safety and efficiency. The watch has a history perhaps as interesting as that of the locomotive and fortunately is the older of the two. The watch was at an early date brought to a considerable degree of accuracy; but its present high state of perfection is largely due to the demands of its giant brother and inseparable companion.

Time service rules of the American Railway Association, in effect on Canadian roads and most of those in the United States, require:

1. Standard time, obtained from an observatory of recognized standing, to be telegraphed to all points daily from designated offices.

2. An examination and a certificate, in prescribed form, by a designated inspector stating that the watch, described and identified in the certificate, "is correct and reliable, and in my judgment will, with proper care, run within a variation of 30 seconds per week."

3. A comparison of watches by employes "before starting" on each trip with a clock designated as a standard clock, and registration on prescribed form of the time when compared.

Rule 3 of the Standard Code is subject to the objection that it requires only employes in the road train service to compare their watches with standard clocks. This is evidently the natural construction from the wording "must be compared before starting on each trip." The Train Rules Committee of the American Railway Association has proposed that this rule be changed to read "must be compared daily before commencing work." If this form is adopted, it will include, as it should, employes in yard service and all others required to have standard watches.

The above general requirements, which are all that the American Railway Association prescribes, have been supplemented from time to time by individual action of various railways as follows:

(a) By rule (formerly in effect) requiring trains to wait at meeting points a certain number of minutes, usually three, for "variation in watches."

(b) By later and present rule requiring employes, who must have standard watches, to submit them, at regular intervals, to a designated inspector for comparison and record.

(c) By rule on many roads in the United States (but not in general effect in Canada) prescribing that conductors and

of each, so far as applicable, and added some features of his own, resulting in a system which, in its entirety, is not in effect, so far as he is aware, on any other line. The distinctive points of this system are:

**Weekly Comparison and Record.**—Every employe coming under watch inspection regulations must submit his watch for comparison and record **once each and every week.**

While the rule requires only two comparisons each month, it is thought that weekly comparison is an important additional safety precaution. It results in better rating, and experience has proven a smaller percentage of delinquents, due to the fact that frequency trains to regularity. During 1914 there were 1,524 employes com-

of the branch of service in which the delinquent is engaged. All this may mean a month and under some circumstances even longer without watch comparison. Of course, the delinquent may be, and probably would be, in such case held out of the service during all, or at least a part of, the delinquent period; but that's another story. Under the weekly requirement, the longest time between comparisons can hardly exceed three weeks, which eliminates the necessity for holding an employe out of service, except as a matter of discipline for delinquency, for which we have found rarely an occasion, due we believe partly to this feature of the system and largely to the interest manifested by officers and employes generally in securing accurate time service.

**Submission to Any Official Inspector.**—No employe is assigned to any particular inspector. No inspector has any list or other information as to who or how many may

EMPLOYEE'S WATCH RECORD				
Certificate no.....		Date.....1915		
Name .....		Occupation .....		
Division .....		Certificate issued by .....		
Make of movement .....		No. of jewels .....	Size .....	
No. of movement .....		No. of case .....		
New or Cleaned	Repaired	By Whom	Date Next to be Cleaned	
.....	.....	.....	.....	
.....	.....	.....	.....	
WEEKLY COMPARISONS 1915				
JANUARY				
2nd	9th	16th	23rd	30th
APRIL				
3rd	10th	17th	24th	
JULY				
3rd	10th	17th	24th	31st
OCTOBER				
2nd	9th	16th	23rd	30th
FEBRUARY				
6th	13th	20th	27th	
MAY				
1st	8th	15th	22nd	29th
AUGUST				
7th	14th	21st	28th	
NOVEMBER				
6th	13th	20th	27th	
MARCH				
6th	13th	20th	27th	
JUNE				
5th	12th	19th	26th	
SEPTEMBER				
4th	11th	18th	25th	
DECEMBER				
4th	11th	18th	25th	

Fig. 1.—Face Side of Card, size 6 x 4 inches.

ing under watch inspection regulations. Under construction conditions the average percentage of delinquents for the year was 16%, while under operating conditions, it was only 7%. During the present year the percentage has been further reduced to a material extent.

Under the rule requiring submission the first and third weeks in each month, an employe who submits his watch on the first day of the month is not delinquent till the 22nd. To this period of three weeks with-

submit their watches to him for comparison. For reasons which will hereafter appear in the manner of keeping records under this system, it really makes no difference in the efficiency of the service to which inspector an employe makes submission or to how many different ones he submits during the year. Of course, as a matter of fact, other considerations being equal, they naturally go to the nearest inspector.

There are two material advantages in this feature. First, it affords the greatest permissible convenience to employes by increasing their opportunities for comparison and this means, of course, a corresponding reduction in the number of reasonable excuses for failure to make comparison. Secondly, inspectors knowing that employes are not specially assigned to them, have an incentive to give the best service in order to secure and retain the business resulting from such service.

Employes engaged in pit or work train service or under other conditions making it impracticable for them to submit their watches to any inspector, are reached, so far as consistent with the circumstances of particular cases, by arrangement with certain inspectors to make trips over the line at certain intervals.

**Records.**—All records are kept in the office of the Superintendent of Time Service. An employe submitting his watch for comparison and record, signs his name and occupation in ink on the "Comparison Re-

Add on	Date	Strike off	Date	REMARKS

Fig. 2.—Reverse Side of Employee's Watch Record Card, which has 13 ruled horizontal lines.

enginemen, after obtaining standard time, as required by Rule 3, must compare time with each other.

While time service methods on different roads are similar in many respects, they also vary in some important details. The system on the Grand Trunk Pacific was introduced by, and is in charge of H. Hulatt, Superintendent of Time Service, who, being a regular officer of the company, is interested in this service solely as such. Mr. Hulatt made a study of time service on a number of roads, adopted the best features

out comparison must be added the time required to check and notify the delinquent and the time taken by him to submit his watch after he is notified. This additional time may be from one day to a week, or possibly longer, depending upon the promptness of action, the frequency of facilities for communication and the accessibility of the employe. If he has in the meantime been transferred to another division, the methods in effect on most roads require the records to pass through the files of two superintendents or other officers in charge



port" opposite which the inspector makes the entries as to rating, setting or regulating. This report is the ordinary form used for the purpose by roads generally and is furnished in the usual distinctive colors for locomotive men and trainmen. The inspector, at the end of each week, sends this report to the Superintendent of Time Service. The entries which the inspector makes on this report and the mailing of same constitute perhaps the greater part of his clerical duties imposed by this system. Of course, he makes out the certificate when the watch is examined, as required by rule 2, and the usual rating and repair cards and a weekly report showing repairs made and the nature of such repairs. He is not required to keep any records and he makes no report whatever to the superintendent or any other officer except the Superintendent of Time Service.

The Superintendent of Time Service keeps a card index file showing the watch record of each employe coming under time service regulations. Fig. 1 shows the face and fig. 2 the reverse side of the form used for this purpose. A new watch record card is made out for each employe at the beginning of the year from information furnished by superintendents, other officers and inspectors. A card is made for a new employe upon his entry into service requiring time service regulation.

It will be noted that the record card, in addition to providing space for the information required by the certificate and details as to clearing and repairing, is ruled and printed with names of the twelve months and the dates of Saturday in each of the 52 weeks. On the reverse side of the card, in the column headed "Add On," is entered the name of the superintendent or other officer by whom the man is employed, and the column headed "Strike Off," the name of the officer whose jurisdiction the employe may leave together with dates

record cards. When an employe leaves the service, either temporarily or permanently, or transfers to the territory or jurisdiction of another officer, his name is shown under the heading "Strike Out" of the form shown in fig. 3 by the officer whose service he leaves. On returning to the service or re-

delinquents, which is information of importance to all concerned.

We are aware that this method of handling time service records may be subject to objections, but experience has convinced us that such objections are more apparent than real. In any event, we think the ad-

<b>GRAND TRUNK PACIFIC RAILWAY</b>			
<b>TIME SERVICE</b>			Form T.S.-10
.....Division			
To SUPERINTENDENT OF TIME SERVICE, WINNIPEG, MAN.			
The following are changes on watch inspection lists for the week ending .....191....			
(Sign here).....Head of Department			
<b>STRIKE OUT.</b>			
Name	Occupation	Division	State if left service or transferred to
(Note.—The form has 7 horizontal lines here.)			
<b>ADD ON.</b>			
Name	Occupation	Division	State if new employe or transferred from
(Note.—The form has 6 horizontal lines here.)			
Heads of departments will send this report to the Superintendent of Time Service, Winnipeg, on the first day of each and every week. If no changes send "Nil" report.			

Fig. 3.—Strike Out and Add On form, size 8¼ x 10¾ inches.

porting to the officer to whom he is transferred, the officer receiving him shows his name under the heading "Add On" of the form.

Employes coming under time service regulations, whose names do not appear under the heading "Strike Out" of the weekly report from the superintendent or other

advantages far outweigh the disadvantages. We will, however, enumerate and discuss both, as we understand them, and leave it to the reader to decide the proposition for himself. The possible objections are:

1. Time consumed in transmitting reports from inspectors to headquarters and information from such reports back to officers along the line. If, in fact, this feature really resulted in more time being taken to reach delinquents, comparison being weekly, the service would not suffer thereby. However, for reasons which will appear later, it works out in practice that in most cases a delinquent is reached as quickly, and in some cases even quicker, as he is in fact (not theory) reached under other systems.

2. That before an employe can be adjudged delinquent, it is necessary to check the "Comparison Reports" of all inspectors and the "Strike Out and Add On Reports" of all officers. In answer to this, it may be said that when a check of the two reports is once made—and it requires no great amount of time to do it—the Superintendent of Time Service knows, not only the men who are delinquent, but also in most cases where they are located in the service, and can, therefore, reach them at once through the proper officers and thus avoid the delay which would otherwise be occasioned by correspondence between officers in order to notify delinquents who have transferred from the jurisdiction of one to that of another.

Objection no. 2 (if it be an objection) also applies under certain conditions, in a different manner, but to the same effect, to other systems, because under none of them is an employe forbidden to submit his watch to any inspector, other than the one to whom he is assigned, when special circumstances render it necessary or advisable for him to do so. In such cases, if the employe or the special inspector fails to notify the regular inspector before the latter makes his report (which not infrequently happens), the employe is reported delinquent and his superior officer traces him, only to find that he is not delinquent. By the one system, you start after an employe before you really know whether he is or is not delin-

<b>GRAND TRUNK PACIFIC RAILWAY</b>	
OFFICE OF THE SUPERINTENDENT OF TIME SERVICE	
Winnipeg, Man., .....19....	
Mr. ....	
Dear Sir:—	
Following is list of men shown by you as coming under Watch Inspection Regulations, week ending.....who failed to make comparison:—	
Following men not eligible for service, account not having presented order of examination to an Inspector:—	
Total number of men shown in service:—	
" " " " delinquent:—	
Percentage delinquent:—	
Superintendent of Time Service.	

Fig. 4.—Form for Reporting Delinquency, size 8¾ x 10¾ inches.

and other details, the entries being kept up to show every time an employe enters and leaves the service and reenters, and all shifting movements from different jurisdictions.

The information called for by the reverse side of the record card is furnished each week by superintendents and other officers on the "Strike Out and Add On Form," shown in fig. 3.

On the receipt each week of the "Strike Out and Add On Report" and the "Comparison Report," the Superintendent of Time Service makes proper entry of the information contained in such reports on the watch

proper officer, should be shown on the "Comparison Report" of some one inspector—it makes no difference which one—and all names shown on that report are checked as having submitted their watches for comparison during the week ending on the date checked. Employes whose names do not appear on either report are apparently delinquent, and the Superintendent of Time Service at once calls this fact to the attention of the proper officer, using for this purpose form shown in fig. 4. It will be observed that this form calls attention to the number of men shown in service, the number delinquent and the percentage of

Inspection

quent. In the order, you consult all records first and know what you are doing before you make a move.

3. The clerical help required by the Superintendent of Time Service to enable him to keep the records in the manner described. The force of this objection is largely destroyed by the fact that the one extra clerk necessary to keep the records in this way saves each month a large part of the cost of his services in the reduction, thereby made possible, of clerical work in the various offices having to do with time service regulations. The objection entirely disappears when considered from the standpoint of good service.

The proven advantages are:

1. **BETTER RECORDS.**—A large percentage of inspectors have not the proper facilities for making or keeping records. They are not, as a rule, paid any direct compensation for their services, and do not ordinarily employ extra help to look after this feature of the business. They are subject at all times to interruption by their patrons and others, and the smaller the amount of clerical work imposed upon them the better for all concerned.

2. **RECORDS CENTRALIZED.**—This advantage becomes apparent in its mere state-

ment without further comment.

3. **GREATER PROMPTNESS.**—An inspector knowing that his reports are required at a certain time by one certain officer, whose attention is devoted solely to time service, will soon find by experience that his reports must be forwarded when due in order to escape the inevitable "call" which he would otherwise get from the officer in charge. There being really no reports of any extent for the inspector to make, there is no reason for delay on his part in forwarding such as are required.

4. **MORE RELIABILITY.**—After all, the true merit of any system is its reliability, and from this standpoint we believe this system is unequalled by any other. Time service, important as it is, is of such a nature that there is, to say the least, a tendency on the part of some officers to regard it as a detail of no great consequence. Where the local inspector reports to the superintendent or other officer along the line, such officer, while really in charge of time service in his territory, must necessarily handle it as a side issue. It generally means turning the subject over to a clerk, and if he is pressed with work and is compelled to delay something, there is a high percentage of chances that time service matters will be delayed.

## The Mechanical Life of Ties as Affected by Ballast.

By E. Stimson, Engineer Maintenance of Way, Baltimore and Ohio Railroad.

The wooden cross tie, transmitting the heavy axle loads from the rail to the ballast, is subjected to mechanical wear not only from the action of the rail on top of the tie, but also from the action on the sides and bottom of the tie of the ballast which supports it.

The most familiar causes of the deterioration which makes necessary the removal of the ties from the track are, decay, splitting, mechanical wear under the rail, spike killing, burning due to dropping coals from locomotives and damage by wrecks. While the influence of these factors is felt on all classes of track from isolated sidings to the highest type of main track, tie destruction from mechanical wear of ballast seldom occurs to any appreciable extent excepting in occasional stretches of crushed stone, or other forms of hard ballasted tracks where a soft roadbed or a sink requires continual raising of track and tamping of ties in order to maintain good track surface. The wearing away of ties by ballast, is the result of tamping the ballast under the tie and the action of the tamping tool striking the side and edge of the tie rather than the action of the tie bearing upon and working in the ballast under train loads. There is but little mechanical wear due to the tie working in the ballast.

After ties are first put into the track and tamped to surface on hard ballast, the necessity for retamping to surface and consequently the wear of the ties by ballast depends largely upon the nature of the subgrade. Good surface and subsurface drainage usually insures solid road bed where the normal bearing value of the material qualifies it for heavy loading. Where such conditions prevail, track surface is maintained with a minimum amount of tamping and the mechanical effect of the ballast on the ties is negligible. Wet cuts and fills, roadbed sinks and side hill slips produce conditions for which the track as a whole suffers. They are responsible in the majority of cases for bad surface and alignment and therefore be said to be the underlying cause of tie deterioration from wear of ballast. Such conditions are local and limited in their

extent over any stretch of track and the total mileage of roadway involved composes only a small percentage of the total roadway of any railroad system. The removal of the cause, and the restoration of the stability of the roadway, in many cases involve heavy expense, for which reason the conditions are often allowed to remain, making necessary the continual employment of forces raising the track and tamping the ties to surface. Thus the roadway conditions are responsible for the excessive tamping and wearing away of the ties. As this does not involve a relatively large number of ties, and as usually the prevention is often difficult and expensive, to some extent, this excessive track maintenance and consequent tie wear from ballast will inevitably exist as long as wooden ties are used.

Ties which are removed after service in hard ballasted track are found to be pitted or indented on the bottom and sides from contact with the stone or other ballast material. These indentations in the tie are a valuable factor in holding the track in line and surface as long as they are not increased by frequent tamping. The continual tamping of the ballast under the tie soon rounds off the edges of the ties, leaving little or no flat bearing surface for support. When this happens the tie acts as a wedge and tends to force the ballast out into the cribs instead of receiving full support from it. It typifies the worst conditions; however a tie seldom becomes rounded to this extent throughout its entire length. The greatest wear occurs from 6 to 8 ins. either side of the rail and practically none directly under the rail. In track maintenance the best practice is to tamp the tie for its full bearing upon the ballast outside of the rail and for an equal distance inside of the rail. In spite of close supervision, however, this is not always done, but instead the trackman expends his efforts toward tamping up solid as near the rail as he can work with a tamping pick. This wears off the edge of the tie for some distance each side of the rail and leaves a short unworn edge directly under the rail. When a tie becomes rounded on the

bottom at the most essential tamping point and becomes difficult to maintain to surface, it is then found more economical to replace it with a new tie having a flat bottom that will necessitate less tamping. The average trackman feels little hesitancy about removing a tie for this cause when he has difficulty in keeping it tamped. Even in cases of most excessive tamping, wear from ballast does not become objectionable until the tie has been in service from 50 to 75% of what its life would be under normal conditions. The kind of ballast and kind of ties used and the standard at which a track is maintained, are all important factors in the consideration. Slag and stone, when crushed, form hard, sharp, angular fragments that appear, from observation, to be more destructive when tamped under wooden ties than gravel, burnt clay, cinders, granulated slag or other similar forms of ballast. Ballast of the last named materials has little or no effect in wearing down the sides and bottom of the ties, nor is the tamping of this kind of ballast so destructive to the ties, as the particles are smaller, generally of softer material and rounded in form. There is a perceptible difference in the resistance offered against mechanical wear by ties made from the different kinds of wood. Hard wood ties of rough texture withstand the action of the rail cutting and of excessive tamping much longer than ties of soft wood. It has been observed that these ties which are most durable under the mechanical wear of the rail also last longer under the wear of ballast, for instance—white oak, chestnut oak, black walnut, maple and beech are more suitable than yellow pine, fir, catalpa, cedar and red wood.

Here it is important to mention the extent to which some forms of ballast increase the abrasive action of the rail upon the tie. Granulated slag, gravel, cinders, chatts and other forms of ballast carrying fine gritty particles contribute largely to the rapidity of the abrasive action between the rail and the tie or between the tie plate and the tie, thus greatly accelerating the mechanical wearing away of the wood. It has been observed that the cutting of the rail into the tie is much greater where fine ballast is used than where coarse, hard ballast is used. This trouble has been largely overcome by use of flanged bottom plates which become embedded in the tie, and by plates fastened directly to the tie by lag screws, independent of the rail spiking, thus reducing the movement between the plate and tie to a minimum. However, many ties are removed from track each year because of deterioration from rail wear and a large amount of this deterioration can be assigned to the effect of the fine particles of ballast grinding under the rail.

A careful study of the wearing effect of ballast upon ties during tie removal seasons where the actual cause of deterioration under roadbed and track conditions can plainly be seen, is convincing evidence that such wear along the bottom edge only injures the ties where tamping is necessary at quite frequent intervals.

Regarding the use of treated ties where extraordinary wear by ballast is known to exist; the same rule might apply that is observed when the mechanical wear under the rail limits the life of the tie. Treatment to prevent decay does not give the tie increased resistance to abrasion, and ballast abrasion that is so severe as to wear out an untreated tie would preclude the possibility of any benefit from the use of treated ties at locations where such abrasion occurs.

The ballast has little direct effect on the mechanical life of the ties. The finer and

lighter ballasts such as gravel, cinders, granulated slag, etc., hasten the rail cutting on the top of the tie by the finer particles working under the rail. The coarser and heavier ballasts, such as crushed stone and slag, bruise and cut into the bottom and the sides of the ties largely under tamping. Comparatively few ties are destroyed from this latter cause, while many more are removed from track on account of the former.

A substantial, well drained roadbed, and a clean, hard ballast, free from fine particles and coarse enough to insure against holding water, affords the best foundation for the tie, one that will hold to a minimum the wave motion of the rail which, aided by the abrasive agent, the fine gritty bal-

last, so rapidly cuts into the ties, and one that will hold the surface of the track, eliminate the sinks and slides, pumping joints with the attendant pounding of the ties into the ballast, and lastly the excessive tamping up.

The desired roadbed condition must usually be made with the materials available, aided by tiling and trench drains. The ballast, however, may be selected. A hard, durable stone, crushed in angular fragments, in size from one inch to three inches, screened free from all dust and dirt, is the ballast that will least affect the mechanical life of the tie.

This paper was read before the American Wood Preservers' Association in Chicago recently.

## The Bridging of the St. John River Between St. Leonard, N. B., and VanBuren, Me.

An event of international importance is expected to take place on May 1, when a new gateway will be opened for traffic between Canada and the northernmost tip of the eastern United States, where the Van Buren Bridge Co. has just completed the building of its short line of railway, including a bridge over the St. John River, between the Bangor and Aroostook Rd. system in VanBuren, Maine, and the National Transcontinental Ry. and Intercolonial Ry. in St. Leonards, N.B.

The length of the new line is 1.36 miles, of which 1.19 miles is the property of the bridge company, extending from the United States bank of the St. John River to a connection with and crossing of the National Transcontinental Ry., thence to a crossing of a branch line of the C.P.R., and thence to a junction with the International Branch of the Intercolonial Ry., the two grade railway crossings being protected by electric power interlocking signals controlled from a signal tower at the N.T.R.

The river, which at this point measures from bank to bank 970 ft., is crossed by a bridge consisting of 5 single track steel riveted lattice through spans of 160 ft. each (skew 77°), supported on two concrete abutments and four concrete piers, with approach embankments thoroughly protected by riprap. The distance from base of rail to extreme high water is 9.7 ft., and to low water 45.7 ft., the range between these two water stages being 36 ft. The depth of water at normal stage in the thread of the stream varies from 15 to 20 ft. The abutments are of the usual splay-wing type, placed on concrete piles, 20 to 23 ft. long, driven with considerable resistance in a soil consisting of clay mixed with sand and gravel. The piers are built with rounded downstream ends and moulded inclined starkwaters, the bridge seat or upper of the two top courses being 8 ft. wide and 31 ft. long, and the width under the corbel course 6½ ft. The batter of the sides and downstream ends is ¾ in. per foot, and of the upstream end or starkwater 4 ins. per foot. Two of the piers are 52 ft. and the other two 48 ft. from the bottom of footing course to top of the bridge seat. The piers are each founded on from 104 to 106 spruce piles, approximately 20 ft. long below cutoff, driven in the hard, gravelly clay that underlies the bed of the stream. All piers have their bases well protected with riprap. The spans are designed for E-50 Cooper loading (2 consolidated locomotives, with 50,000 lbs. on each driving axle, followed by a trainload of 5,000 lbs. per lineal foot), equivalent to the "heavy" class loading prescribed in the specifications of the Department of Railways and Canals of Canada, and complying with the requirements of the 1911 bridge

specifications of the American Railway Engineering Association.

Perhaps the most marked feature of this work has been the rapidity of its construction, 7½ months only having elapsed from its commencement to its completion. Started in the middle of Sept., 1914, excavation and the laying of concrete were vigorously prosecuted throughout the winter, although the temperature usually hovered around zero, and at times very much lower. This was made possible by enclosing the piers in housings, heated with steam pipes and salamanders, so as to afford the concrete an opportunity to become thoroughly set prior to exposure to low temperatures. Steel erection from the Canadian shore was started in January, and followed closely on the heels of the substructure, the last pier, on the U.S. side, having been finished early in April. Through the employment of the cantilever method of erection, all risk of serious damage or interruption from a premature breakup in the river was obviated.

The principal contractors were Cyr Brothers Co. of Waterville, Me., for the substructure; the Dominion Bridge Co., Montreal, for the superstructure; Hill & Hammond, Woodstock, N.B., for the roadbed, tracklaying, ballasting, fencing and telephone line, and the General Railway Signal Company of Canada, Lachine, for the interlocking plant.

Percy R. Todd, of Bangor, Me., President of the Bangor and Aroostook Rd., is also President of the VanBuren Bridge Company; W. J. Wilgus, New York, was consulting engineer, and T. A. Lang, Resident Engineer, on the bridge construction.

The VanBuren Bridge Co. has given out the following statement: "The establishing of this route will mean a great deal to a large section of New Brunswick and Quebec, and to the portion of northern Maine known as Aroostook County, embracing an area nearly as great as the entire State of Massachusetts. New Brunswick will be benefited by having a new and direct line to the markets of central and southern New England, the distance to Boston from the timber lands, lumber mills, fisheries and pleasure resorts centring at Campbellton, on the Bay of Chaleur, being over 200 miles shorter than via the old routes through Levis and Sherbrooke. Towns and shipping points located upon the portion of the National Transcontinental Ry. between Moncton, N.B., and Levis, Que., will profit by this short line to the same New England territory, and another outlet will be offered to the products of the virgin country tributary to the recently completed National Transcontinental Ry. west of Quebec. Viewed from the other standpoint, Aroostook County will be able to tap the Cana-

dian supply of raw materials, and will be in closer touch with the grain, flour and provision supplies of the west, as the distance from Chicago to the VanBuren gateway, via the G.T.R. and the National Transcontinental Ry. is identical with the distance via the old route to the southern end of the Bangor and Aroostook system at Northern Maine Jct. The opening of the VanBuren bridge route promises much for the people of both countries, heretofore separated for some 350 miles along the International Boundary neighboring the St. John River."

Rail should be laid as early in the spring as possible, weather permitting, and should be delivered, when possible, on flat cars, the full length rails being loaded separately from the short lengths.

A camp for tourist accommodation will be operated in Jasper National Park on the line of the Grand Trunk Pacific Ry. in British Columbia next summer. It will be run on hotel lines at from \$2.50 a day up.

Sir Percy Girouard, has, according to a London cablegram, resigned as a director of Sir W. G. Armstrong Whitworth & Co., on his appointment temporarily as a major general. It is also said that he will probably resign the presidency of Armstrong Whitworth of Canada, Ltd.

The Pacific Great Eastern Equipment Co. has been incorporated under the Dominion Companies' Act, with a capital of \$3,000,000, and office in Vancouver, B.C., to purchase, hire, or otherwise acquire, or make, build or manufacture railway cars, locomotives, or other rolling stock; deal in rails, contractors' equipment, appliances, tools, etc., and to sell the same on hire or otherwise to railway companies, contractors, or others, and to carry on other enterprises germane to these objects. The provisional directors are: P. Welch, E. F. White, E. W. Kaufmann, A. H. Sperry, and D. C. Pennington, Vancouver, B.C., all of whom are associated with the Pacific Great Eastern Ry.

Hand Rails and Foot Rests on Locomotives and Tenders.—At a preliminary conference in Ottawa, April 8, between representatives of the Board of Railways Commissioners, the principal railways and the brotherhoods of locomotive engineers, locomotive firemen and enginemen, the question of hand rails on cabs of locomotives and foot rests around same at the same elevation as the running boards was discussed, but no agreement was reached, and the Board will at a sitting in Ottawa on May 4 consider the representations of all parties interested in the matter of requiring hand rails to be placed on cabs of locomotives and foot rests around same at the same elevation as the running boards; also hand rails on tenders of certain types of locomotives.

International Mercantile Marine Co.—On application of the New York Trust Co., claiming default of interest on \$52,744,000 of 4% collateral trust bonds, P. A. S. Franklin, Vice President, International Mercantile Marine Co., was appointed receiver for the company Apr. 4, by the U. S. District Court at New York. A statement issued on behalf of the bondholders' committee, intimates that it is understood that the receivership will only retain proportions directly owned by the International Mercantile Marine Co., such as the American Line and the Red Star Line, and that it will not in any way affect the so called English subsidiary companies such as the White Star, Atlantic Transport, Dominion and Leyland Lines. The operations of the main company, or of its subsidiaries will not be interfered with by the receivership.

# Railway Mechanical Methods and Devices.

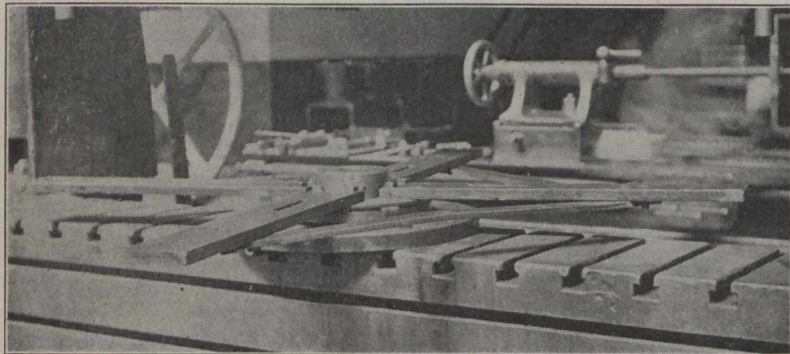
## Fixture for Drilling Holes on a Diameter.

In drilling holes for bolts or studs on a large diameter on an article that is bulky, the size of the work makes the labor involved out of all proportion to the size of the holes being drilled, from the awkwardness of the article in setting up in the machine. Ordinarily, it is the custom to fix the work upon a trestle, and shift the whole member for each hole, or else, if performed on a radial drill, block the work up in some stationary position, and shift the drill arm

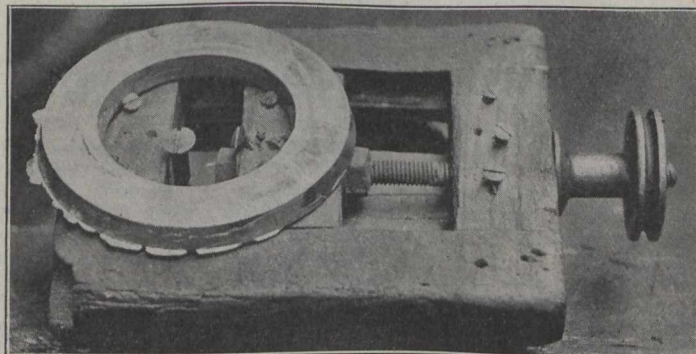
The smoke box door frame to be drilled is lifted on the jig by a small overhead jib crane, resting on the jig, and one of the drill heads can be centred over the stud hole diameter, and the drilling proceeded with, the frame revolving easily from point to point as required, the ball bearing making the effort required very light. The time taken when under observation on two regular jobs is as follows: drilling and tapping sixteen  $\frac{3}{4}$  in. holes, 40 mins.; drilling twenty four  $\frac{3}{4}$  in. holes, 20 mins. These times include the setting up, machining and removing.

the end of the frame. In the top of the frame and crosshead there are small wood screws, projecting about  $\frac{1}{8}$  in., by means of which the ring may be held either on the inner diameter or outer diameter, leaving most of the surface free to be operated on.

A small air operated circular saw on a table, mounted on the bench near the point where the rings are finished, was described in Canadian Railway and Marine World for Dec., 1912. This saw is used for removing the larger fins, sprue, etc., after which it is placed in the jig, just described, for final finishing.



Jig for Drilling Holes in Smoke Box Door Frame.



Jig for Holding Valve Stem Packing Rings for Filing.

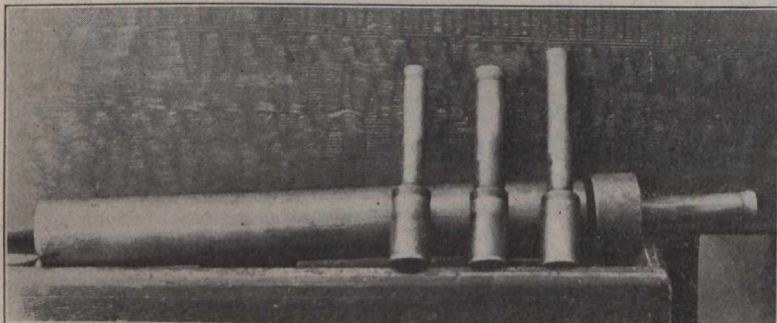
to suit. For small holes, the tying up of a radial drill for light work is not economical. Likewise, on an ordinary drill, to shift the work between holes necessitates the use of two operators, one to handle the machine, and the other to assist in shifting between holes.

In the G.T.R. shops at Stratford, Ont., a convenient jig has been made for handling such jobs on a gang drill, which requires only the services of the drill hand to perform all the shiftings. It is used with great success on smoke box door frames and wheel centres, both of which have a number of holes on large diameter. The accom-

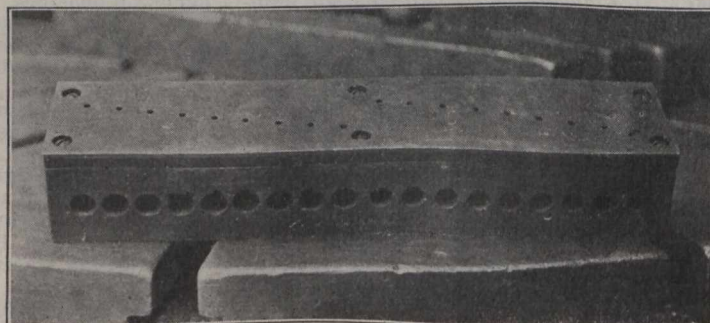
panying illustration shows the jig set up for drilling truck wheel centres the jig is slightly changed. The holding down clips for the upper member are removed, and with them the top member. Another top member, with a boss of the inside diameter of the wheel centre, the lower face of which is also channeled for a ball race, is placed in position, and the operation proceeds as before. The times observed on three occasions were as follows: drilling seven 25-32 in. holes in a cast iron wheel centre, 30 mins.; drilling twenty four 25-32 in. holes in a cast steel wheel centre, 75 mins.; and drilling twenty eight 25-32 in. holes in a cast steel wheel centre, 70 mins.

## Slotter Tools for Forked Ends.

In slotting the forked ends of rods by the usual methods, it is customary first to drill the slots with a drill of a diameter corresponding to the width to be slotted, and then run the slotting tool first along one side of the slot, and then along the other. This meant two passes for each slot. On consideration of this problem in the G.T.R. shops at Stratford, Ont., a tool was eventually developed that can handle this work in one pass, and at the same time do, if anything, a better job, as the spring of the



Slotter Tool for Forked Ends and Key Holes.



Jig for Drilling Cotter Pin Holes in Pins.

for holding smoke box door frames. It consists of a circular base casting, bolted to the drill table, in the top of which there is an annular ball race. On top of this there is a smaller circular casting, in the base of which there is a corresponding annular ball race. In the outer diameter of this top member there is a groove, into which radial tongues, bolted to the lower member, fit, the object of the latter being to prevent the upper member from tipping when loaded with the member to be drilled. The upper member is free to revolve on the balls in the raceway. From the upper member there are four radial arms of bar iron, bolted at the inner end by two cap screws to the upper member, and tied to each other by bar iron tie rods on the under side. panying illustration shows the jig set up

## Jig for Holding Valve Stem Packing Rings in the Vise.

For holding the various sizes of valve stem packing rings in the vise for trimming the fins that are left on in the casting, and for filing off the sprue defect and other small surface blemishes, the G.T.R. shops at Stratford, Ont., uses a handy little jig, that from the viewpoint of simplicity in design and general utility, leaves little to be desired. It consists of a wooden frame, as shown in the accompanying illustration, in the centre of which there is a small wooden crosshead, guided in small channels in the side legs of the frame, and actuated by a screw and hand nut passing through

tool does not enter into the task.

The accompanying illustration shows the way in which the tools are made, three tools being shown standing, with a fourth in the holder used. The tool is a formed one, machined all over, the cutting end being made the diameter of the width of the slot to be machined. It is relieved for about  $\frac{1}{2}$  in., with a straight shank as long as the depth of the work to be slotted requires. The opposite end of the tool is enlarged to fit the holder. The holder is a hollow tube, about 24 ins. long, one end of which is bored to receive a stop block. From the block face to the end is slightly under the length of the enlarged end of the tool. A knurled nut fits over the end of the holder, fastening the tool securely in the holder.

In operation the tool required is placed in the holder, and the work centred under it so that the tool is directly over one of the drill holes. The machine is then fed along the line of the slotted end or key hole, which is finished to the correct width in the one pass. A large number of sizes are kept in stock for the various widths machined.

**Jig for Drilling Cotter Holes in Pins.**

The jig shown in the accompanying illustration, used in the G.T.R. shops at Stratford, Ont., is a handy contrivance for drilling in the exact position, the cotter pin holes on the ends of small pins. Instead of marking off the hole in the desired position, and then removing to a drill press for drilling the holes in a V block, this locates the hole and holds the pin for drilling.

The jig consists of a cast iron block, drilled horizontally with holes of the size of the pins to be drilled. On the upper face of the jig there is a tempered steel plate, drilled with holes the size of the cotter pin holes. It will be observed that these holes are drilled at varying distances from the near face, the distance from the near face to the near edge of the cotter pin drill hole representing the length of the pin from the head to the cotter hole. The pin to be drilled is slipped into the desired hole until the head is flush with the near face, and drilled in that position, the pin being automatically located for position and centred.

Several such jigs are in use for various sizes of pins and cotters. Each jig is stamped with the size of pins and cotter pin holes, all that the operator requires to do being to measure off the required length of the several holes. The jig shown is for 9-16 in. pins on the left and 1/2 in. pins on the right, in both cases for 5-32 in. cotter pins.

**Increasing Drill Holding Capacity of Small Drill Press.**

It was desired to increase the drill holding capacity of one of the smaller drill presses in the G.T.R. shops at Stratford, Ont. This could not be done by increasing the socket hole size in the drill spindle, as it was considered that the socket in the spindle was as large as the latter could safely hold, without undue weakening. The accompanying illustration shows how this was simply accomplished. A short bar of steel, about 3/4 in. larger in diameter than the drill spindle, was bored out to a depth of about 2 ins., the diameter of the drill spindle, and this bushing slipped over the spindle end. Through both socket and spindle a key was fitted. The lower end of the socket was turned down on the outside to a slightly smaller diameter than the spindle, and a larger sized drill socket tapered bored in the end, with a drift pin hole in the top. By this simple means larger drills may easily be used in drill presses designed initially for smaller sizes of drills. The capacity of the drill press would seem to be the only limit to the size of special socket that might be made for any drill.

A simple method of annealing high speed steel is to place it in a tube or pipe long enough in diameter and length to accommodate the work, both ends of the pipe being secured with a screw cap. Before screwing on the cap, place in the tube from a tablespoonful to a handful of resin, then screw on the cap and place in a furnace at the proper temperature, heat for 6 hours, and let the pipe and contents cool with the furnace to atmospheric temperature.

**A Flue Rattler.**

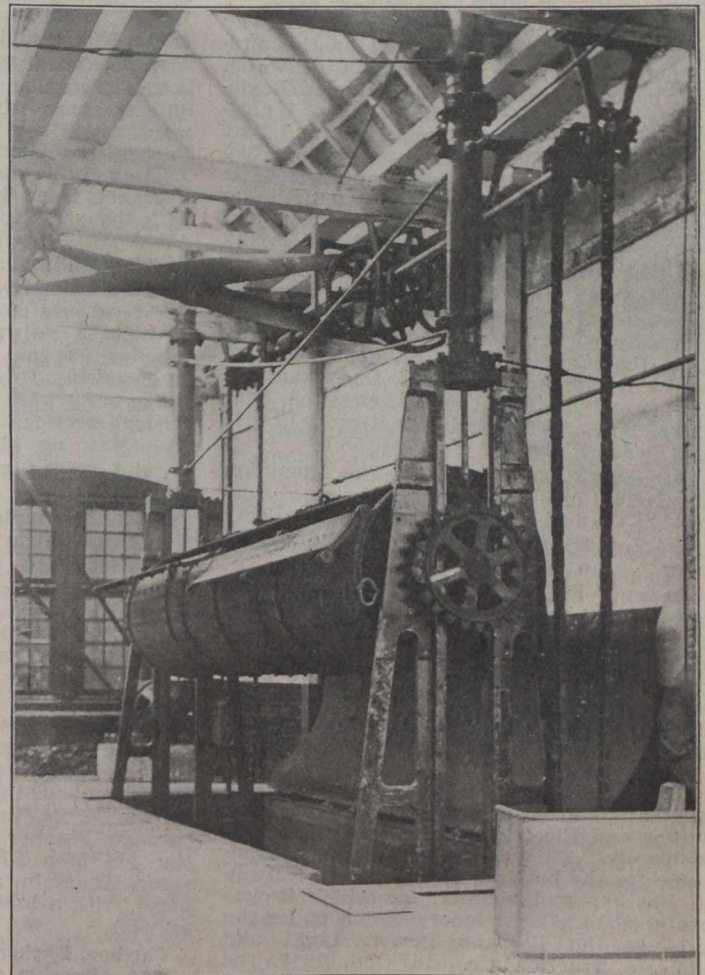
In Canadian Railway and Marine World for Nov., 1912, the practice in vogue at the G.T.R. shops at Stratford, Ont., for safe ending boiler tubes was described in detail. With the exception of the flue rattling, the process, as then used, is pretty much the same today. In addition to the equipment then in use, a similar set of machines for handling the superheater flues has been added, but the practice with these tubes is almost identical, only on a larger scale. The flue rattlers then in use were of the elevated drum type, enclosed in wooden chambers, with water poured in on the tubes in the revolving drums to facilitate the breaking up of the scale. This arrangement, while performing the work satisfactorily, was very noisy, and largely on that

chain gear wheels which, when the drum is in lower position in the pit, engage with chains, the upper ends of which pass over a smaller chain gear on an overhead shaft. This counter shaft is driven from a central shaft, in the upper left hand corner of the illustration, which receives its power from a belt at the far end, driven from an electric motor in the far corner.

In operating, the drum is raised just above the floor level and filled with tubes, which are carried from the erecting floor on cars that will hold the full locomotive set. The doors are then closed and the drum lowered, the chains being slipped on as the drum descends. The pit is filled with water, so that the rumbling of the tubes in the rattler is deadened, and the scale removal facilitated by the presence of the water. While in operation the large sheet iron door



Socket to Hold Larger Drills than Spindle Socket Allows For.



Flue Rattler.

account, as well as to produce a machine that could be handled more expeditiously, another arrangement has been developed in the Montreal shops, and which is used at Stratford. This is shown in the accompanying illustration. The old plant was in duplicate; similarly with the new one.

The rattler drum is 5 ft. in diameter, and 20 ft. long, with outwardly swinging doors for feeding in the tubes. These doors, of which there are two, are fastened in position by pins. The rattler drum is carried on trunnions in crossheads that are guided in vertical cast iron guide frames, which descend about 8 ft. into a concrete pit. On the upper end of the guide frames there are vertical hydraulic plungers, the lower end of the piston rods in which connect with the drum crossheads. By this means the drums may be raised or lowered. On both of the trunnion shafts there are large

thrown back against the wall is lowered over the pit. A guard frame at both ends protects the moving driving chain.

Both rattlers are housed in a room at one end of the main shop, the other rattler of the pair being on the left of the one shown. The floor of this shop is paved with steel sheeting, which makes the moving of the tube trucks very easy.

**Spark Arresters for Locomotives.**—Owing to experiments and investigations now under way in connection with spark arresting device for use on locomotives burning non-coking coal the Board of Railway Commissioners has decided to await the results of the same before considering definitely the amendment of regulation 2 of general order 107 suggested in circular 141 of Jan. 25.

## Railway Development.

### Projected Lines, Surveys, Construction, Betterments, Etc.

**Alma and Jonquieres Ry.**—In the act passed recently by the Quebec Legislature, amending the act of incorporation the company is given power to operate its line by steam or electricity or "by both at the same time." The route of the projected line, for which an extension of time was granted, is also definitely described, as starting from Labarre or St. Gideon, on the Quebec and Lake St. John Ry., or some point between, to Little Discharge, thence to the Isle of Alma, to Grand Discharge, and through the townships of Siguai, Labarre, Kenogami and Jonquieres to Jonquieres, on the Q. and L. St. J. Ry., 30 miles. (April, pg. 136.)

**Athabaska and Fort Vermillion Ry.**—The route proposed to be followed by this projected railway, the construction of which has been authorized by the Alberta Legislature, will be from Athabaska to Wabiscow, then northerly to Trout Lake and Fort Vermillion, a total distance of about 300 miles. The capital stock authorized is \$1,000,000, and the company may issue bonds for \$20,000 a mile for its railway, and further sums for acquiring land and laying out terminals. (April, pg. 136.)

**Athabaska and Grand Prairie Ry.**—The Dominion Parliament has incorporated a company with this title to build a railway from the junction of the Salmon and Athabaska rivers, in Alberta, to Dunvegan and the Grand Prairie country west of Bear Lake, B.C. (See Athabaska, Grand Prairie and Peace River Ry., Feb., pg. 56.)

**Athabaska Northern Ry.**—The Dominion Parliament has granted an extension of time for the building of this projected railway from Edmonton to Athabaska Landing, Alberta. (Jan., pg. 10.)

**Bassano and Bow Valley Ry.**—A recent press report said: "The construction of the Bassano-Coronation Ry., 110 miles, will shortly be commenced by the firm of Grant Smith and McDonnell Co." We have been advised by the Grant Smith and McDonnell Co., Vancouver, that the newspaper report was the first intimation they had heard of the matter.

The project to which this item refers was originally started in 1912, when the Bassano Power and Electric Co. was organized provisionally. This company secured a franchise for the building of an electric railway in Bassano and vicinity, for which it was proposed to ask for incorporation under the title of the Bassano Power, Light and Electric Traction Co. In Oct., 1912, the project was reported to be "past history." Subsequently in 1913, the Alberta Legislature decided to grant subsidies towards the building of light railways in the Province by guarantee of bonds for \$7,000 a mile, and a charter was given the Bassano and Bow Valley Ry. Co. to build a railway from Bassano for 40 miles through the C.P.R.'s Alberta irrigation district. Nothing further was heard of the project until the company obtained power from the Legislature to operate its railway by any kind of motive power, to extend its line to Coronation, to increase its bonding power from \$14,000 to \$20,000 a mile, and to extend the time for the construction of the line. When the bill was before the Legislature it was stated that work on the mileage from Bassano to the Red Deer River, about 40 miles, would be gone on with this year. The Red Deer River would be reached at Bull Pound Creek, and the line would then proceed up the valley of that creek, crossing one of the Canadian Northern Ry. lines at Richdale, and continuing to Coronation. F. H.

Whiteside, who had charge of the passage of the bill in the Legislature, is reported to have stated that the charter had been acquired by the Grant Smith and McDonnell Co., and another press report stated that J. A. Campbell, Alberta, Manager for the same firm, had said construction gangs would be put on as early as possible in the spring, and that the grading would be rushed. (April, pg. 136.)

**British Columbia and White River Ry.**—An extension of time has been granted by the Dominion Parliament for the building of this projected railway from Bear Creek, at the mouth of Chilkat Pass, B.C., to White River, and then on to the boundary between Yukon and Alaska. (Feb., pg. 56.)

**Brule, Grand Prairie and Peace River Ry.**—The Dominion Parliament has incorporated a company with this title to build a railway from Brule Lake, Alberta, via Grand Prairie to a junction with the Pacific Great Eastern Ry. in the Peace River district, with a branch from Grand Prairie to a junction with the projected Pacific, Peace River and Athabaska Ry. near the Montagneuse River. (April, pg. 136.)

**Brule Lake Ry.**—The Alberta Legislature has incorporated a company with this title to build a railway from near Brule Lake, mileage 994 on the Grand Trunk Pacific Ry., easterly, through tps. 26 and 24, tp. 49, range 27, west, and then northeasterly through sections 19, 20 and 27, tp. 49, range 26. (Mar., pg. 94.)

**Calgary and Fernie Ry.**—The Dominion Parliament has granted an extension of time for the building of this projected railway from Calgary, Alberta, to Fernie, B.C. (Feb., pg. 56.)

**Canadian Terminal Ry.**—The route of this projected railway is from Pennfield, N.B., on the C.P.R., southwesterly to Beaver Harbor, L'Etang and Black's Harbor, eight miles. The New Brunswick Government is being asked to guarantee the bonds for \$20,000 a mile. (Mar., pg. 94.)

**Canadian Western Ry.**—An extension of time has been granted by the Dominion Parliament for the building of this projected railway from the International Boundary through Pincher Creek, Cowley and along the Old Man River Valley to the Livingstone Mountain, and thence to Calgary, Alberta, with a branch to Michel, B.C. (Feb., pg. 56.)

**Cariboo, Barkerville and Willow River Ry.**—The Minister of Railways has approved route map of this projected railway from Barkerville, at the junction of the Clearwater and North Thompson rivers, B.C., in the direction of the Willow River, for 170 miles. (May, 1913, pg. 219.)

**Central Canada Ry.**—In the Alberta Legislature, Mar. 30, the Premier stated that the provincially guaranteed bonds for the building of this line from McLennan, on the Edmonton, Dunvegan and British Columbia Ry., to the Peace River Crossing had not been sold. The company, however, upon its own initiative had built 25 miles, and was continuing the construction of the remaining 22 miles to the crossing. As it was important that this piece of line be completed, the Government asked the Legislature to authorize it to advance to the company, on the security of its bonds and the guarantee of the E. D. and B. C. Ry., out of any unappropriated funds in the hands of the Provincial Treasurer, an amount not exceeding the present provincial guarantee and not exceeding 80% of the cost of the

line, to be repaid when the bonds were sold. The formal resolution authorizing this and an act setting out the conditions were subsequently passed.

The Legislature has also authorized the company to build a line from the Alberta and Great Waterways Ry., between tps. 64 and 65, easterly to the Alberta-Saskatchewan boundary. The line will pass through a fairly well settled district, and will touch some extensive timber limits. (April, pg. 136.)

**Edmonton, Dunvegan and British Columbia Ry.**—Track laying was reported to have reached Big Smoky River, mileage 290, from Edmonton, Mar. 31. A temporary bridge is being built across the river so as to get supplies across for the completion of the 70 miles of track to Spirit River settlement. It is not proposed to start work on the permanent steel bridge across Smoky River until the winter. It is expected that track laying will be completed to the Spirit River early in the fall. The projected branch through the Grand Prairie country will start from Spirit River settlement.

The Alberta Legislature has authorized the Government to affix the provincial guarantee to bonds for \$20,000 a mile for the building of a branch through the Grand Prairie country, about 60 miles.

The Dominion Parliament has granted an extension of time for the building of the extension of the line from Spirit River, Alberta, to a junction with the Pacific Great Eastern Ry. at the Alberta-British Columbia boundary, and has authorized the building of an additional line starting from tps. 77, 78 or 79, ranges 3, 4, 5 or 6, west of the 6th meridian, through Grand Prairie district, to Jasper House, Alberta. (April, pg. 136.)

**Entwistle and Alberta Southern Ry.**—The Dominion Parliament has incorporated a company with this title to build a railway from Entwistle, Alberta, southerly to the Saskatchewan River, on the boundary between tps. 57 and 58 west of the 5th meridian, Alberta, 60 miles. (April, pg. 136.)

**Essex Terminal Ry.**—An extension of time has been granted by the Dominion Parliament for the completion of the lines authorized to be built in Windsor, Ont., and vicinity. (Nov., 1914, pg. 500.)

**Fraser Valley Terminal Ry.**—The Dominion Parliament has incorporated a company with this title to acquire, construct, maintain and operate within the municipalities of Richmond and New Westminster, B.C., railway yards, terminals, and all that is necessary for the handling of traffic of whatsoever nature; to build tunnels, viaducts and bridges, wharves, docks, workshops, powerhouses, etc., and to build railway lines not to exceed in any one case 20 miles, to connect any of its terminals with the C.P.R., the Canadian Northern Pacific Ry., or any other railway having lines in the municipalities named. The authorized capital is \$2,000,000, and the company may issue securities for \$40,000 a mile. The provisional directors are: C. F. Pretty, C. N. Pretty, T. T. Dauphinee, T. R. Pearson, J. B. Noble, Vancouver.

Application was originally made for incorporation with the title of the Vancouver Terminal Ry., with Vancouver as the centre of its operations, but owing to the opposition of the city of Vancouver, the title was changed and the location of terminals was fixed in Richmond and New Westminster municipalities. (April, pg. 137.)

**Greater Winnipeg Water District Ry.**—The Dominion Government has granted a 300 ft. right of way through all the Dominion land through which the 80 mile line passes, between St. Boniface and the Shoal Lake bay of the Lake of the Woods.

At a meeting of the Commissioners, Mar. 26, it was reported that up to Mar. 10, there had been received \$1,304.38 for passenger fares, and \$6,146.77 for freight tolls from the operation of the line, while the actual cost of train crews, rent of rolling stock, motive power and supplies had been \$3,406.94. An arrangement is being made with the railways having connection with the transfer yard at Paddington for the handling of traffic originating on the District line. (Mar., pg. 94.)

**Glengarry and Stormont Ry.**—Officials of the C.P.R., which will operate this railway running from St. Polycarpe, Que., to Cornwall, Ont., 28 miles, made a trip of inspection over it recently. The ballasting is being completed, and it is expected to have everything ready for starting operations about June 1. (Jan., pg. 10.)

**The Hudson Bay, Peace River and Pacific Ry.** Co.'s application to the Dominion Parliament for a change of name to that of the Winnipeg and Hudson Bay Ry., an extension of time for construction, and other additional powers, was withdrawn from further consideration, Mar. 25. (April, pg. 136.)

**Huntingdon and Hemmingford Ry.**—The route of this projected railway is definitely described in sec 1, of the act passed by the Quebec Legislature recently, granting an extension of time for construction as reaching the International Boundary line where it is crossed by the Delaware and Hudson Ry. between Lacolle, Que., and Rouse's Point, N.Y. (Mar., pg. 136.)

**Kettle Valley Lines.**—The K. V. Ry. extending from Midway, B.C., on the C.P.R. Crowsnest Pass line, to Merritt, the terminus of the C.P.R. Nicola branch, which joins the main transcontinental line at Spence's Bridge, is expected to be opened for traffic in June. The mileage of the important points from Midway are: Penticton, 134 miles; Princeton, 204 miles; Merritt, 272 miles, and the distance from the latter point to Spence's Bridge is 40 miles. The opening of this line will give the C.P.R., which leases the K. V. lines, another alternative route to and from the Pacific Coast. The distance between Winnipeg and Vancouver by the new route will be 1,311 miles, against 1,484 by the main transcontinental line through Calgary and Banff, and 1,657 miles by the route through Dunmore Jct., Crowsnest, Kootenay Landing, West Robson and Revelstoke.

The line from Midway to Princeton, 204 miles, has been built by the K. V. Lines, the contractors for the section from Osprey Lake into Princeton being Guthrie, McDougall and Co., who were engaged in building the Vancouver, Victoria and Eastern Ry. in the same vicinity. From Princeton to Otter Summit, the K. V. Lines will operate over a section of the V. V. and E. Ry., which is now being ballasted. The company's original plan for an independent line from Osprey Lake to Otter Summit, 65.5 miles, as described in Canadian Railway and Marine World, Mar., 1914, pg. 80, is being held in abeyance. The section from Otter Summit to the Fraser River, 52.3 miles, is being built by the K. V. Lines, and will be operated jointly with the V. V. and E. Ry. This section, it is expected, will be completed in the autumn. The bridge across the Fraser River at Hope is reported completed, and track laying is being proceeded with to effect a junction with the C.P.R. there.

The Dominion Parliament has granted an extension of time for the building of the following branch lines: From Penticton to the International Boundary at Osoyoos Lake; from Summer Creek via Allison or Princeton to the junction of the Granite Creek with the Tulameen River; from One

Mile Creek to the Copper Mountain and Voigt mining camps, 15 miles southwest of Princeton; from Vernon, southerly by Kelowna to Penticton; from the second of the above mentioned lines northerly to Otter Summit, about 30 miles south of Merritt; from near Tulameen for about 50 miles up the Tulameen River valley from Grand Forks for 50 miles up the north fork of the Kettle River; from Midway to Hedley, and from Penticton to Nicola. (Mar., pg. 94.)

**Lake Erie and Northern Ry.**—The question of the electrification of the completed section of the line is under consideration. W. P. Kellett, who has been General Manager and Chief Engineer from the inception of the project has resigned. M. N. Todd, President, Berlin, Waterloo, Wellesley and Lake Huron Ry., (formerly Galt, Preston and Hespeler St. Ry.), has been appointed General Manager to succeed him.

The contractors for the line southerly from Brantford to Port Dover have been getting things in order to complete that section during this year. It is expected that if the Brantford-Galt section is electrified the southern section will also be operated by the same motive power. (Feb., pg. 57.)

**Medicine Hat Spur Tracks.**—The Alberta Legislature has passed an act respecting the city of Medicine Hat, which among other things confirms a bylaw authorizing the borrowing of \$11,700 for the construction of spur tracks to the industrial section of the city.

**Moncton and Northumberland Strait Ry.**—The Dominion Parliament has granted the company an extension of time for the construction of its projected lines from Buctouche to Richibucto; from Richibucto to Chatham or Loggieville; from Painsec Jct., to Cape Tormentine, N.B., and from Westpoint to Coleman, P.E.I. (Jan., pg. 10.)

**North Ry.**—Replying to a question in the Senate, Mar. 31, Senator Loughheed said the Dominion Government had acquired from the company the portion of its projected railway from Montreal to the proposed junction with the National Transcontinental Railway. The agreement to take over the project was signed Dec. 23, 1914, and a cheque for \$250,000, the amount of purchase, was issued on the following day. Under the agreement the company has to settle all outstanding claims and turn over to the Department of Railways all information relative to surveys, and all field notes, plans, etc., in connection therewith, together with office furniture, etc. The company had a subsidy for the building of the line at the usual rate, and upon the regular conditions, which lapses upon the transfer to the Government. (June, 1914, pg. 266.)

**North Vancouver Island Ry.**—The Minister of Railways for British Columbia has granted an extension of time for the building of this projected railway from Rupert Arm, Quatsino Sound to Hardy Bay, Vancouver Island, under the provisions of sec. 79, chap 19.4, Revised Statutes of British Columbia. (June, 1912, pg. 301.)

**Northern Pacific and British Columbia Ry.**—The Dominion Parliament has incorporated a company with this title to enter into arrangements with the Vancouver, Victoria and Eastern Ry. and Navigation Co., for running rights over its lines into Vancouver, and to acquire land and lay out terminals in Vancouver, New Westminster, and other points on such lines, between Huntingdon and Vancouver. (April, pg. 136.)

**Pacific Great Eastern Ry.**—The Minister of Railways for British Columbia has approved a map showing the general location of a proposed line from Davie Lake to Azzuzetta Lake, Pine Pass, Caribou district, B.C. (April, pg. 137.)

**Pacific, Peace River and Athabaska Ry.**—The Dominion Parliament has authorized a change in the location of the Pacific coast terminus, from the mouth of the Naas River, to the Kitimat arm, and thence to the Naas River. An extension of time for construction was also granted.

The Minister of Railways for British Columbia has granted an extension of time to the Naas and Skeena River Ry., the charter of which has been acquired by the P., P. R. and A. Ry., for the building of its projected railway from Nasoga Gulf to the Skeena River, under the provisions of sec. 79, chap. 19.4, Revised Statutes of B. C.

We are officially advised that the tramway which it is proposed to build at Vermillion Falls, on the Peace River, by the company's subsidiary, the Peace River Tramway and Navigation Co., will be standard gauge, and five miles long. It will be operated by steam at first, but when the power plant at the Vermillion Falls has been developed, electricity will be used. The oil field which it is proposed to prove and develop at this point is believed to represent the anticlinal fold. It is proposed to build a steambot at Peace River Crossing during this year, which it is hoped to have ready for the traffic which will be brought to that point on the opening of the Edmonton, Dunvegan and British Columbia Ry. The company also proposes to build another tramway, about 15 miles long, between Smith's Landing and Fort Smith, to overcome the Drowned, Pelican, Mountain (3), and Cossette rapids, six in all, on that stretch of the Slave River. (April, pg. 137.)

**Prince Edward Island Ry.**—The House of Commons has voted the following sums: To strengthen bridges, \$10,000; original construction, \$800; power plants, \$125; surveys and inspection, \$10,400; to increase accommodation and facilities along the line, \$17,600; to provide car ferry, construct terminals and necessary connections, \$1,900,000.

In the House of Commons recently the Minister of Railways stated that the car ferry was completed, but the piers on the island and on the mainland were not ready. Owing to this, and the fact that there was a difference of \$5,000 between summer and winter insurance, the builders were holding the ferry until spring. Considerable difficulty had been met with in building the piers, particularly at Carleton Point, P.E.I. There was no doubt that the piers would be sufficiently completed by September to enable them to be used, although they might not be fully completed. It was intended to operate the car ferry during the winter, the contract calling for ability to make half a mile an hour in the worst ice conditions. (Dec., 1914, pg. 544.)

**Simcoe, Grey and Bruce Ry.**—The Dominion Parliament has granted an extension of time for the building of this projected railway from Southampton to Collingwood, Ont., via Owen Sound and Meaford, and from Southampton to Kincardine, via Port Elgin and Tiverton. (Mar., pg. 95.)

**Smoky Valley and Peace River Ry.**—The Alberta Legislature has incorporated a company with this title to build a railway from the junction of Solomon Creek with the Athabasca River, on the Canadian Northern Alberta Ry's line northerly and westerly to the junction of Sheep Creek and Smoky River, and then on to Dunvegan. (April, pg. 137.)

**Southern Central Pacific Ry.**—The Dominion Parliament has granted an extension of time for the building of the line authorized to be built from Vancouver via Kootenay Pass and the Old Man River to Hudson Bay, at least 100 miles north of

Fort Churchill, with a branch from Blindman River, Sask., via Dunvegan, to Gardiner's Canal, B.C., and another branch from the Elk River, B.C., to the International Boundary at Milk River.

**Timiskaming and Northern Ontario Ry.**—The Minister of Public Works informed the Ontario Legislature, Mar. 25, that there would be certain capital expenditure made

on the T. and N. O. R. during this fiscal year, but the amount had not been decided upon. (Sept., 1914, pg. 419.)

**Western Dominion Ry.**—The Dominion Parliament has extended the time for the building of the projected railway from Calgary, via the Old Man River valley, Pincher Creek and Cardston, Alberta, to the International Boundary. (April, pg. 137.)

## Traffic Orders by the Board of Railway Commissioners.

### Release Re Carriage of Household Goods.

General Order 136. Mar. 25. Re application of Canadian Freight Association, under section 340 of the Railway Act, for an order approving a new form of release in connection with carriage of household goods, it is ordered:

1. That the said form of release, being a form of special contract limiting the liability of the carrier in respect of the carriage of the undermentioned traffic, be approved as amended by the Board; the said form being in the terms following, viz:

#### "SPECIAL CONTRACT.

.....Railway Company.  
"Limitation of responsibility in connection with the carriage of household goods, furniture and settlers' effects (all second hand).  
Consignee and  
Destination

#### Description of Articles

"In consideration of the.....Railway Co. and its connecting carriers receiving the above mentioned property for carriage from.....station, consigned to.....at.....station, at a lower rate than the said company and its connecting carriers might otherwise lawfully charge and be liable for injury to or loss of the said goods and property, or any of it, the said lower and the higher rates being as provided for in the Canadian Freight Classification, or current special tariffs, I do hereby undertake that no claim in respect of injury to, or loss of, the said property, or any of it, will be made against the said Company and its connections, or any of them, exceeding the amount of \$10 for any one of the packages and its contents, or any one article not enclosed in a package, whether such injury or loss is occasioned by the negligence of the said company, its connections, or any of them, or its or their servants or agents, or any of them, or otherwise howsoever.

.....Shipper."

2. That all railway companies under the jurisdiction of the Board be directed to discontinue the use of their present forms of release limiting their liability with respect to the carriage of the property referred to in sec. 1 of this Order, and to substitute therefor the form herein prescribed until otherwise ordered by the Board.

3. That the Canadian Freight Classification, also, if necessary, any special tariffs affected by these provisions, be amended so as to conform to this Order.

### Express Classification Storage Batteries Charged With Acid.

General Order 137. Mar. 26. Re application of Express Traffic Association of Canada for approval of a proposed amendment to Express Classification for Canada no. 3, providing a rating for storage batteries charged with acid, and conditions of carriage thereof, the acceptance by the express companies of such batteries being prohibited by the present classification; and on the application of Death & Watson, Ltd., of Toronto, it is ordered that the proposed amendment to the said classification be approved as follows:

"Batteries, storage, to be charged at merchandise rates. If empty, the batteries must be boxed or crated. If charged with acid, the batteries must be placed in a strong wooden box and surrounded and covered by excelsior or other porous material that will not be attacked chemically by the liquid, and in quantity sufficient to absorb and hold all of the liquid contained therein. Batteries must be packed with filling holes up. The outside box should be so constructed, with projecting sides and ends with gable top, that it cannot be placed in any other than an upright position, and cannot be stood on side, end or top. On the outside container must be placed a white label, reading:

"NOTICE: Handle carefully. ACID. Do not load with inflammables protected by yellow labels.....Shipper's name."

### Express Classification Re Moving Picture Films.

General Order 138. Mar. 25. Re application of Express Traffic Association of Canada, for approval of a proposed amendment to Express Classification for Canada no. 3, containing provisions for the proper packing of moving picture films, with the object of safeguarding the travelling public and the companies' employes, it is ordered that the proposed amendment be approved as follows, viz:

"Moving picture films must be packed in tightly closed metal cases enclosed in a strong spark-proof wooden box; or in spark-proof cases made of sheet iron not less than 0.02 in. thick and lined throughout with fibre board at least 1/8 in. thick, or some other equivalent insulating material. The cover of these cases must fit tightly, and must lap over the body at least 5/8 in. on the sides, forming a tight joint. On the outside must be placed a red label, reading: 'MOVING PICTURE FILMS. Must not be loaded or stored near a radiator, stove, or other source of heat.'"

### C. P. R. Freight Tariffs Suspended.

General order 139. April 1. Re application of Canadian Freight Association on behalf of railway companies operating in Eastern Canada, for permission to increase their freight rates on various classes of general merchandise and commodities. Upon a further hearing of the application in Toronto, Mar. 31, in the presence of counsel for and representatives of the Grand Trunk Canadian Pacific, and Canadian Northern Railway Companies, the Dominion Government, the Montreal Board of Trade, the Toronto Board of Trade, the Brotherhood of Locomotive Engineers, the Brotherhood of Firemen and Trainmen, the Dominion and other Cannery Associations, the Montreal Corn Exchange, the Atlantic Sugar Refinery, of St. John, N.B., and the Dominion Millers' Association, it is ordered that the proposed advances in commodity rates shown on pages 4, 5, 6, and the upper part of page 7 of Supplement 26 to C.P.R. Tariff, C.R.C. no. E-2480, be suspended pending a decision by the Board in the said application for a general increase.

### Express Receipts and Labelling of Shipments.

General order 142. April 17. Re complaints made by shippers against section 5, subsection (c) of form of Express Merchandise Receipt; and re labelling "prepaid" and "collect" packages.

It is ordered that sub-section (c) of section 5 of the "Terms and Conditions" endorsed on the Express Merchandise Receipt, be struck out; and that, in lieu thereof, the following new sub-section be inserted:

"For any loss or damage caused by delay, or by injury to, or loss or destruction of the shipment, or any part thereof, from conditions beyond the control of the company, unless such loss or damage is caused by the negligence of the railway company upon whose trains or property the shipment was at the time such loss or damage occurred."

And it is further ordered that express companies shall firmly affix a printed label to every shipment of goods received for carriage, which label shall indicate in conspicuous type whether the charges thereon have been prepaid, or are payable by the

consignee. One such label affixed to any one package or article in a shipment composed of two or more packages or articles may suffice, provided that the label indicates the total number of packages or articles in the shipment. For prepaid shipments the label shall be printed in black on yellow paper. For collect shipments the label shall be printed in black on white paper. Permission of the consignee shall be obtained before the removal of any tag, wrapper, or portion of wrapper from any package or article.

### Green Rough Lumber for Dressing and Reshipment.

23468. April 3. Re C.P.R. Supplement 1 cancelling C.R.C. no. W-1936, applying rates on green rough lumber for dressing and re-shipment. Upon the complaint of the East Kootenay Lumber Co. it is ordered that the said supplement be suspended, pending a hearing by the Board.

## The Death of William Stitt.

William Stitt, General Passenger Agent, Eastern Lines, C.P.R., died suddenly in the office of Capt. J. Walsh, Marine Superintendent, C.P.R., at the Windsor St. general offices, Montreal, Apr. 1. The funeral took place Apr. 3, from his home at Westmount, whence the body was taken by special train to Windsor St. Station, and thence to Mount Royal Cemetery. A large number of C.P.R. and other railway officials attended from various parts of Eastern Canada and the United States, and the ticket offices of the chief railways in the city were closed at 1 o'clock as a mark of respect.

At a meeting of the Eastern Canadian Passenger Association, Apr. 6, the following resolution was passed: "Our esteemed friend and colleague was suddenly taken from us while actively engaged in his daily tasks. His keen perception and discriminating judgment gave him a high place in the deliberations of this body, the sagacity of his counsels being enriched with his wealth of kindly humor, therefore be it resolved, that the members of this association, bound by ties of a common and irreparable loss, record their sense of deprivation, and express to his sorrowing family heartfelt condolence and sincerest sympathy. Wise and kindly, frank, but charitable, his life was gentle, and the elements so mixed in him that nature might stand up and say to all the world, this was a man."

He was born in Kirkcudbrightshire, Scotland, Aug. 3, 1855, and entered railway service with the Caledonian Ry. there, and was subsequently with the Glasgow and West of Ireland Steam Packet Co. He came to Canada in 1888, and entered C.P.R. service in the Passenger Department, Winnipeg, becoming chief clerk, and in 1891, Assistant General Passenger Agent there. In 1901 he went to Australia to represent the C.P.R. in connection with the Canadian-Australian Steamship Line, of which he was General Passenger Agent, with office at Sydney, N.S.W. He was appointed General Passenger Agent, Eastern Lines, C.P.R., in 1907.

**Buffalo Freight Service.**—The International Ry. of Buffalo, N.Y., has inaugurated a new freight service in order to meet the requirements of shippers. The company places a freight car at the Erie Rd. station each day which receives the package freight for all points along its lines. A clerk is in charge of the car from 7.30 a.m. to 4.40 p.m., after which the car is moved to the uptown freight station. Here the freight is then placed on the first car bound for that particular point to which the freight is consigned.



## Mainly About Railway People.

**H. B. Walkem**, Resident Engineer, C.P.R., Nelson, B.C., has been given three months leave of absence to visit California.

**M. L. Duffy**, E. W. Jones, H. Prynne and D. B. Watson, of the C.P.R. London, Eng., staff, have received commissions in the British Army.

**Sir Thomas Shaughnessy**, President, C.P.R., has been elected an honorary member of the Institute of Civil Engineers, London, Eng.

**J. L. Englehart**, Chairman, Timiskaming and Northern Ontario Ry. Commission, has had his remuneration increased by the Ontario Legislature, from \$5,000 to \$7,500 a year.

**Sir Thomas Shaughnessy**, President, C.P.R., left Montreal, April 8, with Lady and Miss Shaughnessy, for San Francisco and other California points, intending to return via Victoria and Vancouver early in May.

**J. E. Dalrymple**, Vice President, G.T.R., and G.T. Pacific Ry., has been appointed an honorary colonel in the transportation branch of the Militia, succeeding the late Wm. Wainwright.

**G. W. Lee**, one of the commissioners operating the Timiskaming and Northern Ontario Ry. on behalf of the Ontario Government, has been authorized to act and draw salary as General Agent, T. & N.O.R., in addition to acting as a commissioner.

**Sir George Gibb**, one of the most prominent railway men in Great Britain, has been appointed by the British Government, to deal with all matters pertaining to the purchase of materials for war purposes, with a view to minimizing the possibility of graft.

**C. L. Conacher**, who visited Canada last summer and came in contact with a number of transportation officials, has been serving as a railway transport officer on the War Office staff in London since October, with the rank of captain.

**George W. Yates**, Minister's Secretary, Railways & Canals Department, Ottawa, the death of whose father was announced in our April issue as having occurred at London, Ont., Mar. 7, suffered a second bereavement by the death of his mother, Mar. 28.

**Thos. Jackson**, who died at Clinton, Ont., April 8, aged 84, was the father of Wm. Jackson, town ticket agent, C.P.R., there, and formerly President, Canadian Ticket Agents' Association, of which he has been one of the most active members for many years.

**H. W. Nanton**, a partner in Osler, Hammond & Nanton, Winnipeg, who died there April 18, was a brother of A. M. Nanton, director, C.P.R. He started his career in banking service and was afterwards on the staff of the old Ontario & Quebec Railway before going to the west.

**D. Henion**, Locomotive Foreman, Canadian Northern Ry., Atikokan, Ont., was reported to have been arrested, Mar. 26, on a charge, not specified, but presumed to be some breach of war regulations. He was born in the United States, but has lived in Canada for about 12 years.

**Timothy Mullins**, who has been appointed City Passenger Agent, C.P.R., Ottawa, Ont., was born in 1878, and entered C.P.R. service, Mar. 16, 1904, and has been from 1907 to 1913, city solicitor for passenger business; 1913 to Feb. 28, 1915, City Passenger Agent, all in Toronto.

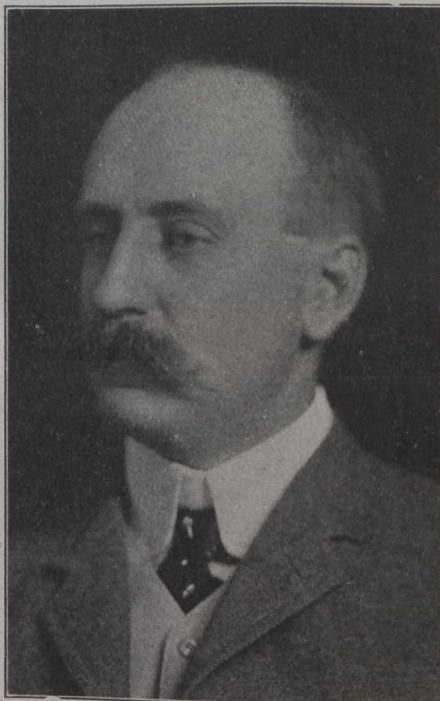
**W. P. Hutchinson** and **B. A. Bourgeois** having received the highest number of votes, have been declared by F. P. Gutelius, Chairman of the Intercolonial and Prince Edward Island Railway Employees' Provi-

dent Fund, as the two members elected by the employes for the year ending Mar. 31, 1916.

**A. L. Sauve**, who has been appointed City Ticket Agent, C.P.R., Ottawa, Ont., was born in 1889, and entered C.P.R. service in 1906, since when he has occupied positions in Ottawa, Montreal, Quebec, and latterly as City Ticket Agent at Detroit, Mich. He was also, for one year, ticket agent on board the C.P.R. s.s. Empress of Britain.

**W. J. McDonald**, who died at St. Petersburg, Florida, Apr. 5, was for many years a prominent railway contractor in Canada, having built portions of the National Transcontinental Ry. in Quebec and New Brunswick, and near Sudbury, Ont., as well as carrying out a contract on the Quebec and Saguenay Ry.

**Alex. Mackenzie**, elder brother of Sir Wm. Mackenzie, and Mrs. Mackenzie celebrated the 50th anniversary of their wedding, Mar. 28, in Toronto. Among the sons present



H. H. Vaughan, M. Can. Soc. C.E.  
Consulting Engineer, Canadian Pacific Railway.

were **J. S. Mackenzie**, Purchasing Agent, Winnipeg Electric Ry., and **W. E. Mackenzie**, Locomotive Foreman, Canadian Northern Ry., Vermillion, Alta.

**J. E. Muhlfeld**, who was a master mechanic on the G.T.R. from Feb. 1899 to Sept. 1901, and Superintendent of Machinery and Rolling Stock, Canadian Government Railways, Moncton, N.B., from Sept. 1901 to Oct. 1902, is President of the Locomotive Pulverized Fuel Co. which has been organized recently in New York.

**F. D. Underwood**, President, Erie Rd., underwent a minor operation at the New York Hospital, New York, April 1, which was very successful and we were advised April 15 that he expected to be back at his office a few days thereafter. The press report that he was operated upon for appendicitis was incorrect.

**V. F. Aiken**, referred to as a former passenger and telegraph agent of the C.P.R. at Rogers Pass, was arrested at Vancouver, B.C., Apr. 5, as the last of eight men who have been wanted since Nov. 1913, on charges of conspiracy to defraud the C.P.R.

by means of padded pay rolls. The amount stated to have been embezzled is \$11,000.

**Albert Craig**, who has been appointed City Passenger Agent, C.P.R., Hamilton, Ont., was born there, June 5, 1884, and entered railway service, Sept. 1900, since when he has been, to Dec. 1904, ticket clerk, C.P.R. and Toronto, Hamilton and Buffalo Ry., Hamilton, Ont.; Dec. 1904 to May 1, 1915, Ticket Agent, same road, Hamilton.

**John Bryden**, who died at Victoria, B.C., Mar. 25, was for a number of years Manager of the Dunsmuir Colliery interests at Wellington, Vancouver Island. He married Miss E. H. Dunsmuir (sister of James Dunsmuir, director C.P.R.), who died in 1891. He was a relative of the only survivor of the massacre of the British troops in the Khyber Pass, Afghanistan, in about 1849.

**A. C. Fraser**, whose appointment as Superintendent of Telegraphs, Eastern Division, C. P. R., Montreal, was announced in our last issue, was born at McLellan's Brook, N.S., Feb. 11, 1870, and entered telegraph service in 1886, with the Western Union Telegraph Co., at Moncton, N.B. Since he entered C.P.R. telegraph service he has been operator, traffic chief, wire chief, agent, and inspector.

**W. McIntosh**, a former Superintendent of Motive Power, Central Rd. of New Jersey, Jersey City, N.J., who died at Plainfield, N.J., recently, was born at Franklin, Que., Aug. 20, 1849, and spent his railway career entirely in the U. S. He was a prominent member of the American Railway Master Mechanics' Association, and in 1908 served as President. He was also a member of the American Society of Mechanical Engineers.

**James Markey**, Master Mechanic, Ontario Lines, G.T.R., Toronto, died at his home there, Apr. 22, aged 54, after several weeks illness. He had been in G.T.R. service for about 25 years, rising from the position of locomotive driver. He was born in Ireland, and went to New York at an early age, coming to Canada later, and entering G.T.R. service at Stratford, Ont., subsequently serving at Belleville, Brockville and Allandale.

**H. T. Morgan**, who died at Bournemouth, Eng., recently, aged 51, was a son of the late F. Grundy, Vice President of the Quebec Central Ry., Sherbrooke, Que., and brother of G. G. Grundy, General Manager, Temiscouata Ry., Riviere du Loup, Que., and of E. O. Grundy, General Passenger Agent, Quebec Central Ry., Sherbrooke, Que. He had been engaged in railway service under the Egyptian Government, and changed his name by deed poll at the time of his marriage several years ago.

**H. J. Lillie**, whose appointment as Superintendent of Telegraphs, Ontario Division, C.P.R., Toronto, was mentioned in our last issue, was born there, Nov. 16, 1867, and entered telegraph service in July 1881, as messenger, Great North Western Telegraph Co., at Toronto, and remained with that company as an operator until Nov. 1886, when he transferred to the C.P.R. telegraph service at Toronto, occupying successively the positions of assistant traffic chief, wire chief, and latterly chief operator there.

**George Duncan**, City Passenger Agent, C. P. R., Ottawa, Ont., died suddenly, Apr. 6, while in the Government immigration offices. He was born in Montreal, Nov. 23, 1860, and had been in C.P.R. service for about 35 years, prior to which he had been with the G.T.R. Among the positions he occupied with the C.P.R., were those of chief clerk to the General Manager, Traveling Passenger Agent, City Passenger Agent, Sherbrooke, Que., and at Quebec, Que., and since 1900, City Passenger and Ticket Agent, Ottawa, Ont.

**F. W. Taylor**, who is well known as the originator of modern scientific management, which has been adopted in the chief railway shops on this continent, died suddenly in Philadelphia, from pneumonia, recently. He received a personal gold medal at the Paris Exposition of 1900 for an improved process of treating modern high speed steel, and also the Elliott Cresson medal of the Franklin Institute. He was a member of the American Society of Mechanical Engineers, of which he was President in 1905-06. He was also author of several books and articles dealing with shop management.

**Frederick R. Perry**, who has been appointed General Agent, Passenger Department, C.P.R., New York, was born at Hopkinton, Mass., Aug. 15, 1876, and entered railway service July 1, 1895, since when he has been, to Apr. 30, 1896, stenographer, G.T.R., Boston, Mass.; May 1, 1896 to Mar. 31, 1900, stenographer and ticket clerk, C.P.R., Boston, Mass.; Apr. 1, 1900 to Dec. 1, 1904, City Passenger and Ticket Agent, C.P.R., Boston, Mass.; Dec. 1, 1904 to May 31, 1906, District Passenger Agent, C.P.R., St. John, N.B.; June 1, 1906 to Mar. 31, 1915, General Agent, Passenger Department, C. P. R., Boston, Mass.

**Charles Frederick Black**, who has been appointed Attorney, Central Vermont Ry., was born at Burlington, Vt., Mar. 5, 1884, and educated there, graduating from the High School in June, 1902. He attended the University of Vermont and graduated in June, 1906, with the degree of Ph.B., and obtained the degree of LL.B., at the George Washington University, Washington, D.C., in June, 1910. He was admitted to practice in the District of Columbia in Oct., 1910, and in Vermont in Oct., 1912. He was City Prosecuting Officer, Burlington, Vt., 1913 to 1915, and a member of the Vermont General Assembly for 1915.

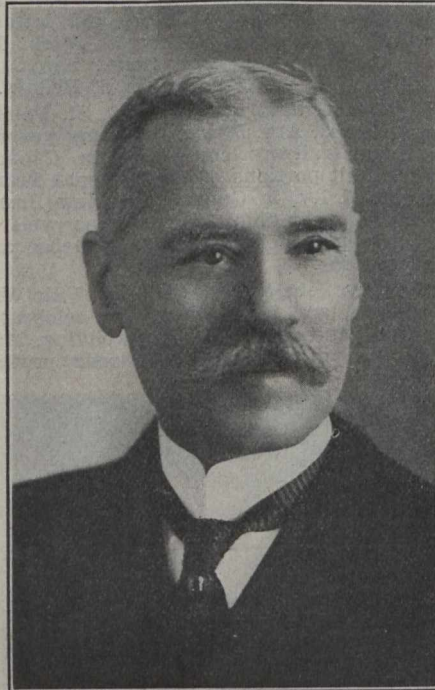
**William Fulton**, who has been appointed Assistant District Passenger Agent, C.P.R., Toronto, was born at Ballinderry, near Belfast, Ireland, Nov. 13, 1870, and entered C. P.R. service, Jan. 1891, since when he has been, to Jan. 1895, clerk in different positions, Toronto; Jan. 1895 to June 1900, City Agent, C.P.R., Dominion Express Co., and C.P.R. Telegraphs, Galt, Ont.; June 1900 to Feb. 28, 1915, City Passenger and Ticket Agent, London, Ont. He was entertained to dinner by a number of business men in London, Ont., Apr. 23, when he was presented with a cabinet of silver.

**James Kent**, whose retirement from the position of Manager, C.P.R. Telegraphs, was announced in our last issue, was born at Montreal, Jan. 15, 1854, and commenced his telegraph service as messenger, Montreal Telegraph Co. He occupied various positions, and in 1886, when he was chief operator, Great North Western Telegraph Co., he transferred to the then recently inaugurated C.P.R. telegraph system, as chief operator at Montreal. In 1890 he was appointed Superintendent of Telegraphs, Eastern Division from Louisburg, N.S., to Fort William, Ont., and in 1899 succeeded C. R. Hosmer, as Manager of Telegraphs.

**R. J. Collins**, who was recently appointed Chief Dispatcher, District 4, Alberta Division, C.P.R., Edmonton, was born at Winnipeg, Apr. 30, 1883, and entered C.P.R. service, Oct. 4, 1898, since when he has been, to Apr. 1901, messenger, assistant agent and stationary fireman, Broadview, Sask.; Apr. 8, 1901 to Feb. 6, 1902, assistant agent, Broadview, Sask.; Feb. 6, 1902 to Mar. 23, 1902, agent, Caron, Sask.; Mar. 23, 1902 to Dec. 1904, night operator, day operator and agent, Broadview, Sask.; Dec. 1904 to May 1905, operator, Moose Jaw, Sask.; May 1905 to June 1912, dispatcher, Moose Jaw, Sask., Cranbrook, B.C., and Calgary, Alta.; June 1912 to Apr. 1915, Chief Dispatcher, Re-

gina, Sask.; Saskatoon, Sask.; Assiniboia, Sask., and Edmonton, Alta.

**E. F. L. Sturdee**, who has been appointed General Agent, Passenger Department, C. P.R., Boston, Mass., was born at St. John, N.B., Mar. 29, 1876, and entered C.P.R. service Dec. 1893, since when he has been, to July 1894, office boy, Moncton, N.B.; July 1894 to Aug. 1897, clerk and stenographer,



The Late Lacey R. Johnson.



F. W. Cooper, A.M. Can. Soc. C.E.,  
Acting Superintendent, District 1, Eastern  
Division, Canadian Pacific Railway.

Assistant General Passenger Agent's office, St. John, N.B.; Aug. 1897 to June 1902, stenographer, rate and excursion clerk, Ontario Division, Assistant General Passenger Agent's office, Toronto; June 1902 to Dec. 1910, excursion clerk, General Passenger Department, Eastern Lines, Montreal; Dec. 1910 to Dec. 1, 1913, chief clerk to General Passenger Agent, Eastern Lines, Montreal;

Dec. 1, 1913 to Apr. 1915, Assistant District Passenger Agent, Toronto.

**W. Marshall**, whose appointment as Assistant Manager of Telegraphs, Western Lines, C.P.R., Winnipeg, was announced in our last issue, was born at Garden Island, Ont., May 18, 1859, and entered telegraph service in 1876, in the stores department, Dominion Telegraph Co., Toronto, and was subsequently an operator and line man at St. Catharines, Ont. From 1878 to 1880, he was foreman of line construction, Canadian Mutual Telegraph Co.; 1880 to 1886, with the Western Union Telegraph Co., Buffalo, N. Y. He entered C.P.R. telegraph service in 1886, since when he was, to 1906, Inspector, Toronto; 1906 to Aug. 1909, Superintendent of Telegraph Construction, Toronto; Aug. 1909 to March 1915, Superintendent of Telegraphs, Toronto.

**Andrew James Taylor**, who died at Ocean Park, California, Apr. 19, where he had been for some months on account of ill health, was born at Ottawa, Ont., June 24, 1857, and entered Chicago, Milwaukee and St. Paul Ry. service in 1879, since when he has been, to 1881, clerk in General Canadian Agent's office, Toronto; 1881 to 1883, Traveling Passenger and Freight Agent; 1883 to 1885, Travelling Freight Agent; 1885 to 1897, Canadian Passenger Agent; and from 1897, Canadian Freight and Passenger Agent, at Toronto. He was well known throughout Ontario, and was connected with many of the athletic organizations in Toronto and neighborhood. The funeral took place at Bowmanville, Ont., Apr. 24. His brother, J. G. Taylor, is General Superintendent, Saskatchewan Division, C.P.R., Moose Jaw.

**Frank W. Cooper, A.M. Can. Soc. C.E.**, who has been appointed acting Superintendent, District 1, Eastern Division, Farnham, Que., was born at London, Ont., Feb. 16, 1880, and entered railway service in 1901, since when he has been, to 1903, draughtsman, Maintenance of Ways Department, leveller on preliminary location and construction, Algonia Central and Hudson Bay Ry., Sault Ste. Marie, Ont.; June 1903 to Nov. 1905, transit man and Assistant Engineer, C.P.R., London and Toronto; Nov. 1905 to Nov. 1911, Resident Engineer, C.P.R., London and Toronto; Nov. 1911 to Apr. 1912, Resident Engineer, C.P.R., Montreal; Apr. to Nov. 1912, Assistant Engineer, Chief Engineer's Office, C.P.R., Montreal; Nov. 1912 to Feb. 1915, Division Engineer Eastern Division, C. P.R., Montreal.

**William Bristow McNiece**, whose appointment as Car Foreman, G.T. Pacific Ry., McBride, B.C., was announced in a recent issue, was born in County Antrim, Ireland, Sept. 13, 1880, and entered railway service Sept. 1900, since when he has been, to Jan. 1901, shunter, Caledonian Ry., Airdrie, Scotland; Jan. 1901 to May 1903, brakeman, same road, Greenock; May 1903 to Mar. 1907, brakeman, same road, Glasgow; Apr. to Sept. 1907, car repairer, G.T. Pacific Ry., Portage la Prairie, Man.; Sept. 1907 to Apr. 1908, brakeman, Chicago and Northwestern Ry., Janesville, Wisconsin; May to Aug. 1908, car repairer, G.T. Pacific Ry., Portage la Prairie, Man.; Aug. 1908 to Nov. 1912, Car Foreman, same road, Fort William, Ont.; Nov. 1912 to Aug. 1914, Car Foreman, same road, Jasper, Alta.

**C. W. Van Buren**, who has been appointed General Master Car Builder, C.P.R., Montreal, entered railway service in March 1889, since when he has been, to Nov. 1891, carpenter, New York Central shops, West Albany, N.Y.; Nov. 1891 to Sept. 1, 1893, assistant foreman; Sept. 1, 1893 to Sept. 1, 1896, in charge of Car Department work, Adirondack Division, same road, Herkimer, N.Y.; Sept. 1, 1896 to July 16, 1905, Car Foreman, Adirondack Division, and Mohawk Division, New York Central and West

Shore Rds.; July 16, 1905 to July 1, 1906, General Car Inspector, Eastern Lines, C.P.R., Montreal; July 1, 1906 to July 1, 1909, Divisional Car Foreman, Eastern Division, C.P.R., Montreal; July 1, 1909 to 1911, Master Car Builder, Eastern Lines, C.P.R., Montreal, when he resigned from C.P.R. service.

**D. T. Main**, who has been appointed Superintendent of Motive Power and Car Department, C.P.R., Montreal, was born at Kirkintilloch, Scotland, in 1878, and came to Canada in 1903, when he entered Mackenzie, Mann and Co.'s service as draughtsman, transferring to C.P.R. service in 1904, since when he has been, to 1907, draughtsman; 1907 to Mar. 1908, Locomotive Foreman, Minnedosa, Man.; Mar. 1908 to Mar. 1910, Locomotive Foreman, Cranbrook, B. C.; Mar. 1910 to Jan. 1912, District Master Mechanic, District 1, British Columbia Division, Nelson; Jan. 1912 to June 30, 1913, Master Mechanic, Saskatchewan Division, Moose Jaw; June 30, 1913 to Apr. 15, 1915, Master Mechanic, British Columbia Division, Vancouver; Apr. 15 to Apr. 20, 1915, Master Mechanic, Ontario Division, Toronto.

**J. McMillan**, whose appointment as Manager of Telegraphs, C.P.R., Montreal, was announced in our last issue, was born at Liverpool, Eng., Nov. 2, 1866. He came to Canada, June 1883 and was for some time working on C.P.R. construction. In 1885 he served as foreman of telegraph construction and of the Government military telegraph lines, and subsequently returned to railway construction. In 1888 he was general foreman of construction, C.P.R., at Winnipeg. He became a telegraph operator in 1895 with the C.P.R. at Winnipeg, and in 1896 was transferred to the Mountain Division as circuit manager, repeater chief and telegraph agent. From 1902 to 1906 he was Inspector of Telegraphs, Central Division, C.P.R., Winnipeg; 1906 to Apr. 1907, Assistant Superintendent of Telegraphs, C.P.R., and Apr. 1907 to Jan. 1912, Superintendent of Telegraphs, at Calgary, Alta.; Jan. 1912 to July 1, 1913, Superintendent of Telegraphs, C.P.R., Winnipeg, and July 1, 1913 to Mar. 1915, General Superintendent of Telegraphs, C.P.R., Winnipeg.

**Henry Hague Vaughan**, who has retired from the position of Assistant to the Vice President, C.P.R., and has been appointed Consulting Engineer, was born at Forest Hill, Essex, Eng., Dec. 26, 1868, and educated at King's College, London, Eng. He served an apprenticeship with Nasmith, Wilson and Co., Patricroft, Manchester, Eng., going to the U.S. in 1891. He was engaged with various companies as machinist, draughtsman and assistant engineer of tests, and mechanical engineer, including the Great Northern Ry., Philadelphia and Reading Ry., and the Queen and Crescent Route, and after a period of service with a supply house, was appointed Assistant Superintendent of Motive Power, Lake Shore and Michigan Southern Ry., Mar., 1902, remaining until Feb., 1904, when he was appointed Superintendent of Motive Power, C.P.R., which position he held until his appointment as Assistant to the Vice President, C.P.R., Dec., 1906. He is President of the Engineers' Club of Montreal, and has been a member of the Canadian Society of Civil Engineers since 1906, a member of the council since 1910, and was elected a Vice President in 1912.

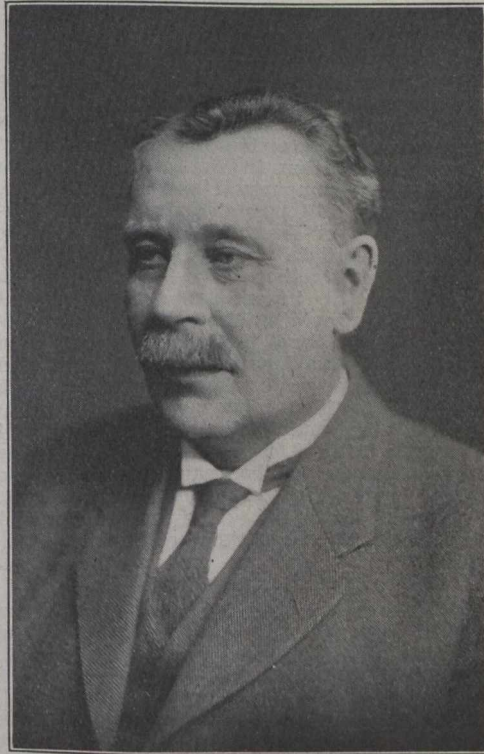
**Lacey R. Johnson**, M.Can.Soc.C.E., whose appointment as General Welfare Agent, C.P.R., Montreal, was announced in our last issue, died Apr. 17, from peritonitis, after a short illness. He was born at Abingdon, Berks, England, June 22, 1855. He entered railway service as an apprentice at the

Great Western Ry. works at Swindon, Wilts., June 1, 1870, and was a mechanic and Foreman of Mechanics at Woolwich Arsenal, Jan. to Aug., 1876, and fitter and erector, Sept., 1876, to Nov., 1878; Manager, Davis and Sons' engineering works,

and entered G.T.R. service at Montreal as draughtsman, June, 1882, and joined the C.P.R., Nov., 1882, after which he was, to Nov., 1885, General Foreman, Carleton Jct., Ont.; Nov., 1885, to May, 1886, Assistant Master Mechanic, Eastern Division, Chislehurst, Ont.; May, 1886, to Apr., 1901, Master Mechanic, Pacific Division, Vancouver, B.C.; and from the commencement of the Transpacific service his jurisdiction was extended over the engineering department of the vessels, during which time he spent three winters in Hong Kong, China, superintending alterations and repairs to the company's vessels; Apr. to Sept., 1901, on the purchase of the Canadian Pacific Navigation Co. by the C.P.R., he was Superintending Engineer of the combined fleets, which position was severed from the locomotive and car department; Sept. 1, 1901, to July 1, 1912, Assistant Superintendent of Motive Power, C.P.R., Montreal; July 1, 1912, to Mar., 1915, General Superintendent, Angus Shops District, C.P.R., Montreal. He was Lieutenant-Colonel, Commanding the Montreal Heavy Brigade of Artillery and was given a military funeral.

**John Franklin Richardson**, whose appointment as Superintendent of Telegraphs, Saskatchewan Division, C.P.R., Moose Jaw, was announced in our last issue, was born at Granby, Que., Aug. 23, 1860, and was educated in Wisconsin, and Waterloo, Que. He entered railway and telegraph service in 1876, since when he has been, to 1879, assistant agent and telegraph operator, Central Vermont Ry., Waterloo, Que.; 1879 to 1881, assistant in offices of Montreal Telegraph Co., and of Canadian, National, and United States Express Cos., St. John's, Que.; 1881 to 1883, telegraph operator, Great North Western Telegraph Co., Montreal; he entered C.P.R. telegraph service in 1883, since when he has been telegraph operator, Inspector and Assistant Electrician, Montreal; Superintendent of Construction, St. John, N.B.; Superintendent at Montreal, and from Jan. 1912, at Vancouver, B.C. During the time he was Superintendent of Telegraph Construction at St. John, N.B., he built all the C.P.R. telegraph lines in the Maritime Provinces, including the laying of the submarine cables to Cape Breton Island. In 1897 he made repairs to the submarine cable between Vancouver and Victoria, B.C., and in the same year, he was lent to the Dominion Government to explore different routes to the Yukon and to give an estimate for the building of a telegraph line to Dawson. His choice of route and estimate were accepted, and his services were utilized to build the line from Bennett, B.C., to Dawson, Yukon. This line was completed Sept. 28, 1899, five weeks earlier than the time agreed upon, and during the process of construction, the remarkable average of five miles of completed line a day was made. In 1901 he represented the Telegraph Department on the train conveying the present King and Queen, then Duke and Duchess of Cornwall and York, across the Dominion, and acted in a similar capacity in 1906 from Winnipeg east, on the train conveying Prince Arthur of Connaught home from Japan. He has invented several electrical devices, some of which have been adopted by the C.P.R. and other railway and telegraph companies in Canada and the U.S. One of the most important of these in general use is the device to permit the operating of an emergency telephone from trains, in cases of breakdown. He is a member of the Old Time Telegraphers and Historical Association, and of the Association of Railway Telegraph Superintendents.

The C.P.R. Mountain Hotels will open as follows: Banff Springs, May 1; Lake Louise, June 1; Balfour, June 1; Field, June 15.



W. Marshall,  
Assistant Manager of Telegraphs, Western  
Lines, Canadian Pacific Railway.



J. F. Richardson,  
Superintendent of Telegraphs, Saskatchewan  
Division, Canadian Pacific Railway.

London and Abingdon, Nov., 1878, to Aug., 1879. In Sept., 1879, he went to India as draughtsman on the Scinde, Punjab and Delhi Ry., and was subsequently foreman of machine and erecting shops there. He left India on account of health in Mar. 1882,

## Canadian Pacific Railway Construction, Betterments, Etc.

**Legislation.**—The Dominion Parliament has passed a number of acts granting the C.P.R. and several of its subsidiary companies extensions of time for the building of lines. These include lines in the west covering about a score of branches in Manitoba, Saskatchewan and Alberta, upon most of which part of the lines are built and in operation; the Manitoba and North Western Ry. extensions in Manitoba and Saskatchewan; the British Columbia Southern Ry. extension from Michel to Kananaskis, B.C.; and the South Ontario Pacific Ry. from Hamilton to Niagara Falls, Ont. The general C.P.R. act also covers a proposed line from Bolton Jct. or Palgrave, on the Toronto-Sudbury line to Campbellville on the Toronto-Windsor line.

**Eastern Division.**—The new electrically operated bridge across the Lachine canal, Montreal, was officially opened for traffic, April 17. It is a double track bridge and is the last link in the second track work in the vicinity of Montreal. Work was started on the substructure Dec. 1, 1914, and completed Feb. 1, and the steel work was at once completed. Traffic was not delayed during the construction of the bridge.

**Western Lines Second Track Construction.**—D. C. Coleman, Assistant General Manager, Western Lines, is reported to have said in a recent interview that no further second track construction is to be undertaken on the Western Lines at present.

**Alberta Division.**—A press report states that arrangements are being made for the extension of the Alberta Central Ry., at present built from Red Deer to Rocky Mountain House, 60 miles, in the direction of the Brazeau River coal fields, but D. C. Coleman, Assistant General Manager, Western Lines, is reported to have said in a recent interview that nothing definite had been arranged about the matter. The Dominion Parliament has granted an extension of time for the building of this line.

The Board of Railway Commissioners has approved location plans for the completion of the Weyburn-Lethbridge line, covering the mileage from the present end of steel, at the Saskatchewan-Alberta boundary, to the end of the 25 miles of grading completed easterly from Foremost, the present easterly end of the steel. This gap between the westerly and the easterly track ends is less than 70 miles, on which about 45 miles of grading has yet to be done. Local press reports state that grading will be done this year, even if steel is not laid.

**Rogers Pass Tunnel Construction.**—A press report dated April 9 states that practically three miles of the pioneer tunnel had been driven, of which well on to two miles was from the eastern portal, and something over a mile from the western portal. The main tunnel had been driven for 4,580 ft. from the eastern portal, and for 4,439 ft. from the western portal, and about 3,000 ft. of tunnel had been lined and completed. The contract calls for the completion of the tunnel by the end of 1916, but such rapid progress has been made that it is expected to have it ready about six months ahead of the time limit. We have been officially advised that nothing has yet been decided as to the system of ventilation to be adopted for the tunnel.

**British Columbia Division.**—D. C. Coleman, Assistant General Manager C.P.R. Western Lines, is reported to have said in a recent interview that arrangements were being completed for operating the Kettle Valley Lines from Midway to Merritt, B.C., as part of the C.P.R. system, the connec-

tion with the main transcontinental line being made by Spence's Bridge, over the C.P.R. Nicola branch from Merritt. When the K.V. Line is completed through to Hope, an additional connection with the transcontinental line will be provided. (April, pg. 135.)

## Railway Finance, Meetings, Etc.

**Boston and Maine Rd.**—An act providing for the reorganization of the B. and M. R., was signed by the Governor of Maine, April 2, to become effective on the passing of similar legislation in the other States in which the company operates. The reorganization bill was defeated in the Vermont House of Representatives by a large majority, April 2.

**Canadian Northern Ry.**—The Dominion Parliament at its recent session passed legislation providing that the issue of Dominion notes, and the advances made in pursuance of various orders-in-Council, and all things done under the provisions of such orders be ratified. The advances made to the C.N.R. under the orders-in-Council amount to \$10,000,000 against a pledge made by the company of the guaranteed securities issued under the provisions of the C.N.R. Guarantee Act, 1914. The sums advanced have been placed to the credit of the Minister of Finance to be paid out according to the terms of the trust deed.

An agreement made Mar. 19, between the C.N.R. and the Guaranty Trust Co., New York, qualifying the agreement of Aug. 1, 1910, between the same parties, has been filed with the Secretary of State at Ottawa.

A trust mortgage deed dated July 30, 1914, made by the Mount Royal Tunnel and Terminal Co. (the C.N.R., terminal company in Montreal) to the British Empire Trust Co., securing first mortgage debenture stock and bonds has been filed with the Secretary of State at Ottawa.

**Grand Trunk Pacific Ry.**—The Dominion Parliament, in its recent session, enacted legislation providing that the issue of Dominion notes, and the advances made in pursuance of various orders-in-Council, and all things done under the provisions of such orders be ratified. The advances made to the G.T.P.R. amount to \$6,000,000, against a pledge of the guaranteed securities of the company. The sums advanced have been placed to the credit of the Minister of Finance to be paid out according to the terms of the trust deed.

**Grand Trunk Ry.**—The Dominion Parliament has authorized the company to assist financially any company the stock of which it holds or controls, out of the proceeds of any class of stock heretofore or hereafter issued. The approval of the shareholders must be first obtained to the use of the funds in this way.

**Intercolonial Ry.**—Senator Loughheed informed the Senate, Mar. 30, that the receipts of the I.R.C. for the 10 months ended Jan. 31, were \$9,677,547.77 and disbursements, \$9,760,638.11. In the House of Commons the Minister of Railways gave the additional information that within the same period the revenue had increased by over \$1,500,000, while the operating expenses had decreased by over \$200,000.

The House of Commons has voted \$13,000,000 on account of working expenses for the current financial year.

On account of the following branch lines there have been provided, in the main and supplementary estimates on account of construction during the current financial year as follows: International Ry. of New Brunswick, \$85,000 and \$100,000; New Brunswick and Prince Edward Island Ry., \$65,000 and \$50,000; St. John and Quebec Ry., \$60,000 and \$15,000.

**National Transcontinental Ry.**—The House of Commons voted \$200,000 on account of the working expenses of the section of the line from Moncton to Levis, in the main estimates, and an additional \$30,000 in the supplementary estimates.

**Pere Marquette Rd.**—A petition asking for an order for the sale of the company's railway and other property is under consideration of the Federal Court at Detroit, Mich. The petition states that \$1,503,490 of interest on underlying bonds is due, and that there is no prospect of it being paid. The company owns the Lake Erie and Detroit River Ry. in Canada, which, however, is apparently not affected by the proceedings.

**Prince Edward Island Ry.**—In the main estimates at the recent parliamentary session \$650,000 was provided, and in the supplementary estimates \$50,000 was provided for working expenses for the current financial year.

**Shuswap and Okanagan Ry.**—A meeting of shareholders has been called to be held at Montreal, May 3, to consider whether it is expedient to cancel the present lease to the C.P.R. and to enter into a new lease of the company's railway to that company, and if so to approve of the terms, conditions and forms of the new lease. H. C. Oswald is Secretary.

**Temiscouata Ry.**—Net earnings for January, \$2,969 against \$4,026 for Jan., 1914.

**Toronto, Hamilton and Buffalo Ry.**—The Dominion Parliament has confirmed the agreement for the amalgamation of the Erie and Ontario Ry. with the T. H. and B. Ry., and fixing the bonding powers of the amalgamated company at \$15,000,000.

**White Pass and Yukon Route.**—Gross earnings from Jan. 1 to Feb. 21, \$12,263, against \$24,400 for same period 1914.

## Grand Trunk Railway Betterments, Construction, Etc.

**Boston Terminals.**—G.T.R. officials in Montreal state that the company is not definitely interested in the application recently made to the Massachusetts Legislature by J. W. Ayres, Somerville, Mass., for dock facilities at Boston, Mass. The petition to the Legislature is reported to have stated that the movement was being made in the interests of the Southern New England Ry., a subsidiary of the Central Vermont Ry., which itself is controlled by the G.T.R., and a press report stated that the solicitors acting in the matter are associated with G.T.R. interests in the State. The site mentioned at the water front adjoins the New York New Haven and Hartford Rd. freight yards.

**Peterborough, Ont.**—G.T.R. engineers met Peterborough City Council's public utilities committee, Mar. 30, and discussed projected improvements at that place. (April, pg. 134.)

## Canadian Freight Association Committees.

At a meeting in Montreal April 15 the following committees were elected:

**ADVISORY.**—G. H. Shaw, C. E. Dewey, W. M. Kirkpatrick and J. H. Meglemery.

**EXECUTIVE.**—W. M. Kirkpatrick, F. F. Backus, G. Tombs and H. C. Martin.

**CLASSIFICATION.**—W. M. Kirkpatrick, G. Tombs, F. J. Watson, E. N. Todd, L. Macdonald, H. E. Macdonnell, G. T. Pettigrew, M. H. Brown, R. E. Perry, J. Edward.

**FREIGHT INSPECTION.**—R. W. Long, F. A. Shaw, M. H. Brown, R. W. Youngs, R. J. S. Weatherston, J. Edward, G. H. Clark, W. B. Bamford, W. S. Elliot, G. C. Martin.

## Transportation Appointments Throughout Canada.

**Algoma Central & Hudson Bay Ry.**—T. J. KENNEDY, President, having returned from Europe, has qualified as a co-receiver with Vivian Harcourt, who acted as sole receiver beginning Feb. 20.

R. BARBER has been appointed Treasurer, vice Jas. Hawson. Office, Sault Ste. Marie, Ont.

**Canada Steamship Lines, Ltd.**—M. P. CONNOLLY, General Agent, Quebec, Que., will in future deal with passenger matters only.

H. M. DUBOIS, heretofore Travelling Freight Agent, has been appointed District Freight Agent, Quebec, Que.

W. F. CLONEY, heretofore General Agent, Buffalo, N.Y., has been appointed General Agent, Rochester, N.Y.

J. V. FOY, heretofore General Agent, Chicago, Ill., has been appointed General Agent, Buffalo, N.Y., vice W. F. Cloney, transferred.

H. W. CRAWFORD, heretofore General Agent, Rochester, N.Y., has been appointed General Agent, Chicago, Ill., vice J. V. Foy, transferred.

**Canadian Northern Ry.**—T. S. LOWE, heretofore Master Mechanic, Limoilou, Que., has been appointed General Foreman there, in addition to performing the duties of Road Foreman of Locomotives, Lake St. John Division.

W. HOPE, heretofore Erecting Shop Foreman, Joliette, Que., has been appointed Foreman, Limoilou, Que.

T. LATTE, heretofore Locomotive Foreman, Limoilou, Que., has resigned.

**Canadian Pacific Ry.**—H. H. VAUGHAN, Assistant to Vice President, Montreal, has, at his own request, been released from the immediate supervision of the construction and maintenance of locomotives and cars, in order that he may devote his attention to important contract engagements that he has become interested in, (viz., the manufacture of shells, cartridge cases, etc., for the British Government, by the Montreal Ammunition Co., Ltd., of which he is President). He is being retained by the C.P.R. as Consulting Engineer. It is not the intention to fill the position of Assistant to the Vice President, at present.

W. E. WOODHOUSE, heretofore Superintendent Motive Power and Car Department, Montreal, has been appointed Chief Mechanical Engineer. Office, Montreal.

D. T. MAIN, heretofore Master Mechanic, British Columbia Division, Vancouver, who, on Apr. 15, was appointed Master Mechanic, Ontario Division, Toronto, vice J. H. Mills, transferred, was, on Apr. 20, appointed Superintendent of Motive Power and Car Department, vice W. E. Woodhouse, promoted. Office, Montreal.

C. W. VAN BUREN, at one time Master Car Builder, Eastern Lines, has been appointed General Master Car Builder, vice R. W. Burnett, resigned. Office, Montreal.

F. B. ZERCHER, heretofore Superintendent of Car Shops, Montreal, has been appointed Master Car Builder, Eastern Lines. Office, Montreal.

F. McMAHON, heretofore Manager, Chateau Frontenac, Quebec, Que., has been appointed Assistant Manager in Chief of Hotels. Office, Montreal.

W. H. SNELL, heretofore General Agent, Passenger Department, New York, N.Y., has been appointed General Passenger Agent, Eastern Lines, vice Wm. Stitt, deceased. Office, Montreal.

J. E. BEATTY, heretofore Division Engineer, Construction Department, Montreal, has been appointed Division Engineer, Atlantic Division, vice G. L. Wetmore. Office, St. John, N.B.

J. B. WINDROSS, heretofore chief rooming clerk, Chateau Frontenac, Quebec, Que., has been appointed acting Manager, vice F. McMahon, promoted.

F. W. COOPER, heretofore Division Engineer, Eastern Division, Montreal, has been appointed acting Superintendent, District 1, Eastern Division, vice R. W. McCormick, on sick leave, and who died, Apr. 23. Office, Farnham, Que.

The Angus Shops District, Montreal, which has hitherto been operated as a separate unit, is now being operated as part of the Eastern Lines.

H. OSBORNE, heretofore Mechanical Superintendent, Angus Shops, has been appointed Works Manager, Angus Shops, Montreal.

J. A. SHAW, heretofore Electrical Engineer, Angus Shops, Montreal, has been appointed Electrical Engineer of the company. Office, Montreal.

J. W. HUGHES has been appointed Electrical Engineer, Eastern Lines. Office, Montreal.

R. McKILLOP, heretofore in Assistant Chief Engineer's Office, Montreal, has been appointed Division Engineer, Eastern Division, vice F. W. Cooper, promoted. Office, Montreal.

R. JOHNSTON, heretofore Night Foreman, Sortin Yard, Montreal, has been appointed Assistant Foreman, Hochelaga, Que., vice J. Cave, who is employed at Outremont as a fitter. The position of Night Foreman at Sortin Yard has been abolished.

G. A. C. PHILLIPS, heretofore agent Telegraphs, Calgary, Alta., has been appointed agent Telegraphs, Montreal, vice A. Walsh, retired.

On account of the death of G. Duncan, heretofore City Passenger and Ticket Agent, Ottawa, Ont., the work has been divided, and T. MULLINS, heretofore City Passenger Agent, Toronto, has been appointed City Passenger Agent, and A. L. SAUVE, heretofore City Ticket Agent, Detroit, Mich., has been appointed City Ticket Agent, there.

W. J. PICKRELL, heretofore Superintendent, District 2, Atlantic Division, Aroostook Jct., N.B., has been appointed Master Mechanic, Ontario Division, vice D. T. Main, promoted. Office, Toronto.

W. FULTON, heretofore City Passenger Agent, London, Ont., has been appointed Assistant District Passenger Agent, Rail Lines, Toronto, vice E. F. L. Sturdee, promoted.

WILLIAM McILROY, heretofore City Passenger Agent, Hamilton, Ont., has been appointed City Passenger Agent, Toronto, vice T. Mullins, transferred to Ottawa, Ont.

H. J. McCALLUM, heretofore chief clerk, City Ticket Office, Toronto, has been appointed Station Ticket Agent, Union Station, Toronto, vice J. H. Radcliffe, promoted.

A. CRAIG, heretofore ticket clerk, C.P.R. station, Hamilton, Ont., has been appointed City Passenger Agent, Hamilton, Ont., vice W. McIlroy, transferred to Toronto.

J. H. RADCLIFFE, heretofore Station Ticket Agent, Union Station, Toronto, has been appointed City Passenger Agent, London, Ont., vice W. Fulton, transferred.

J. S. BYROM, heretofore port steward, British Columbia Coast Service, C.P.R., Vancouver, has been appointed Superintendent of Great Lakes Steamers, vice S. Buchanan, retired. Office, Port McNicoll, Ont.

J. H. MILLS, heretofore Master Mechanic, Ontario Division, West Toronto, has been appointed Master Mechanic, Lake Superior Division, vice H. G. Reid, transferred. Office, North Bay, Ont.

F. J. MAHON, heretofore Superintendent of Telegraphs, Eastern Division, Montreal, has been appointed Inspector of Telegraphs, Saskatchewan Division. Office, Saskatoon.

M. J. SCOTT, Master Mechanic, Saskatchewan Division, Moose Jaw, is reported to have been appointed Master Mechanic, Alberta Division, Calgary, vice A. Sturrock, transferred.

A. STURROCK, Master Mechanic, Alberta Division, Calgary, is reported to have been appointed Master Mechanic, British Columbia Division, Vancouver, vice D. T. Main, promoted.

E. F. L. STURDEE, heretofore Assistant District Passenger Agent, Toronto, has been appointed General Agent, Passenger Department, Boston, Mass., vice F. R. Perry, promoted.

F. R. PERRY, heretofore General Agent, Passenger Department, Boston, Mass., has been appointed General Agent, Passenger Department, New York, N.Y., vice W. H. Snell, promoted.

W. C. ELMER, heretofore chief clerk, C. P.R., Union Station, Toronto, has been appointed City Passenger Agent, Detroit, Mich., vice A. L. Sauve, transferred.

**Central Vermont Ry.**—C. F. BLACK has been appointed Attorney, vice C. W. Witters, deceased. Office, St. Albans, Vt.

**Champlain Transportation Co., Lake George Steamboat Co.**—E. H. DOW has been appointed General Baggage Agent, vice C. E. Durkee, resigned.

**Grand Trunk Pacific Ry.**—G. BRADSHAW, Safety Engineer, G.T.R. and G.T. Pacific Ry., who had offices at Montreal and Winnipeg, has moved to Union Station, Toronto.

The following station agents have been appointed,—Pope, Man., A. Gatherwood; Uno, Man., W. Downes; Dugald, Man., E. Jones; Asquith, Sask., F. H. Keefe; Otthon, Sask., W. C. Ross; Chauvin, Alta., O. Hawthorn.

**Grand Trunk Ry.**—G. BRADSHAW, Safety Engineer, G.T.R. and G.T. Pacific Ry., who had offices at Montreal and Winnipeg, has moved to Union Station, Toronto.

GEO. A. BUTLER has been appointed acting Assistant Engineer, Belleville Division, vice C. S. Ogilvie, who has enlisted for active service. Office, Belleville, Ont.

The following station agents have been appointed,—Aubrey, Que., C. Arnold; Milton, Ont., J. E. Bell; Copetown, Ont., C. S. Kerton; Burgessville, Ont., J. E. Proctor; Rose Point, Ont., E. Swinden.

**Lake Erie & Northern Ry.**—MARTIN N. TODD, President, Galt, Preston & Hespeler St. Ry., has also been appointed General Manager of the L.E. & N.R., vice W. P. Kellett, resigned. This line is under construction between Galt and Port Dover, via Paris, Brantford and Waterford, 51 miles, and has been leased to the C.P.R.

**New York Central Rd.**—E. R. BISSELL, heretofore Assistant Superintendent, Michigan Division, Toledo, Ohio, has been appointed Superintendent, Detroit Division, vice W. F. Schaff, transferred. Office, Detroit, Mich.

E. D. MOON, heretofore Assistant Superintendent, Ashtabula, Ohio, has been appointed Assistant Superintendent, Michigan Division, vice E. R. Bissell, promoted. Office, Toledo, Ohio.

**Niagara Gorge Rd.**—G. H. STAGG has been appointed Travelling Passenger Agent, Buffalo, N.Y.

**Pere Marquette Rd.**—L. C. WHITE has been appointed General Car Foreman, St. Thomas, Ont., vice A. White.

**Railways Department.**—E. V. JOHNSON, formerly Inspecting Engineer, has been transferred to the Department's inside service at Ottawa. ALEX. FERGUSON,

formerly on National Transcontinental Ry. construction, is now making inspections of railways for the Department for subsidy purposes and will probably be appointed Inspecting Engineer.

**Roberval-Saguenay Ry.**—J. A. FRIGON, heretofore Supervisor of Track, Lake St. John Division, Canadian Northern Ry., has been appointed Superintendent, R.S. Ry., in charge of transportation and maintenance of way departments, maintenance of locomotive equipment, shops, for the safe and

economical movement of trains and the endorsement of all rules and regulations for the proper management of station service and discipline of men. Office, West Chicoutimi, Que.

**Wabash Rd.**—E. F. KEARNEY, one of the Receivers, has been elected President. Office, St. Louis, Mo.

**White Pass and Yukon Route.**—J. W. PROBERT has been appointed Treasurer, vice F. J. Cushing. Office, Chicago, Ill.

## The Late T. C. Keefer and the Plans for the Victoria Bridge.

In an obituary note of the late T. C. Keefer, a contemporary states that he prepared plans for the Victoria bridge. Those who recall that famous old structure across the St. Lawrence at Montreal would doubtless construe the above statement as meaning that he was responsible for its design. It may be well, therefore, to review a chapter of engineering history known to few engineers of the present day.

In 1851 Mr. Keefer was employed by the Montreal & Kingston Rd. Co. (predecessor of the G.T.R.), to study the problem of bridging the St. Lawrence at Montreal. Although then only 30 years of age, he had already become one of the foremost of Canadian engineers. From previous work for the Canadian Government he was thoroughly familiar with the St. Lawrence River and the difficulties with ice conditions, etc., to be met in connection with its crossing. He prepared plans for a bridge with 300-ft. wooden truss spans, except the central span, for which a 400-ft. iron-truss structure was proposed. The bridge was to be carried on masonry piers, which were to be built inside timber-crib coffer-dams of special design. After the piers were completed, these timber cribs were to be left in place and on the upstream end of each crib was to be built an inclined plane to form an ice-breaker. The estimated cost of the entire structure was \$1,600,000.

Admittedly, Mr. Keefer's spans were bold for the engineering facilities and knowledge of that day. The directors of the railway company hesitated to trust the design of so important a structure to home talent, and they rejected his plans. The way in which Robert Stephenson's design for a tubular bridge came to be adopted in its stead is related as follows in Smiles' "Life of Robert Stephenson":

"In 1852 A. M. Ross, who had superintended under Robert Stephenson the construction of the tubular bridge over the Conway in Wales, visited Canada and inspected the site of the proposed bridge at Montreal, when he readily arrived at the conclusion that a like structure was suitable for the crossing of the St. Lawrence. He returned to England to confer with Robert Stephenson on the subject, and the result was the plan of the Victoria Bridge, of which Robert Stephenson was the designer and A. M. Ross the joint and resident engineer."

For the benefit of some of the younger members of the profession, it may be well to state that the Victoria bridge, like Stephenson's earlier notable structures, the Britannia bridge and the Conway bridge, was simply a rectangular box through which the trains ran. The top and bottom of the box formed the upper and lower chords and the sides the webs of what was practically a girder structure. It must be remembered that when Stephenson invented this peculiar type of bridge, the engineering world as a whole was ignorant of anything but the rudiments of the stresses in girders and trusses. The railway itself was in its infancy and nothing was known as to the corrosive effect of the gases from locomotives upon exposed metal work. In the early '50's, Stephenson was at the pinnacle of his fame. His tubular bridges in England had been heralded to the public as a triumph of

engineering skill, although there were even at that day in the engineering profession a few wise enough to criticize the design. It was not at all strange, however, that the directors of the Montreal & Kingston Rd., believing the task of bridging the St. Lawrence was one of unprecedented difficulty, decided to entrust the building of the bridge to an engineer of world-wide fame.

Mr. Stephenson visited Canada while the designs for the huge bridge were being completed, and it is stated that he rejected all the suggestions made by Mr. Keefer and other Canadian engineers. The piers of his structure were of massive masonry and were long held up to the profession as most remarkable examples of high-class stone work. While the bridge superstructure was 16 ft. in width, the piers were made 21 ft. wide at the bridge seat. Whether this was to secure a more stable structure against ice thrust or in foresight of the day when a new and heavier structure might replace the original, is uncertain.

The total cost of Stephenson's Victoria bridge was \$7,500,000, a sum which in view of the low prices of labor and of all materials other than iron then prevailing would correspond to probably \$12,000,000 at the present day. The heavy financial burden involved in the construction of this bridge nearly bankrupted the railway company.

Notwithstanding its enormous cost, and perhaps because of it, the Victoria bridge was hailed by the public and by a large proportion of the engineering profession as the eighth wonder of the world. But there were not wanting engineers, even at that day, who believed in that definition of an engineer (which had not then been formulated) as "a man who makes a dollar earn the most interest," and who understood that a truss bridge could have been built across the St. Lawrence in place of Stephenson's gigantic iron box for a small fraction of the cost.

By the time work on the Victoria bridge was actually under way, the Warren truss and Bollman truss had come into use, the Fink truss had been invented, the lattice girder had been applied to long spans and the Howe truss was in extensive use on American railways in spans up to 250 ft. The disadvantages of the tubular bridge were not long in making themselves manifest. Passage through it had all the objectionable features of gas, smoke and darkness attendant upon traffic through a tunnel. The steam and sulphur gases confined inside the structure rapidly attacked the metal and corrosion went on apace. Perhaps the most serious feature of all was that those responsible for the safety of the bridge found it well nigh impossible to determine what was its margin of strength. Inspection of its interior was exceedingly difficult. As engineers became more familiar with the theory of stresses in girder structures, the defects in the design of the old tubular bridge became more evident.

Year by year the condition of the old structure was a matter of great anxiety to the G.T.R. officials. It was necessary to

keep a riveting gang constantly at work on the bridge the year round replacing rivets whose heads had popped off. Wrought iron rivets had been used, of course, in the original construction, but their failure indicated the over-stressed condition of the structure.

There came a time when the G.T.R. officers desired to fortify their judgment with the advice of some eminent consulting engineer. They called in the late T. C. Clarke, who was then far advanced in years, but who held a leading position among American bridge engineers. He went into the bridge with a party of the G.T.R. engineers and saw the terrific corrosion which its plates had suffered. Just then a freight train came through the bridge and he ran as fast as he could from the centre of the span to one of the piers and remained over it until the train had passed. His report, it is needless to say, was to the effect that the company ought to replace the old bridge with a modern structure at the earliest possible moment. Such replacement was soon started.

It has seemed well to set down these facts, not only to record an interesting and almost forgotten chapter of American engineering history, but in order that the professional record of the eminent Canadian engineer T. C. Keefer, might be free from the charge that he was in any degree responsible for the design of the old tubular bridge at Montreal.—Engineering News, New York.

**Canadian Government Railways Employes' Complaints.**—The representative of the Canadian Brotherhood of Railway Employes has placed a list of grievances before the General Manager, alleging the failure of the management to live up to the agreement of Mar. 21, 1913, to make promotions based on seniority alone, refusal to make agreement covering pier employes at Halifax and St. John, and refusal to approve of the absorption into the brotherhood of the maintenance of way employes. F. P. Gutelius, General Manager, is reported to have stated that promotion is based on merit and for the best interests of the service, but that other things being equal, seniority is recognized.

**Suit re Grain Insurance.**—A new trial has been granted on the application of the C.P.R. from the judgment of Mr. Justice Britton, awarding James Richardson & Son, of Kingston, Ont., judgment for \$23,068.40. Richardson & Son shipped 90,000 bush. of oats from Fort William to Owen Sound by the s.s. Keewatin. Before they were notified of its arrival, it had been transferred into the C.P.R. elevator, which was destroyed by fire. The consignors claimed that they would have increased the \$200,000 insurance they had on the grain already in the elevator, if they had known of the arrival of the shipment. As it was, their loss was \$228,098.45, much exceeding the insurance.

**Canadian Railway Club.**—At the monthly meeting in Montreal, April 13, J. R. Britton, Schedule Inspector, C.P.R., read a paper on systematic valve settings on locomotives, and Lt. Col. Lacey R. Johnson, General Welfare Agent, C.P.R., was to have read one on modern heavy guns as used in the present war, but was prevented by illness, which proved fatal.

J. A. Culverwell, of Port Hope, Ont., a hydraulic engineer who was interested in water power development in the Trent Valley district of Ontario, died in Toronto, April 21, aged 49.

The members of the Canadian Overseas Railway Construction Corps, now being mobilized at St. John, N.B., are being provided with a pipe, 5 lbs. of tobacco, and 6 packets of cigarettes, from a fund started by Sir Thos. Shaughnessy, President C.P.R.

# Canadian Railway AND Marine World

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### NOTICE TO ADVERTISERS.

ADVERTISING RATES furnished on application.

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## The Retirement of Hayter Reed from Canadian Pacific Railway Service.

Canadian Railway and Marine World for March contained a notice of the retirement, from Apr. 1, of Hayter Reed, Manager in Chief of Hotels, C.P.R., Montreal, and the appointment of a successor. The President, Sir Thomas Shaughnessy, has since made the following announcement: "Having reached the age limit under the company's regulations, Hayter Reed, Manager in Chief of the Hotel System, is retiring, after 15 years of active service, during which he has seen the hotel system grow to its present very large proportions. The characteristic tone and atmosphere of the hotels, that have given them a world wide reputation, may be attributed almost entirely to Mr. Reed's native sense of refinement and his unlimited effort to maintain a high standard of excellence. His successor, F. L. Hutchinson, received nearly all his hotel training during the years that he was in that branch of the company's service."

Mr. Reed was born, of English parentage, at L'Original, Ont., May 26, 1849, and educated at the Model Grammar School and Upper Canada College, Toronto. He passed the Royal Military School in 1865, and was appointed Lieutenant, 14th Regiment, in 1866, and later Adjutant, Captain in 1868, and retired as Major in 1881. He served in Manitoba in 1871 with the Battalion of Rifles, and remained on service until the battalion was disbanded. He became a barrister in 1872, and entered the civil service in the Department of the Interior in 1881. He was a member of the Northwest Council in 1882, Assistant Indian Commissioner for Manitoba and the Northwest Territories and acted as Administrator of the Northwest Territories and Commissioner of Indian Affairs in 1884, and Deputy Superintendent General of Indian Affairs at Ottawa, 1893 to 1897, when he retired on a pension. He was elected a chief by the Six Nation Indians at Brantford, Ont., in March, 1894. After leaving the Government service he became Secretary of the St. James Club, Montreal, and entered the C.P.R. service in 1900 as Manager of the Chateau Frontenac, Quebec. On Apr. 3 he was presented with a set of George I. silverware by the C.P.R. hotel managers throughout the Dominion and managers of other hotels in Montreal.

## Great Northern Railway Lines in Canada.

Projected Lines in Alberta.—Lethbridge, Alberta, press reports state that G.N. Ry. representatives are active in certain districts on the southern boundary of the province, and in the contiguous territory in Montana, U.S., through which the company has laid out a route for a line of railway. This line starts out from the main line west of Shelby, Mont., along the western boundary of Glacier Park, crossing into Alberta near The Gap, close to Cardston, then on to the group of collieries near Pincher Creek, owned by the Hill interests, and extending to Calgary.

Vancouver, Victoria and Eastern Ry.—The Dominion Parliament has granted the company an extension of time within which it may complete the building of its line, now under construction from Grand Forks to Vancouver, B.C. (See Kettle Valley Lines.)

A press report states that an early start will be made by the G.N.R. upon the building of a line from Oroville, Wash., to Penticton, B.C.

Vancouver Terminals.—The G.N.R. is applying to the Vancouver City Council for an extension of two years for the laying out of terminals, and the erection of a station building on the area being reclaimed at

False Creek. The company has done considerable work under the agreement, but under present financial and trade conditions wants an extension of time. The city council, on the other hand, wants to have as much work going on in the city as possible in order to give employment. (April, pg. 135.)

## Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1913-14, from July 1, 1914:

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$1,504,800	\$1,163,800	\$430,500	x \$83,800
Aug.	1,367,700	1,123,000	244,700	x 163,900
Sept.	2,109,900	1,519,000	590,700	65,800
Oct.	1,895,300	1,332,100	563,200	x440,900
Nov.	1,670,200	1,123,100	547,100	x417,700
Dec.	1,329,100	908,000	423,100	200,900
Jan.	950,800	773,000	177,800	x175,100
Feb.	1,105,100	823,700	281,400	42,800
Mar.	1,379,000	956,000	423,000	62,600
	\$13,401,400	\$8,719,900	\$3,681,500	x\$1,311,100
Decr.	\$4,392,400	\$3,981,300	\$1,311,100	.....
	x Decrease.			

Approximate earnings for three weeks ended Apr. 21, \$999,100 against \$1,104,600 for same period 1914.

## Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1913-14, from July 1, 1914:

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$10,481,971.72	\$6,708,525.89	\$3,773,445.83	\$338,347.85
Aug.	8,917,764.83	6,554,606.68	3,373,157.70	597,981.54
Sept.	10,754,139.67	6,387,091.28	4,367,048.39	48,530.30
Oct.	9,282,923.49	5,361,600.13	3,921,323.36	2,231,529.43
Nov.	8,057,358.59	5,413,286.72	2,644,072.17	2,244,173.89
Dec.	7,443,962.43	5,244,438.62	2,199,523.81	2,027,297.90
Jan.	6,109,026.94	4,968,793.64	1,140,233.30	140,059.24
Feb.	6,735,678.49	4,756,663.87	1,979,014.62	507,438.16
	\$63,782,831.01	\$45,990,005.83	\$22,792,824.18	x\$6,890,363.01
Decr.	\$22,013,720.00	\$16,123,356.99	\$6,890,363.01	.....
	xDecrease.			

Approximate earnings for March, \$7,700,000 against \$9,298,000 for Mar., 1914, and for 3 weeks ended Apr. 21, \$5,090,000 against \$6,571,000 for same period 1914.

## Grand Trunk Railway Earnings, Etc.

The following figures show the earnings for the G.T.R. (including the Canada Atlantic Ry.), the G.T.W.R. and the D.G.H. & M.R. for February:—

Grand Trunk Railway.		
Earnings	.....	\$2,624,400
Expenses	.....	2,210,100
Net earnings	.....	\$ 414,300
Grand Trunk Western Railway.		
Earnings	.....	\$ 521,900
Expenses	.....	559,400
Deficit	.....	\$ 37,500
Detroit, Grand Haven and Milwaukee Ry.		
Earnings	.....	\$ 173,600
Expenses	.....	212,300
Deficit	.....	\$ 34,200

Approximate earnings for March, \$4,014,204, against \$4,423,671 for Mar., 1914; and for 2 weeks ended Apr. 14, \$1,872,978, against \$2,066,875 for same period, 1914.

### Traffic Receipts of the System.

Aggregate from Jan. 1 to Feb. 28:—			
	1915	1914	Incr. Decr.
G.T.R.	\$8,531,997	\$9,538,689	\$1,006,692
G.T.W.R.	1,665,394	1,654,884	\$10,510
D.G.H.&M.R.	560,021	549,088	10,933

Totals ..... \$10,757,412 \$11,742,661 ..... \$ 985,249  
Approximate earnings for February, \$3,325,036; against \$3,544,016 for Feb., 1914; and for two weeks ended Mar. 14, \$1,709,298, against \$1,916,794 for same period, 1914.

## Grand Trunk Pacific Railway Earnings.

The approximate earnings of the Prairie Section and Lake Superior Branch, 1,104 miles, for March, were \$361,437, against \$461,998 for Mar., 1914; and for 3 months ended Mar. 31, \$890,231, against \$1,143,807 for same period 1914.

### Canadian Northern Railway Construction, Betterments, Etc.

Sir Donald Mann, Vice President, is reported as stating that the transcontinental line will be completed from Montreal to Vancouver this year, the greater part of it in June. The two sections which are not likely to be put in operation in June are the section between Ottawa and North Bay, Ont., and the part of the C. N. Pacific Ry. between the Alberta-British Columbia boundary and Kamloops.

**Canadian Northern Quebec Ry.**—The Dominion Parliament has extended the time within which the projected line from Rawdon northerly to the National Transcontinental Ry. with a branch from St. Jerome to St. Eustache, Que., may be built.

**James Bay and Eastern Ry.**—An extension of time has been granted by the Dominion Parliament for the building of the projected line from Lake Abitibi, easterly and southerly south of Lake St. John to the mouth of the Saguenay River.

**Montreal Tunnel and Terminal Co.**—A steam shovel is at work taking out the last half mile of material in the double track tunnel under Mount Royal, Montreal. The tunnel is completed to its full size from Maplewood, about a mile citywards. The tunnel is completed at the western end, and it is expected that the entire work will be finally completed by August.

**Canadian Northern Ontario Ry.**—An extension of time has been granted by the Dominion Parliament for the building of the following lines: From Washago to Kincardine; from Arnprior to Gananoque; from Pembroke to Cobourg or Port Hope; from Frenchman's Bay to Owen Sound; from Niagara River to Goderich; from Hawkesbury to or near Lanark; from Berlin through Guelph, Acton and Brampton to Toronto; from Berlin to St. Marys and Woodstock; from Sarnia to Chatham and from Orillia to Goderich, with a branch to Owen Sound, all in Ontario.

**Canadian Northern Ry.**—The Dominion Parliament has granted an extension of time for the building of a number of branch lines in Manitoba, Saskatchewan and Alberta, details of which were given in our Feb. issue, pg. 60.

The Premier of Manitoba stated in the Legislature, Mar. 28, that the company had applied for an additional guarantee of bonds so as to make the provincial guarantee on the entire bond issue \$18,000 a mile. There are 1,407 miles of C.N.R. track in the Province upon which the provincial guarantee is \$10,000 a mile, and 692 miles upon which the guarantee is \$13,000 a mile.

The bill asking for the confirmation of an agreement between the C.N.R. and the Grand Trunk Pacific Ry., respecting terminals at Edmonton, Alberta, referred to in our last issue, was withdrawn from consideration by the Dominion Parliament.

Among the questions raised in the Alberta Legislature during the recent session was the amount of construction done on the Blackfields-Calgary line. The Provincial Engineer in giving evidence before the public accounts committee stated that the line would have a total length of 101 miles, but on the 5½ miles already graded there had been shifted 614,000 cubic yards of material, representing about one-third of the material to be moved on the whole line. The company had been paid \$208,000 from the proceeds of the guaranteed bonds, in respect of this construction, the actual value of the work done being \$333,000. On the remaining 95 miles the average quantity of material to be shifted would average about 14,000 cubic yards a mile.

The Alberta Legislature has passed, after

a lengthy and somewhat acrimonious debate, the necessary provisions for increasing the guarantee of bonds to the C.N. Western Ry., from \$13,000 to \$18,000 a mile in respect of the construction of a line from Oliver to St. Paul de Metis, 100 miles. The estimated cost of the line is \$22,000 a mile.

**Canadian Northern Pacific Ry.**—T. H. White, Chief Engineer, Vancouver, visited the head offices in Toronto at the end of March to consult with the chief executive officers in regard to the completion of the line, etc. It is expected that the ballasting of the main line in British Columbia will be completed by the end of July. The building of stations at the most important points, and the erection of buildings and other facilities at the divisional points, is being gone on with in preparation of the opening of the line for traffic. (April, pg. 134.)

### Railway Rolling Stock Notes.

The Canadian Northern Ry. has received two baggage cars from the Crossen Car Co., completing an order.

The C.P.R. has received 1 steel mail car, 7 flat cars and 2 class D4 locomotives, from its Angus shops, Montreal.

The Intercolonial Ry. is converting 7 first class cars into suburban cars at its Moncton shops by removing the smoking compartment.

The two combined passenger and baggage gasoline motor cars, which the Alberta and Great Waterways Ry. purchased recently, as mentioned in our last issue, are to be operated between Edmonton and Lac la Biche.

The Intercolonial Ry. is converting at its Moncton shops 7 first class cars with smoking rooms to first class suburban cars without smoking rooms. These cars were built by the Wagner Co., are gas lighted, and fitted with vestibules, and when the conversion is completed each car will seat 84 persons.

The Carquet and Gulf Shore Ry. Bathurst, N.B., has bought Intercolonial Ry. locomotive 1082, which has been thoroughly overhauled. Following are the principal particulars: Builder, Hinkley; date built, 1888; boiler pressure, 130 lbs.; cylinders, 18 x 24 ins.; driving wheels, 4; outside diameter of driving wheels, 63 ins; weight on drivers, 68,500 lbs.; weight of engine, 81,000 lbs.; weight of engine and tender, 142,000 lbs.; tank capacity, 1,800 gals.; service, freight.

The Toronto, Hamilton and Buffalo Ry. has ordered 10 steel underframe and steel superstructure stock cars from National Steel Car Co. Following are the chief details,—

Centre to centre of trucks.....	26 ft. 10 ins.
Length inside .....	36 ft.
Width inside .....	8 ft. 6½ ins.
Height inside, top of floor to underside of carline .....	8 ft. 0¾ ins.
Wheel base of truck .....	5 ft. 2 ins.
Door opening .....	6 ft.
Draft gear .....	Twin spring type
Drawbars .....	Cast steel
Air brake .....	Westinghouse KC8-12
Side bearings .....	Roller type
Bolsters .....	N.S.C.Co's bathtub type

The House of Commons, at the end of March, voted \$2,250,000 for rolling stock for the Intercolonial Ry., covering the application of superheating apparatus to 12 locomotives; also to purchase 10 Pacific locomotives; 6 consolidation locomotives; 4 switching locomotives; ballasting equipment and rail loaders; 200 steel flat cars; 250 steel gondola cars; 4 light wrecking cranes; and a re-vote for 8 sleeping cars, 4 steel sleeping cars, 4 baggage cars, 2 postal cars, 1 scale testing car and 1 motor inspection car. Most of this rolling

stock has been ordered, and some of it has been delivered, as mentioned from time to time during the past few months in Canadian Railway and Marine World. The only new items appearing in the list are the ballasting equipment and rail loaders, wrecking cranes, scale testing cars and motor inspection car. In addition to the foregoing, \$24,000 was voted for safety appliances for equipment, as ordered by the Board of Railway Commissioners for railways under its jurisdiction.

### A Brakeman's Bravery Rewarded.

J. J. Carter, freight brakeman, C.P.R., was presented by the Governor General in Montreal recently with an Albert medal of the 2nd class for saving a little girl's life at Tweed, Ont., in May, 1914. Carter was on the fireman's side of the locomotive of a train running 18 miles an hour when he saw that the child had got on the track by crawling through a fence. Calling to the locomotive man to stop, he went through the front window on to the running board and so on to the pilot. The locomotive man applied brakes, but could not stop in time, so that the train was running 8 or 10 miles an hour when it got near the child. Just as it came to the spot Carter jumped ahead of the locomotive, and by catching the child with his right hand pulled her along with himself into a ditch clear of the track. The eighth car had reached the spot before the train had come to standstill. In his report, the locomotive man said: "I consider Carter took a desperate chance in doing as he did, as a misstep would have cost him his life." The locomotive man had himself reached the pilot by the other foot board, and thus witnessed the rescue, while the fireman had jumped off between the locomotive and tender trying to run ahead, but was too late to do anything.

Among the officials at the presentation were: W. R. Baker, Secretary; A. D. MacTier, General Manager, Eastern Lines; L. G. Rogers, Assistant Superintendent, District 1, Ontario Division; also the locomotive man, fireman and conductor of the train, together with representatives of the conductors and trainmen from District 1, Ontario Division, in which Tweed is located.

**A Railway's Liability on a Special Contract.**—The Imperial Privy Council has reversed the decision of the Supreme Court of Canada in a case brought against the G.T.R. for damages for personal injuries, by a man taking a horse from Milverton to South River, Ont., on a special contract, relieving the railway company from claims in respect of injuries to persons travelling with cattle. The contract was made with the owner of the animal, and handed to the man, who did not read it, but it was held that the railway company was not liable, and the appeal was allowed, appellants to pay costs as between solicitor and client. This case had been before several of the Canadian courts, and varying decisions had been given.

**Reduced Fares for Soldiers.**—Railway companies in the Eastern Canadian Passenger Association have arranged that upon surrender of certificate, properly filled in and signed by commanding or transport officer, showing name and destination, members of Canadian expeditionary forces in uniform travelling to and from their homes and the various mobilization points will be granted round trip tickets at a fare and one third for the round trip. Tickets are valid for 15 days from date of sale. A similar reduction is made for militia men on leave from certain points who are on duty guarding bridges, canals, etc., and are allowed two days leave of absence each fortnight.



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

The dates given of orders, immediately following the numbers, are those on which the orders were drawn.

General order 135. Mar. 22.—Re rates on newspaper for west of Fort William, Ont. This was published in full in April issue, pg. 138.

General order 136. Mar. 25.—Approving form of release re carriage of household goods.

General order 137. Mar. 26.—Approving amendment to Express Classification for Canada, No. 3, re storage batteries.

General order 138. Mar. 25.—Approving amendment to Express Classification for Canada, No. 3, re moving picture films.

General order 139. Apr. 1.—Suspending proposed advances in commodity rates shown on pgs. 4, 5, 6, and upper part of pg. 7 of Supplement 26 to C.P.R. tariff, C.R.C. no. E-2480, pending decision by Board re application for general increase. Order given in full on another page.

For general orders 136 to 139 see under Traffic Orders by Board of Railway Commissioners, further on in this issue.

23434. Mar. 22.—Authorizing C. P. R. to use bridge 55 over Naiscootyong River, near Naiscott, Ont.

23435. Mar. 20.—Amending order 23386, March 4, re C. P. R. extensions to sidings in Caledon Tp., Ont.

23436. Mar. 20.—Authorizing G. T. Pacific Ry. to build Y at mileage 840 west of Winnipeg, in North Alberta District.

23437. Mar. 22.—Amending order 23363, Feb. 27, re Edmonton, Dunvegan and British Columbia Ry. revised location at mileage 29.

23438 to 23442. Mar. 23.—Authorizing G. T. R. to operate bridges 69, near Harrisburg; 22, Brantford; 28, near Paris; 26, near Brantford, and 27, near Paris, Ont.

23443. Mar. 23.—Dismissing C. P. R. application for approval of revisions in its line west of and east of Eugenia St.; of two connections with C. N. O. R. spur; of location of proposed revisions on Ontario St.; and for authority to operate same, in Trenton, Ont.

23444. Mar. 23.—Approving agreement of Bell Telephone Co. and Ayr Rural Telephone Co., March 9.

23445. Mar. 22.—Dismissing application of Ashworth Women's Institute for undercrossing of G. T. R. between Aspdin and Huntsville, on Town Line between Stisted and Stephenson Tps., Ont., and ordering G. T. R. to build approaches crossing to grade of 5%, and to build crossing in accordance with Board's standard regulations.

23446. Mar. 23.—Dismissing application of City of Windsor, Ont., for level crossing at Wyandotte St.; and reserving leave to municipality to cross Michigan Central Rd. there over head as provided by order 10237, Apr. 19, 1910.

23447. Mar. 12.—Approving Hull Electric Co.'s Standard Maximum Tariff, C. R. C. 1, of 2½c. a mile; provided no toll now charged for passengers be increased unless Board's permission be obtained.

23448. Mar. 22.—Dismissing complaint of Canadian China Clay Co. against joint rates charged on china clay, in carloads, from Huberdeau, Que.

23449. Mar. 22.—Authorizing Dominion Department of the Interior to build highway over G. T. Pacific Ry. in s.e. ¼, Sec. 16-45-1, w. 6 m. Jasper Park District, Alta.

23450. Mar. 25.—Ordering that all switching movements be flagged over crossing of Union St., Simcoe, Ont., by G. T. R. trainmen.

23451. Mar. 27.—Authorizing C. N. Alberta Ry. to open for traffic portion of its railway from St. Albert to Peace River Jct., 25½ miles; trains limited to speed of 25 miles an hour.

23452. Mar. 25.—Authorizing G. T. R. to take, for building of highway crossing as required by order 22344, Aug. 5, 1914, certain lands in Tay Tp., Ont.

23453. Mar. 25.—Amending order 19976 re G. T. Pacific Ry. crossing in rural municipality 97, Cedoux, Sask.

23454. Mar. 25.—Authorizing Ontario Public Works Department to build highway over C. P. R. Toronto-Sudbury Branch, in Lot 10, Con. 3, Burwash Tp.

23455. Mar. 24.—Approving agreement between Bell Telephone Co. and East Grey Telephone Co., March 8.

23456. Mar. 26.—Amending order 23426, March 20, re C. N. Ontario Ry. service, Trenton to Maynooth.

23457. Mar. 27.—Approving, temporarily, Edmonton, Dunvegan and British Columbia Ry.

Standard Freight Tariff, C. R. C. 1, and Standard Passenger Tariff, C.R.C. 1.

23458. Mar. 27.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to open for traffic its line from Edmonton to mileage 277, Alta, speed of trains between Edmonton and mileage 170 limited to 20 miles an hour; and from mileage 170 to 277 to 15 miles an hour.

23459. Mar. 29.—Approving Edmonton, Dunvegan and British Columbia Ry. bylaw 5, authorizing A. Campbell, Traffic Manager, to issue all tariffs of tolls.

23460. Mar. 30.—Amending order 23219, Jan. 27, re Hamilton Radial Ry. tracks at Sherman Inlet, Hamilton, Ont.

23461. Mar. 34.—Approving agreement between Bell Telephone Co., and Wakefield and Masham Telephone Co., Feb. 19.

23462. Mar. 27.—Authorizing C.P.R. to build industrial spur for Canmore Coal Co., Canmore, Alta.

23463. Mar. 29.—Authorizing C.P.R. to build bridge 107.2 over Shaw's Creek, near Severn Falls, Ont.

23464. Mar. 30.—Authorizing Interior Department Parks Branch to build highway crossings over C.P.R. between Field and Hector in Yoho Park, B.C.

23465. Mar. 29.—Authorizing C.P.R. to build spur for W. R. Hull, Calgary, Alta.

23466. Apr. 1.—Dismissing Essex Terminal Ry. application for authority to build branch from Lot 59 to Huron St., Sandwich Tp., Ont.

23467. Apr. 1.—Authorizing C.N. Ontario Ry. to build spur from Don Esplanade, Toronto, for Laidlaw Lumber Co.

23468. Apr. 3.—Suspending Supplement 1, cancelling C.P.R. Tariff, C.R.C. no. W. 1936, pending a hearing by Board.

23469. Apr. 1.—Amending order 23398, Mar. 8, re highway diversion by C.P.R. near Balcarres, Sask.

23470. Apr. 3.—Amending order 23415, Mar. 12, re farm crossing over C.P.R. Stobie Branch, McKim Tp., Ont.

23471. Apr. 1.—Amending order 22853, Nov. 9, re building of crossing over G.T.R. at Asnland Ave., by city of London, Ont.

23472. Apr. 3.—Authorizing C.P.R. to use bridge 2.9 over Three Tree Creek, near Fredericton Jct., N.B.

23473. Mar. 29.—Authorizing G.T.R., Pere Marquette Rd. and Michigan Central Rd. to use bridge at crossing of Thompson Road, Bertie Tp., Ont.

23474. Apr. 1.—Approving location and details of G.T.R. new station at Tillsonburg, Ont.

23475. Apr. 3.—Approving agreement between Bell Telephone Co. and Erie Telephone Co., Mar. 22.

23476. Apr. 1.—Dismissing C.P.R. application to remove regular agent at Vienna station, Ont.

23477. Mar. 31.—Authorizing Canadian Northern Ry. to build across and divert road between Secs. 19 and 30-50-8, w. 4 m., Alta.

23478. Apr. 7.—Authorizing C.P.R. to divert highway in n.w. ¼ Sec. 8-32-13, w. 2 m., Sask; and build highway across its tracks at mileage 97.44, Wynward Subdivision, Sask.

23479. Apr. 6.—Approving American Express Co.'s bylaw, passed March 22, re tariff of tolls, and rescinding order 2645, Mar. 11, 1907.

23480. Apr. 7.—Authorizing Hamilton St. Ry., pending installation of half interlocking plant, to operate cars over crossing of Oliver Chilled Plov Works of Canada's spur on Gilkinson St., Hamilton, Ont., cars to be flagged across; plant to be completed by May 15.

23481. Apr. 7.—Amending orders 23438 to 23442, Mar. 23, re G.T.R. bridges at five points in Ontario.

23482. Apr. 6.—Ordering Canadian Northern Ry. to attach passenger car to trains 93 and 94, between Hawkesbury and Ottawa, to and from Ottawa, for passengers to and from Ottawa only; time to be as at present; all stations may be treated as flag stations; such service be put into effect for 3 months from date.

23483. Apr. 6.—Limiting speed of C.P.R. trains over crossing of Portage Ave., St. James, Winnipeg, Man., to ten miles an hour.

23484. Apr. 6.—Authorizing C.P.R. to build spur for Imperial Oil Co., at Medicine Hat, Alta.

23485. Apr. 3.—Authorizing Hydro Electric Power Commission of Ont. to erect transmission line across G.T.R. in Simcoe, Ont.

23486. Mar. 26.—Authorizing Town of St. Lambert, Que., to build highway crossing over Quebec, Montreal and Southern Ry. at St. James St., and rescinding order 10496, Apr. 28, 1910.

23487. Apr. 7.—Relieving G.T.R. from providing further protection at highway near milepost 17, north of Vankleek Hill, Ont.

23488. Apr. 8.—Authorizing Edmonton, Dunvegan and British Columbia Ry. to open for traffic portion of its line from mileage 277 to 287, trains limited to 15 miles an hour.

23489. Apr. 8.—Relieving G.T. Pacific Branch Lines Co. from erecting and maintaining fences, gates and cattleguards on its Moose Jaw Northwest Branch at Archydale, Sask.

23490. Apr. 9.—Authorizing Dominion Atlantic Ry. to carry freight over its North Mountain Branch from Somerset to Weston, N.S., mileage 12.09 to 14.78; speed of trains limited to 12 miles an hour.

23491. Apr. 7.—Relieving C.P.R. from maintaining night watchman at crossing of First St., Souris, Man.

23492. Apr. 8.—Authorizing village of Port Colborne, Ont., to open Mitchell St., across G.T.R.

23493. Apr. 7.—Authorizing Winnipeg and Northern Ry. and C.P.R. to operate trains over crossing in Lot 101, St. Paul's Parish, Man., without first stopping.

23494. April 6.—Dismissing C.P.R. application for authority to remove regular agent at Clarendon station, Ont.

23495. Apr. 9.—Authorizing Esquimalt and Nanaimo Ry. to build siding for Curtis and Sears Lumber Co., at mileage 100.6, Nanoose District, Vancouver Island, B.C.

23496. Apr. 9.—Approving clearances of elevated stone bin over C.P.R. siding at mileage 68.4, Port McNicoll Subdivision, Ont.

23497. Apr. 8.—Ordering Bell Telephone Co. to file tariffs, applying same tolls to territory recently annexed to City of Toronto, formerly known as North Toronto, as are charged for Toronto Exchange services, to become effective Jan. 1, 1916.

23498. Apr. 3.—Extending to Aug. 31 time within which C.P.R. shall complete fencing certain portions of its right of way through Indian Reserves in British Columbia.

23499. Apr. 9.—Approving National Express Co.'s bylaw, Mar. 22, re tariff of tolls.

23500. Apr. 3.—Dismissing complaint Christie, Henderson & Co., Toronto, against refusal of G.T.R. to allow for 296 doors furnished for cars of lime shipped from Galt, Ont.

23501. Apr. 6.—Authorizing C.P.R., pending further order, to remove regular agent at Snow Road station, Ont., caretaker to be appointed for accommodation of passengers and care for l.c.l. freight and express matter.

23502. Apr. 6.—Dismissing application of Village of St. Joseph de Sorel, Que., for order directing Quebec, Montreal and Southern Ry. to build station there; and ordering Q.M. & S. Ry. to show St. Joseph de Sorel on its timetable as a flag station.

23503. Apr. 8.—Ordering J. H. Jones, Toronto, to pay G.T.R. rent for siding for last 3½ years, less expense he may have been put to for cartage by refusal of G.T.R. to continue delivering cars over siding; G.T.R. to resume such service forthwith.

23504. Apr. 10.—Dismissing application of G. T. Clarkson, Toronto, trustee for creditors of Lloyd & Sons, Trenton, Ont., to restrict right of expropriation; and ordering that arbitration pending herein, to determine compensation in respect petitioner's land and for damages, be continued.

23505. Apr. 8.—Authorizing the City of Toronto to build subway under G.T.R. at extension of Wilton Ave., to connect with Dickens Ave., Toronto, Ont.; 20%, not exceeding \$5,000, of cost to be paid out of the railway grade crossing fund; \$10,000 by G.T.R.; and balance by the city.

23506. Apr. 3.—Dismissing complaint of Capt. E. Elliott, owner of Lot 4, Block E.E., Lindsay, Ont., against closing, by Georgian Bay and Seaboard Ry. (C.P.R.) of north end of Caroline St.

23507. Apr. 10.—Disallowing rate of 3¼c per 100 lbs. on manure from Toronto to St. Catharines, Ont., for Canadian Northern Ry. track delivery, shown in item 226 of G.T.R. Tariff C.R.C. no. E-3035; the rate of 2¼c per 100 lbs. previously in effect to be restored, subject to minimum carload weight of 60,000 lbs. and to provisions of general interswitching order 4988, July 8, 1908; changes to be effective by Apr. 21.

23508. Apr. 8.—Dismissing C.P.R. application for order amending order 22691, Oct. 9, 1914, regarding consideration of grade crossing, Yonge St., North Toronto, Ont., so as to provide that the approach to subway on southerly side shall have grade of 5% instead of 2½%.

23509. Apr. 8.—Ordering City of Toronto to pay C.P.R. its proportion of expense incurred to date on 2-track viaduct, North Toronto grade separation, as required by order 22855, upon receipt of monthly certified progress estimates showing amount expended thereon until completed, any dispute to be settled by Chief Engineer of Board.

23510. Apr. 9.—Relieving C.P.R. and G.T.R. from maintaining night signalman at crossing 2¼ miles north of Glencoe, Ont.

23511. Apr. 12.—Ordering Michigan Central Rd. by June 1 to install improved type of automatic bell at crossing of public highway immediately west of Stevensville station, Ont., 20% of cost to be paid out railway grade crossing fund.

23512. Apr. 12.—Authorizing Canadian North-

ern Ry. to build across, close and divert two highways in n.e. ¼ Sec. 19-10-21, w. 2 m., Sask. 23513. Apr. 12.—Amending order 23180, Jan. 19, re crossing of C.N. Pacific Ry. by Kettle Valley Ry. at Hope, B.C.

23514 to 23520, Apr. 12.—Authorizing C.N. Alberta Ry. to build across roads at 7 points.

23521. Apr. 7.—Dismissing application E. W. Roberts, Montreal, for special winter rate on undressed green pulpwood which shall equal that applied on dry, peeled wood by applying weight per cord of dry wood to the green wood.

23522 to 23530. Apr. 12.—Authorizing C.N. Alberta Ry. to build across roads at nine points.

23531. Apr. 12.—Approving revised location Canadian Northern Ry. through Tps. 11 and 12, R. 5 and 6, w. 3 m., Sask., mileage 79.89 to 83.12 and 87.54 to 92.22.

23532. Apr. 12.—Authorizing C.P.R. to build spur for Spanish River Pulp and Paper Mills, Ltd., Sturgeon Falls, Ont.

23533. Apr. 12.—Approving, temporarily, Toronto, Hamilton and Buffalo Ry. new form of Livestock Special Contract (Form 11).

23534. Apr. 13.—Rescinding orders 23027 and 22927, Dec. 1, 1914, and authorizing C.N. Ontario Ry. and C.P.R. to operate over crossing in Lot 4, Con. 5, McKim Tp., Ont.

23535. Apr. 13.—Authorizing C.P.R. to divert public highway west of Worthington station, Ont., so as to cross tracks east of station; and to divert traffic from and close present trespass crossing, about 700 ft. east of station.

23536. Apr. 10.—Dismissing application of Sudbury Brewing and Malting Co., Sudbury, Ont., for order directing C.P.R. to apply milling-in-transit privilege to malt grain ex Fort William, which as "dried grain," or feed, is re-shipped from applicant's brewery.

23537. Apr. 13.—Dismissing G.T. Pacific Ry. application for authority to remove regular agent at Elie, Man.

23538. Apr. 14.—Authorizing Town of Walkerville, Ont., to build easterly extension of Seminole St. from Walker Road across Lake Erie and Detroit River Ry. (P.M.R.) to easterly limits of municipality, at rail level, as shown on plan.

23539. Apr. 13.—Approving location C.N. Alberta Ry. combined station and section house at Heda.

23540. Apr. 12.—Relieving G.T.R. from providing further protection at crossing of first public highway west of Lansdowne station, Ont.

23541. Apr. 14.—Relieving C.N. Quebec and N.T.R. from maintaining night signalman at crossing near Tawachiche station, Que.

23542. Apr. 14.—Relieving C.N. Ontario Ry. and G.T.R. from maintaining night signalman at crossing near Mount Albert, Ont.

23543. Apr. 14.—Authorizing City of Montreal to extend Boyce St. across C.N. Ontario Ry. at level as shown on plan; and reserving leave to C.N.O.R. to lay tracks across highway created within limits of its property, and as approved by Board's Chief Engineer.

23544. Apr. 14.—Ordering C.P.R. to build farm crossing for Lewis Springer, Drumbo, Ont., at mileage 75.7, London Subdivision; to be completed by May 15.

**Russian Order for Canada.**—A London cablegram of April 18, announced the arrival there from Petrograd, of W. W. Butler, Vice President, Canadian Car & Foundry Co., Montreal, and that he had secured an order from the Russian Government for 2,500,000 each of shrapnel and explosive shells, the order aggregating about \$70,000,000. The cablegram added that Mr. Butler would leave in a few days thereafter for Paris.

**The International Railway Fuel Association's** annual convention will be held at Chicago, Ill., May 17 to 20. The matters which will be reported on include mining and preparation of coal; influence of the operating officials of railways on fuel economy; the locomotive including practices in relation to the handling of locomotives; fire boxes; and accounting.

**Western Canada Railway Club.**—J. G. Sullivan, Chief Engineer, C.P.R., Western Lines, addressed the club recently on economics of railway location. He did not read a paper on the construction of the Rogers Pass tunnel as stated in a number of publications.

**Wabash Rd. to be sold.**—A St. Louis, Mo., press despatch says a federal judge has ordered a sale of the Wabash Rd. by the receivers.

### Handling of Stores on Intercolonial Railway.

The changes which were made in the handling of stores on the I.R.C. some months ago are said to have proved very satisfactory. The stores outside of Moncton, N.B., which formerly were under the mechanical department and in charge of the mechanical foremen, now come directly under the stores department.

A card system has been adopted in connection with the stock book at the various points at which there are stores. The stock book is sent to Moncton once a month, and all stocks on hand are recapitulated so as to show at a glance the quantities of each kind of supplies at every stores point. In this way, if it is found that there is too much stock at one place it can be transferred to another, and supplies that become obsolete can be taken into Moncton and examined.

Each store outside of Moncton is supposed to carry only 30 days stock. Requisitions are sent in on the first of each month. Stores supplies are loaded in one car and shipped direct to the store point, and a schedule of shipments is made, so that the cars go out to the different stores at stated dates, thus giving time for shop material that is being repaired or made to be put into the car, and to enable the storekeeper to know exactly what day the car will be shipped.

In connection with the change in system a number of changes have been made in the officials in charge.

W. G. Harris, appointed storekeeper at Halifax, N.S., volunteered for overseas service, and G. E. Hennessy has been appointed acting storekeeper in his stead.

E. R. McPherson, formerly storekeeper at

Sydney, N.S., has been transferred to Halifax, N.S.

H. L. Johnson, formerly storekeeper at Gibson, N.B., has been appointed storekeeper at St. John, N.B., vice G. R. McCafferty.

F. R. Dunbar, formerly mechanical clerk at Gibson, N.B., has been appointed storekeeper there, succeeding H. L. Johnson, transferred.

F. C. Lutz has been appointed storekeeper at Campbellton, N.B.

J. H. Brown has been appointed storekeeper at Riviere du Loup, Que., vice J. Bouchard.

C. E. Belanger has been appointed storekeeper at Chaudiere Junction, Que., vice T. Jenkins, transferred to Riviere du Loup as clerk.

Frank Bourgeois has been placed in charge of a substore, which has been established in the Moncton locomotive house in connection with the main stores.

**Locomotive Men's Complaints.**—The Board of Railway Commissioners dealt with complaints of locomotive men, through the Brotherhood of Locomotive Engineers and Locomotive Firemen, at Ottawa, Apr. 6, when it was alleged that the C.P.R. violated the uniform flagging rules, and that the company had failed to equip its locomotives with dump ash pans. On behalf of the company, A. Price, Assistant General Manager, Eastern Lines, stated that no complaints had been received, and the Chief Commissioner arranged that the company and the men get together with a view to an arrangement being made.

Sir Richard McBride, Premier of British Columbia, left for England early in April in connection, it is said, with the sale of Pacific Great Eastern Ry. bonds.

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

	Wheat, bushels.	Oats, bushels.	Barley, bushels.	Flax, bushels.	Totals. bushels.
<b>Fort William:—</b>					
C.P.R. ....	230,833	72,857	16,513	3,547	323,750
Consolidated Elevator Co. ....	885,141	357,463	58,741	157,818	1,459,163
Empire Elevator Co. ....	1,674,945	629,965	77,945	190,492	2,573,347
Ogilvie Flour Mills Co. ....	785,816	73,058	20,640	.....	879,514
Western Terminal Elevator Co. ....	1,287,656	125,373	22,759	327,116	1,762,904
G.T. Pacific ....	1,169,339	582,257	32,956	135,465	1,920,017
Grain Growers' Grain Co. ....	1,706,066	460,193	51,761	.....	2,218,020
Fort William Elevator Co. ....	762,252	326,118	54,912	95,050	1,238,332
Eastern Terminal Elevator Co. ....	569,815	205,768	30,266	.....	805,849
<b>Port Arthur:—</b>					
Port Arthur Elevator Co. ....	2,690,608	789,227	82,663	181,482	3,743,980
D. Horn & Co. ....	11,490	6,502	.....	51,838	69,830
Dominion Government Elevator ..	573,800	239,222	8,496	121,376	942,894
<b>Total Terminal Elevators ....</b>	<b>12,347,761</b>	<b>3,868,003</b>	<b>457,652</b>	<b>1,264,184</b>	<b>17,937,600</b>
<b>Saskatoon Dominion Government Elevator</b>					
Saskatoon Dominion Government Elevator ..	153,958	467,006	17,520	.....	638,484
<b>Moosejaw Dominion Government Elevator</b>					
Moosejaw Dominion Government Elevator ..	346,748	168,842	7,092	1,440	524,122
<b>Total Interior Terminal Elevators</b>	<b>500,706</b>	<b>635,848</b>	<b>24,612</b>	<b>1,440</b>	<b>1,162,606</b>
<b>Depot Harbor</b>					
Depot Harbor ..	.....	43,650	.....	.....	43,650
<b>Midland:—</b>					
Aberdeen Elevator Co. ....	19,922	45,702	.....	.....	65,624
Midland Elevator Co. ....	.....	.....	.....	.....	.....
Tiffin, G.T.P. ....	24,146	332,269	.....	.....	356,415
Port McNicol ..	201,512	133,789	.....	.....	335,301
Collingwood ..	9,347	.....	.....	.....	9,347
Goderich ..	240,406	37,686	.....	.....	278,092
<b>Kingston:—</b>					
Montreal Transportation Co. ....	15,076	.....	.....	.....	15,076
Commercial Elevator Co. ....	29,160	14,561	.....	.....	43,721
Port Colborne ..	146,135	95,277	88,106	*24,984	354,502
Prescott ..	.....	.....	.....	.....	.....
<b>Montreal:—</b>					
Harbor Commissioners No. 1 ..	157,496	.....	.....	.....	157,496
Harbor Commissioners No. 2 ..	89,213	401,028	8,578	.....	498,819
Montreal Warehousing Co. ....	3,273	134,779	4,167	.....	142,219
Quebec Harbor Commissioners ..	3,994	97,190	.....	.....	101,184
West St. John, N.B. ....	318,646	.....	.....	.....	318,646
Halifax, N.S. ....	†	†	†	†	†
<b>Total Public Elevators</b>	<b>1,258,326</b>	<b>1,335,931</b>	<b>100,851</b>	<b>24,984</b>	<b>2,720,092</b>
<b>Total quantity in store</b>	<b>14,106,793</b>	<b>5,839,782</b>	<b>583,115</b>	<b>1,290,608</b>	<b>21,820,298</b>

\* Corn. † Not reported.

**Intercolonial Railway Construction, Betterments, Etc.**

The estimates for betterments and new construction on the I.R.C. were before the House of Commons, Mar. 25, and subsequent days, in committee of supply, and were later on passed. Following are the general items:

Anti-creepers and tie plates .....	\$ 50,000
Bridges—to strengthen .....	700,000
General protection of highways .....	16,000
Installation of block system .....	14,000
Installation of telephone system .....	100,000
Original construction .....	600
Permanent wiring of locomotive houses	13,000
Permanent farm crossings and culverts	10,000
Power plants at divisional points ....	23,000
Surveys and inspections .....	87,000
Tile drainage in wet cuts .....	4,000
To increase facilities on the line .....	102,000
Water supply—to increase .....	27,000
Amherst—additional facilities .....	16,000
Bathurst—spur line .....	62,400
Chatham—diversion of line and branch	2,500
Chaudiere Jct.—St. Romuald second	
track .....	30,000
Diversion of line, Nelson—Derby Jct..	6,000
Diversion of line, N. Sydney—Leitches	
Creek .....	60,000
Fredericton—to increase accommoda-	
tion .....	5,000
Halifax—docks and wharves .....	30,000
"  "  docks and wharves .....	300,000
"  "  new terminal facilities .....	3,000,000
"  "  to increase accommodation..	3,500
"  "  Willow Park sewer .....	14,900
"  "  " .....	39,750
Hampton—subway, etc. ....	200,000
Levis—improvements at .....	75,000
"  "  new coaling plant .....	110,000
Moncton—locomotive and car shops..	125,000
"  "  elimination of crossings ..	22,500
"  "  installation of roofing .....	354,000
Mulgrave—car ferry and dock .....	5,900
Pugwash spur line .....	3,500
Raising route near Sackville .....	16,500
Mount Jolie (St. Flavie) facilities ..	112,000
St. John—spur to Courtenay Bay .....	1,000
Sussex—improvements .....	10,000
Sydney Mines diversion .....	20,000
Trenton—increased facilities .....	

Referring to the vote of \$3,000,000 on account of the new ocean terminals at Halifax, the Minister of Railways explained that probably only half of the amount voted will be expended this year. The unit at present being laid out, is expected to take care of the traffic in sight, and other units will be gone on with as necessity arises. The completed plans will give ample room for some years to come. Arrangements will be made so that all railways entering Halifax will utilize the terminals.

The above apply to general works of betterments at various points on the line, or to large works already in hand, descriptions of which have already appeared in Canadian Railway and Marine World. The items regarding new construction are detailed as follows:

Five hundred and ten dollars towards building a railway from near Dartmouth via Musquodoboit Harbour and Musquodoboit River valley to Dean's Settlement, N.S. The Minister of Railways explained that it is expected that this vote will complete the line. Grading is 75% completed; the sub-structures for the bridges are in; track has been laid for a considerable distance, and the steel work for the bridges is being delivered. It is expected that the line will be completed this year. The branch projected to Country Harbour will not be built at present.

One million dollars on account of building a line from Sunny Brae to Mulgrave, N.S. Sunny Brae is the terminus of the Nova Scotia Steel & Coal co.'s old line which was acquired by the Government two or three years ago, and the proposed line will traverse a fertile and prosperous part of Guysboro County, passing through Country Harbor and Guysboro, to a junction with the present line at Mulgrave, whence there is ferry connection with Cape Breton Island. In the general estimates referred to above provision is made for the purchase of an additional car ferry, and the building of docks at this point. The car ferry is

being built in England. In 1914, a reconnaissance survey was made over the projected route of this branch. We are officially advised that the \$1,000,000 voted is to start construction on the branch. The maximum gradient will be 0.6, both east bound and west bound, and the maximum degree of curvature 6 degrees, with possibly one or two exceptions. The object of the new line is to give transportation facilities to the central portion of Guysboro County and the port of Guysboro and to build a line with such gradients as will make it the economical route for through heavy traffic to and from Cape Breton. It is the intention to start construction this year and tenders will be called for at an early date.

In regard to the vote of \$62,400 for Bathurst spur line we are officially advised that it will run from the main line near Bathurst into the town and will serve a number of mills, principally the Bathurst Lumber Co.'s new pulp mill. It is proposed to go on with construction this year and tenders will be invited as early as possible. (April, page 136.)

**National Transcontinental Railway Construction.**

The Dominion Government has obtained power from the Dominion Parliament to operate the National Transcontinental Ry., from Moncton, N.B., to Winnipeg, pending the completion of negotiations with the Grand Trunk Pacific Ry., for the taking over of the line under the terms of the agreement of 1903, and its operation with the G.T.P. Ry. as a complete unit from Moncton, to Prince Rupert, B.C. This agreement provided for the taking over of the Moncton-Winnipeg line at a rental of 3% upon its actual cost. The negotiations in progress have to do with the ascertaining of the actual cost upon which the rental of 3% is to be paid, and the interpretation of other sections of the agreement. From time to time something is said in the daily press as to the stage which these negotiations have reached but there is no official statement on either side, consequently no importance can be attached to the press despatches. It is, however, admitted by the Minister of Railways, which admission is concurred in by Hon. G. P. Graham, ex-Minister of Railways, that the line is not completed in all its details as contemplated in the agreement, so that the G.T.P. Ry. is justified in not taking it over. Until these negotiations are completed the Railways Department has the power to operate the entire line, either as a complete unit, or in sections, for the benefit of the Dominion.

Parliament has also granted the Department authority to acquire from the G.T.P.R., the branch line from Lake Superior Jct. to Fort William, Ont., 190 miles, with the terminals, facilities and accommodation works, by purchase, lease or otherwise, of the G.T.P.R. or any other company, and of including the same in the N.T.R., so that in the event of the G.T.P.R. failing to agree with the Government, the entire line east of Winnipeg may be operated in connection with existing Government lines. This is being operated by the G.T.P.R. in connection with the section of the N.T.R. between Lake Superior Jct. and Winnipeg, 258 miles, as its Lake Superior Division, with a total mileage of 448. The 258 mile section of the N.T.R. is operated under a special agreement, independently of the general agreement for the whole line contemplated by the act of 1903.

In the House of Commons, April 1, the Minister of Railways said work was commenced upon the building of the station on the site of the Champlain Market, Quebec, June 18, 1914, and was suspended Dec. 20, 1914, because it was considered inadvisable

to carry on masonry and brick work during the severe winter weather. A press report, April 15, stated that work has been resumed.

The House of Commons has voted \$3,500,000 on account of construction of the Quebec Bridge during this financial year. The Minister of Railways stated in the House of Commons, April 1, that there was expended, on account of the bridge, to Oct. 10, 1911, \$8,344,928.09; and since that date to Feb. 28, of the present year, \$7,359,675.45. A later press report states that M. P. and J. T. Davis, the contractors for the sub-structure, have finally completed their work, and have a few men employed removing the balance of their plant, and cleaning up the yards which they had utilized. The St. Lawrence Bridge Co., which has the contract for the steel work, has some 6,000,000 of prepared steel on the spot ready for erection, other steel is going forward, and preparations are being completed for the active pushing of the erection of the main part of the super-structure during the summer. (April, pg. 138.)

**Dominion Government Railway to Hudson Bay.**

The Minister of Railways stated in the House of Commons recently that the total length of the line, if completed according to present location, would be 424 miles. The first 250 miles are nearly completed; the next 50 miles are well advanced, and track has been laid on 214 miles. The total estimated cost of the completed line is \$16,000,000, and the amount expended \$7,647,197.41. The estimated cost of the proposed harbor improvements at Port Nelson, on Hudson Bay, is \$10,000,000, less credits for steamships, plant, etc., about \$1,000,000, and there has been expended on plant, steamships, wireless telegraph stations, etc., \$3,480,277.08.

J. D. McArthur, the general contractor for the line, is reported to have said, on a recent visit to Ottawa, that the grading into Port Nelson will be completed next autumn, if labor or other difficulties do not intervene. The construction camps are fully supplied, the plant on the job is ample, and track and other materials are going forward promptly. It will not, he said, be possible to get the track laid into Port Nelson this year on account of the two large steel bridges which have to be built across the Nelson River, the first at the Manitou Rapids. This bridge, upon which work has been started, is at mileage 241.5 from Pas, Man. It will consist of a single track symmetrical cantilever span, with one deck plate girder approach span, resting on three concrete piers and abutments, having a total length of 612.2 ft. from face to face of ballast wall. The foundations of piers and abutments are in solid rock, the piers themselves being 30½ ft. high above foundations. The piers are spaced from the west end ballast wall, 111 ft., 304½ ft., 110½ ft., and 85½ ft. each centre to centre. The concrete work is being done by the general contractor, J. D. McArthur, and the steel work has been let to Canadian Bridge Co., Walkerville, Ont.

The grading subcontract is being carried out by McMillan Bros., and the track laying, ballasting, and telegraph subcontract by the Hudson Bay Construction Co., of which J. D. McArthur is President.

The engineering and construction parties began, starting out from Winnipeg for the season's work, Mar. 28.

The House of Commons has voted \$5,500,000 on account of construction of the railway, terminals and elevators, in the main estimates, and \$350,000 in the supplementary estimates this year.

# Electric Railway Department

## Electric Railway Statistics for Year Ended June 30, 1914

The following abbreviations are used in the names of railways:—E, electric; E.R., electric railway; E.S.R., electric street railway; S.R., street railway. The minus mark (—) in the column for net income or deficit, shows that there was a deficit in the operation of the line to the extent of the figures given. The numbers following the names of the railways, refer to the notes following the table on this page.

	First Main Track Mileage	Gross earnings from Operation	Miscellaneous Earnings	Operating Expenses	Taxes, Funded Debt, etc.	Net Income or Deficit	Total Car Mileage	Fare Passengers Carried
Berlin and Northern Ry.....	2.45	\$ 8,417		\$ 7,601	\$ 1,560	\$ —744	33,500	199,819
Berlin and Waterloo S.R.....	3.20	51,804	\$ 245	37,599	6,987	7,462	261,328	1,167,957
Berlin, Waterloo, Wellesley and Lake Huron Ry. (1).....	17.81	214,995	68	126,304	20,910	67,849	406,393	1,327,995
Brandon Municipal Ry.....	8.50	44,344		50,972	7,914	—14,542	269,679	916,723
Brantford and Hamilton Ry. (2).....	23.00	149,528		117,690	72,856	—41,018	364,125	584,627
British Columbia E.R.....	241.91	4,013,124	2,151,997	3,093,767	905,243	2,166,111	13,030,262	52,734,380
Calgary Municipal Ry.....	55.00	743,858	15,013	570,484	109,982	78,404	3,213,632	17,787,860
Canadian Resources Development Co.....	1.75	2,128		4,455		—2,327	35,843	17,565
Cape Breton E.R.....	30.52	219,326	124,308	131,684	111,015	100,935	673,262	4,167,749
Chatham, Wallaceburg and Lake Erie Ry. ....	36.94	137,292		96,785	39,490	—984	325,277	434,646
Cornwall E.R.....	4.00	33,346	20	26,746		6,619	216,742	452,789
Edmonton Interurban Ry. (3).....	8.19	2,559		14,001	425	—11,877	8,096	10,726
Edmonton Radial Ry.....	50.57	650,788		576,116	313,204	—238,532	2,044,286	15,287,376
Fort William E.R. (4).....	11.63	70,411		49,999		20,412		1,658,943
Grand Valley Ry.....	40.36	120,941		92,073	9,383	19,484	491,388	1,604,855
Guelph Radial Ry.....	8.50	49,642	174	32,141	1,629	16,046	249,000	1,192,129
Halifax Electric Tramways Co.....	12.29	303,293	167,875	186,975	72,772	211,420	1,275,527	6,876,003
Hamilton and Dundas E.R. (2).....	7.00	68,096	15	48,112	6,286	13,697	147,289	835,793
Hamilton, Grimsby and Beamsville E.R. (2).....	22.00	146,712		133,017	13,147	547	414,731	782,530
Hamilton Radial Ry. (2).....	25.00	182,353		160,003	50,664	—28,314	552,421	2,031,674
Hamilton S.R. (2).....	22.00	650,090		399,718	93,023	157,348	2,230,370	16,874,097
Hull Electric Co. (1).....	15.67	161,963	32,734	120,911	60,936	12,849	840,353	2,406,171
International Transit Co. (5).....	4.30	81,764	16,563	46,762	21,354	30,211	306,246	1,890,422
Kingston, Portsmouth and Cataraqui E.R.....	8.00	42,238		46,618	5,410	—9,789	199,680	1,160,040
Lethbridge Municipal Ry. ....	11.00	56,149	360	62,527	29,531	—35,549	423,665	1,312,447
Levis County Ry.....	11.75	89,881		70,927	15,407	3,546	418,066	1,867,752
London and Lake Erie Ry. and Transportation Co.....	28.00	134,916	97	87,397	47,414	202	412,763	680,549
London S.R.....	25.73	350,375		251,099	39,223	60,052	1,757,518	9,508,486
Moncton Tramways, Electricity and Gas Co.....	3.47	18,908	70,379	19,647	26,233	43,407	97,520	468,751
Montreal and Southern Counties Ry. (6).....	36.84	192,276	106	163,438	4,855	24,088	533,122	1,915,369
Montreal Tramways Co. (1913 Figures).....	124.26	16,754,227		4,032,664			18,144,098	166,809,152
Moose Jaw E.R.....	9.00	138,845		99,061		39,784	579,607	2,639,030
Nelson S.R. (7).....	2.13	6,281		7,902		—620	13,301	146,230
Niagara Falls Park and River Ry. (8).....	11.91	154,449	6,195	86,260	33,702	40,677	295,048	1,451,609
Niagara, St. Catharines and Toronto Ry. (9).....	60.89	553,765		404,676	114,057	35,031	1,074,077	4,656,068
Niagara, Welland and Lake Erie Ry.....	1.74	21,525		10,588	3,713	7,223	86,892	458,450
Nipissing Central Ry. (10).....	10.77	100,129	6	68,584	66	31,484	233,773	1,347,081
Oshawa Ry.....	9.00	89,234	589	68,678	4,270	16,875	98,536	251,138
Ottawa E.R.....	26.17	1,081,398		634,061	56,871	390,464	4,840,795	23,987,883
Peterborough Radial Ry.....	6.04	47,615	—323	29,566	6,690	11,034	280,092	1,060,499
Pictou County Ry. (1912 Figures).....	7.90	56,253	34,415	31,480	40,545	18,643	135,662	1,171,470
Port Arthur E.R. (11).....	12.43	66,350	77	51,905	31,727	—17,204	329,451	1,514,970
Quebec Ry. Light and Power Co.— (12)								
Citadel Division.....	19.77	488,852		299,873		188,978	2,125,963	11,376,975
Montmorency Division.....	26.60	234,368		158,424		65,943	454,606	1,721,079
Regina Municipal Ry.....	30.85	231,169		241,664	120,200	130,695	1,157,330	5,061,264
Sandwich, Windsor and Amherstburg Ry. (13).....	39.93	293,159	75,054	192,837	37,833	137,542	1,040,413	5,083,950
Sarnia S.R.....	8.25	64,035		50,387	4,650	8,997	167,662	1,099,948
Saskatoon Municipal Ry.....	12.63	157,654		132,807	26,022	1,175	684,099	3,472,181
Sherbrooke Ry. & Power Co.....	9.00	48,624	43,799	38,464	56,941	—2,983	443,436	1,097,130
St. John Ry. (1911 Figures).....	12.50	191,412		148,266			1,003,454	4,330,339
St. Stephen S.R.....	7.00	37,806		28,043	5,562	4,200	183,960	727,530
St. Thomas S.R.....	7.00	25,853		30,881		—5,045	295,785	558,914
Surburban Rapid Transit Co. (14).....	19.65	74,621		65,249	27,342	—17,971	254,083	1,152,252
Toronto and York Radial Ry. (16).....	72.43	604,154		411,424	137,664	55,066	1,523,702	6,280,595
Toronto Ry. (16).....	61.57	6,221,838		3,249,272	1,373,350	1,599,215	22,464,665	155,399,173
Toronto Suburban Ry.....	9.84	126,000	1,656	76,708	23,502	27,446	341,428	2,374,558
Windsor, Essex and Lake Shore Rapid Ry.....	36.17	164,407		92,315	56,630	15,461	363,030	512,860
Winnipeg E.R. (15).....	100.87	2,514,158	762,010	1,449,220	478,812	1,348,135	8,653,005	60,046,370
Winnipeg, Selkirk and Lake Winnipeg Ry. (15).....	22.13	110,388		69,722	26,298	44,368	354,803	615,134
Yarmouth E.R. (1912 Figures).....	3.00	20,908		19,223	2,730	1,045	62,976	151,694
Total	1,560.82	\$29,691,007	\$3,503,427 —323	\$19,107,807	\$4,756,055	\$7,127,275 —560,422	98,917,808	614,709,819
			\$3,503,104			\$6,566,853		

### Notes to Electric Railway Statistics.

In the introduction to the statistical report on electric railway operations for the year ended June 30, 1914, the Comptroller of Statistics says: "Four operating lines—the Montreal Tramways Co., the St. John

Ry., the Yarmouth St. Ry., and the Pictou County Electric Co.—did not report. The failure of these companies to comply with the requirements of the law is a serious matter. In order to save the basis of comparison it is necessary to insert figures relating to preceding years, which is most

unsatisfactory. Notwithstanding the delinquency of the companies to which allusion has been made, the reports received disclose a year of substantial progress by the electric railway interests of Canada."

The companies referred to, as we understand it, do not agree with the Comptroller's

statement as to the requirements of the law. They are operating under provincial charters, and, we believe, contend that they are not required to report to any Dominion department.

It will be seen that the total of the column showing total operating expenses, and that showing miscellaneous income, \$23,863,872, deducted from the totals of the column giving gross earnings from operation, and that giving miscellaneous income, \$33,194,111, gives an amount of \$9,330,239, which does not correspond with the total of the column showing net income or deficit, \$6,566,833. This is to be accounted for by the fact that while old figures showing earnings and operating expenses of the Montreal Tramways Co., and the St. John Ry. are given, no items respecting their expenditures on taxes, interest on funded debt, etc., are shown, while they are shown in the case of the Pictou County Electric Co., and the Yarmouth St. Ry., old returns of which are also used.

(1) The Berlin, Waterloo, Wellesley and Lake Huron Ry., formerly Galt, Preston and Hespeler St. Ry., is operated in connection with the C.P.R., which also owns the Hull Electric Co.

(2) The Brantford and Hamilton Ry.; Hamilton and Dundas Ry.; Hamilton, Grimsby and Beamsville E.R.; Hamilton Radial Ry.; and Hamilton S.R., are owned by the Dominion Power and Transmission Co.

(3) The Edmonton Interurban Ry. only started operation at the beginning of June, 1914.

(4) Fort William E.R.—The gross earnings are for six months during which the line has been operated separately from the Port Arthur E.R.

(5) The International Transit Co. is owned by the Lake Superior Corporation, which also owns the Trans-St. Mary's Traction Co.'s line in Sault Ste. Marie, Mich., with a connecting ferry.

(6) The Montreal and Southern Counties Ry. is controlled by the G.T.R.

(7) The Nelson S.R. recommenced operations, Feb. 1, 1914, under municipal management, and the figures given cover the operations from that date to June 30.

(8) The Niagara Falls Park and River Ry. is owned by the International Ry., Buffalo, N.Y.

(9) The Niagara, St. Catharines and Toronto Ry., and the Toronto Suburban Ry. are owned by interests allied with Mackenzie, Mann and Co. (Limited).

(10) The Nipissing Central Ry. is owned by the Province of Ontario through the Timiskaming and Northern Ontario Ry. Commission.

(11) The figures given cover the operations of the Port Arthur E.R., after the separation from the Fort William E.R., in Dec., 1913.

(12) The Quebec Ry., Light and Power Co. also operates by steam over part of its lines, the financial results of which operation are given in the statistics of steam railway operation on an earlier page of this issue.

(13) The Sandwich, Windsor and Amherstburg Ry. is owned by the Detroit United Rys.

(14) The Suburban Rapid Transit Co., and the Winnipeg, Selkirk and Lake Winnipeg Ry. are owned by the Winnipeg E.R.

(15) The Toronto and York Radial Ry. is owned by the Toronto Ry.

The C.P.R., according to a press report, has arranged to take 1,000 tons of coal a day from collieries on its Crownsnest Pass branch in British Columbia, in addition to what is taken from the Alberta coal fields, for use on its Manitoba division.

## Ontario Asked to Subsidize Hydro-Electric Railways.

Several hundred municipal representatives from various portions of the Province waited on the Premier and other members of the Ontario Government in Toronto, Mar. 26, to ask that subsidies at the rate of \$3,500 a mile be given for electric railways to be built by municipalities under the Hydro Electric Power Commission of Ontario's auspices. The deputation was introduced by the Mayor of Toronto.

T. J. Hannigan, Secretary of the Hydro-Electric Railway Association of Ontario, read a memorial signed by the President, J. W. Lyon, of Guelph, and himself, from which the following are extracts:

A large portion of Western Ontario, and various other parts of the Province, have enjoyed for the last four years, cheap power and light for manufacturing and domestic purposes, supplied by the Hydro-Electric Power Commission, and generated from Niagara Falls and other water powers. The achievement of the commission in distributing power at high tension at long distances, and at low cost, is considered one of the greatest works of modern times. The commission deserves the highest commendation and support in its work of distributing power to parts of the province which could not hope for any such advantages if the power was owned and controlled by private interests.

Many portions of the province are not now adequately served by railways, either steam or electric; a very small number of electric lines are now being operated, and these only in the most congested parts. The absence of such electric roads has been the principal contributing factor in the depletion of the rural population of Ontario in the last 10 years to the extent of 96,000, while the urban population has increased 500,000 in the same time. Farmers in great numbers have left their land and taken up their residence in large cities, thereby becoming consumers instead of producers, in order that they and their families might enjoy a larger measure of social intercourse, and that their children might have the privileges of secondary and higher education now largely denied the farming community through lack of adequate transportation.

The present system of transmitting power under high tension renders it useless for commercial purposes without the construction of expensive transformer stations which are only possible in centres of population, but electric railway lines with their lesser voltage would make possible the use of such power to smaller communities and farmers through comparatively inexpensive step-down stations, same being taken direct from the transmission line of the railway along its full length, and distributed to a distance of from 10 to 15 miles on either side. Without the electric railways, the commission states that it is impossible to successfully supply hydro-electric power to that part of Ontario east of Toronto, or to most of the rural parts of the province, whereby it will be made to appear that a large part of Ontario is being discriminated against in the use of hydro-electric power. In view of the wonderful development of electricity and of hydro-electric power in Ontario and its adaptability to the needs of the farming community, the building of electric railways would in consequence furnish an easy and inexpensive means of bringing to the farmer an adequate supply of electric power at minimum cost.

In encouraging the farmers and villagers, by affording them frequent, rapid, and convenient transportation, together with the opportunity for cheap electric power sup-

plied from the railway transmission lines, it is hoped to check the depletion of the rural population. At present, the wealth of this country is not being augmented as it should be in many rural districts, because the producer is so far removed from the market as not to be able, on account of the cost of haulage, to make practically any use of it. Electric roads would bring the market to the door of the producer and conserve to the community a large amount of energy now largely wasted, thus reducing the cost of living to the community at large. Electric roads bear the same relation to steam roads that rural telephones bear to long distance lines.

Your memorialists, realizing the widespread need and benefit of electric railways, especially in portions not now served by steam roads, have by virtue of the Hydro-Electric Act through the several municipal councils to the number of over 200, requested the Hydro-Electric Power Commission to investigate conditions in such portions, in order to report on the advisability of the construction of electric lines in these districts by the commission. The commission has already reported to many of the municipalities that hydro-electric roads could be built and successfully operated, provided they were given a subsidy such as has been already given to some privately owned roads. No subsidy given will be for private gain or profit, but will be expended by a public commission, every dollar going into the physical construction of the road, the undertaking and property never ceasing to be publicly owned and controlled.

The Ontario Government by its policy regarding good roads has shown that it is aware of the importance of cheap and better transportation, and if for vehicle traffic good roads are worthy of the expenditure proposed, how much more so is the system of proposed hydro-electric railways which will be a large revenue bearing utility, because, while good roads are, and must always be a necessity in any community, it will be generally admitted that they are of much less benefit to the farmers of the country than electric railways, as the former will be continually a growing expense, and the latter progressively revenue bearing. The building of these electric roads would virtually mean the rediscovery and resettlement of Ontario, gradually increasing the wealth and population and tax paying power; and as the money will only be wanted very gradually the increased revenue resulting from development should almost, if not quite, equal the money as paid out for subsidy, so that in fact the province would be simply loaning its credit for its own development.

The proposed roads will be most modern in construction and equipment, and on account of their superiority of service can and will do more to regulate the conduct of privately owned railways than any other means which can be devised. If construction of these roads is commenced immediately, it would aid very materially in solving the unemployed problem which has been the cause of great concern to the municipalities during the past year. Such subsidy would not be required for some time, and any subsidy granted would be spread over a term of years as the roads are built.

The deputation is composed of representatives from almost every county from the St. Clair River and Lake Huron to the Ottawa River and the lower St. Lawrence; one of the largest and most representative deputations that has ever visited Toronto; it represents the wishes of the Hydro-

Electric Railway Association of Ontario, made up of over 500 municipalities of which a great many are represented here today by their entire municipal councils. Your memorialists ask that the Ontario Government will grant a subsidy of \$3,500.00 a mile to such hydro-electric railways as shall be recommended by the Hydro-Electric Power Commission of Ontario, and built by virtue of the Hydro-Electric Railway Act.

An address prepared by J. W. Lyon, President of the Hydro Electric Association of Ontario, was to have been read in his absence by ex-Mayor Graham, of London, who, however, said that it would be given to the press instead. After dealing with the result of the Hydro Electric Power Commission of Ontario's work in distributing electric power it claimed that the construction of hydro electric railways would largely reduce the price of power in rural municipalities, increase the value of farm land, create intense and profitable farming, give better facilities to the producer to reach the consumer, reduce the cost of living to the urban population and greatly increase the convenience and benefits of the suburban population. The power lines of the hydro electric railways, which would be of low voltage, would make it practical to serve the rural population with power up to 10 or 15 miles on each side of the lines. It claimed that the construction of hydro electric railways would confer more benefits than the building of good roads.

A number of delegates having spoken, Sir Adam Beck, Chairman of the Hydro Electric Power Commission of Ontario, supported the application.

Premier Hearst, in replying, assured the deputation that no one had more sympathy with the advancement of radial transportation than the members of the Government. The aim of the municipalities was one that appealed to everyone. He reviewed the measures opening the way for radial construction and referred to the difference in the request from the provision originally made by which the Government would be issuing its bonds secured by municipal debentures. The payment of a subsidy of \$3,500 a mile was a matter that would require a great deal of consideration. "We would have to have an idea of what liability we were committing the Province to," he said. "because the more successful these systems were the more the Province would have to pay." Even at the present time the finances of the Province give concern and thought to the Government of the day. Before anything could be done it would be necessary first to see what other sources of revenue could be secured. It was not only a case of considering the propriety of granting such a request." He assured the deputation that the day of subsidies to private interests was gone by and that Sir James Whitney's policy would be lived up to. In closing, Mr. Hearst promised that there would be no delay in taking up the matter.

A few days later the leader of the Opposition, N. W. Rowell, asked in the Legislature if the Premier intended to make any statement of policy in regard to bonusing hydro electric railways before the Legislature adjourned, and was answered in the negative.

**The Jitneys an Aggravation.**—The Calgary Albertan, published in a city which owns and operates an electric street railway, says: "The jitneys skim the cream off the street railway traffic and fatten upon the short haul in the crowded districts. The jitney is a fair weather bird, and keeps under cover in the bad weather. The jitney is not a solution of the traffic question. It is an aggravation."

### Port Arthur and Fort William Municipal Railway Conditions.

Port Arthur, Ont., City Council gave consideration, Mar. 30, to a report upon the electric railway system, prepared at the request of Fort William City Council. The report states that although the gross earnings of the combined lines in Port Arthur and Fort William in 1914 exceeded those of 1913 by \$1,598, the passenger traffic dropped by 381,582 fares, equal to \$15,200. The gain in the earnings of the system was caused by the increased price of tickets, revenue from hauling rock and gravel, and increased contracts for advertising in the cars. The causes of the losses during the year were due to the increase of capital account, the increased cost of operation due to the separation of the old system into two; the expenses of belt lines; the construction of extensions without adequate returns, and the decrease in traffic due to general depression, and abnormal conditions created by the war. The increases for the year to Aug. 31, were \$20,320 over the same period of 1913, but from Sept. 1. to Dec. 31, the decreases were \$18,444. It was estimated that if war conditions had not arisen, the increases for the year would have been about \$30,000. The total car mileage was 649,655, and the total passenger earnings were \$119,811.

The report recommends that no additional lines be built unless it is apparent that they will be self sustaining; that lines which do not now earn the cost of operation be discontinued; that the cost of all lines not built for passenger traffic be not charged to railway capital account, and that debentures be not sold for construction purposes until the work is done, and the cost definitely ascertained.

One man operation on the main line is not possible owing to the fact that it crosses steam railways. At the present time there are only 14 cars operating in both cities, against 32 in the spring of 1913.

### Toronto Suburban Railway Sunday Operation.

At the Ontario Legislature's recent session a bill was introduced in the Toronto Suburban Ry. Co.'s interest the single clause in which provided that notwithstanding anything contained in The Ontario Railway Act, or any other act applicable to the company, the company may operate its railway on Sunday, subject to regulations to be imposed by the Ontario Railway and Municipal Board. In its passage through the House the clause was amended to read as follows:

"(1) Notwithstanding anything contained in the Ontario Railway Act or in any other general or special Act applicable to the company, the company may operate cars and trains upon any part of its railway already constructed or now under construction on the Lord's Day for the carrying of passengers, and the company may run such cars or trains before the hour of 10 o'clock in the forenoon and after the hour of 5 o'clock in the afternoon, on the Lord's Day, as may be necessary for the transportation of milk exclusively, but no freight of any other kind shall be carried, nor shall it be lawful for the company to collect any fare or toll for the transportation of freight on the Lord's Day except for the transportation of milk as aforesaid, but nothing in this section shall be construed to prevent the running of empty cars or trains either from a car shed or any point on the line of a railway for the purpose of receiving the milk for transportation as aforesaid or back

to the car sheds after the delivery of the same.

(2) The exercising of the rights conferred by this section shall be subject to such regulations as the Ontario Railway and Municipal Board may impose."

On April 4 the company started operation on its lines in Toronto and on its suburban lines to Lambton, Weston and Woodbridge. When the line now under construction between Lambton and Guelph is put in operation a Sunday service will also be given on it.

### Regina Municipal Railway Matters.

A protest has been made to the City Council by certain residents against the use which is being made of the cars on the Municipal Ry. for advertising purposes. Some of the cars, it is stated, are literally covered with "sensational" posters.

The value of property of the City of Regina is shown in the annual financial statement under headings: remunerative and realizable; unremunerative and realizable; unremunerative and unrealizable. The Municipal Ry. appears under the first heading as follows: Completed, \$821,879.75; uncompleted but provided for, \$916,002.29; and under the second: Office and sundry buildings and equipment, \$1,552.44, a total of \$1,739,434.48.

The City Council, on April 7, postponed for further consideration a new car schedule prepared by the utilities committee. The new schedule proposes to give a better service in the central districts and a slower service in the annex districts. The committee states that Sunday operation resulted in a loss of \$7,111 in 1914, the loss during the present year to date averaging \$104 each Sunday. The question of submitting a question to the vote of the people as to the further reduction or the dropping of the Sunday car service is under consideration.

The estimates for the Municipal Ry., submitted to the City Council, show a revenue of \$191,940, with an expenditure of \$184,589, or an estimated surplus of \$7,351. The interest and sinking fund charges for the year will amount to \$109,650, leaving an estimated net deficit of \$102,299. The actual loss in operation in 1914, was, \$8,096.67, which added to \$89,365.58, the interest and sinking fund charges for the year, made a total of \$97,462.19, which had to be provided for out of general taxes. The Commissioners state that the present rolling stock is of sufficient capacity to carry three times the present number of passengers; the interest charges covered the cost of large quantities of materials which had been purchased, but which still remained in stock, and for the pavement between the tracks. The annex districts served by the lines had had their assessments considerably added to, so that the system was not losing so much as the figures apparently showed.

The City Council on April 15 adopted the estimates for the current financial year. The utilities committee provided for \$97,462.19 deficit on the municipal railway for 1914, and \$102,299.80 as the estimated deficit for this year. The Council decided to meet these amounts by appropriating the profits from other utilities, and by the sale of debentures already authorized under certain bylaws.

Hot milling the top and bottom surfaces of the rail bar when 75% rolled is a new process introduced in the U.S. to eliminate longitudinal cracks and seams from the elongation of the small surface blemishes in the rail ingot.

### Additional Equipment for Toronto Civic Railway.

Tenders were received recently by Toronto City Council for 4 double end single truck, p.a.y.e. cars for Lansdowne Ave. extension, Toronto Civic Ry., of the general design shown in the accompanying illustration. They are to have the single arch roof, with platforms arranged so as to separate entering and leaving passengers. The interior of the car body is to be constructed so as to avoid as far as possible, all ledges and projections or obscure corners where dust and dirt may lodge. Following are some of the principal particulars:

Gauge of track .....	4 ft. 10 $\frac{3}{8}$ ins.
Radius of shortest curve .....	35 ft.
Wheel base .....	8 ft.
Diameter and tread of wheel .....	33 ins.; 2 $\frac{3}{4}$ in.
Length of body .....	21 ft.
Length of vestibule .....	6 ft. 4 $\frac{1}{2}$ ins.
Length overall .....	34 ft. 8 $\frac{1}{2}$ ins.
Width over sheathing .....	8 ft. 5 $\frac{1}{2}$ ins.
Height to top of roof .....	10 ft. 9 $\frac{5}{8}$ ins.
Height to top of vestibule step .....	13 ins. or less.
Height from step to vestibule .....	12 ins. or less.
Height from vestibule to car floor .....	11 ins. or less.
Weight of car body, not over .....	13,500 lbs.
Seating capacity .....	32

The vestibules will be circular in form below the belt rail, and octagonal above. Each vestibule is to have a two leaf folding door on the right, to be operated by the motorman, and two similar two leaf folding doors on the opposite side, to be operated by the conductor. A pipe railing on each platform will separate entering and leaving passengers, and facilitate fare collection.

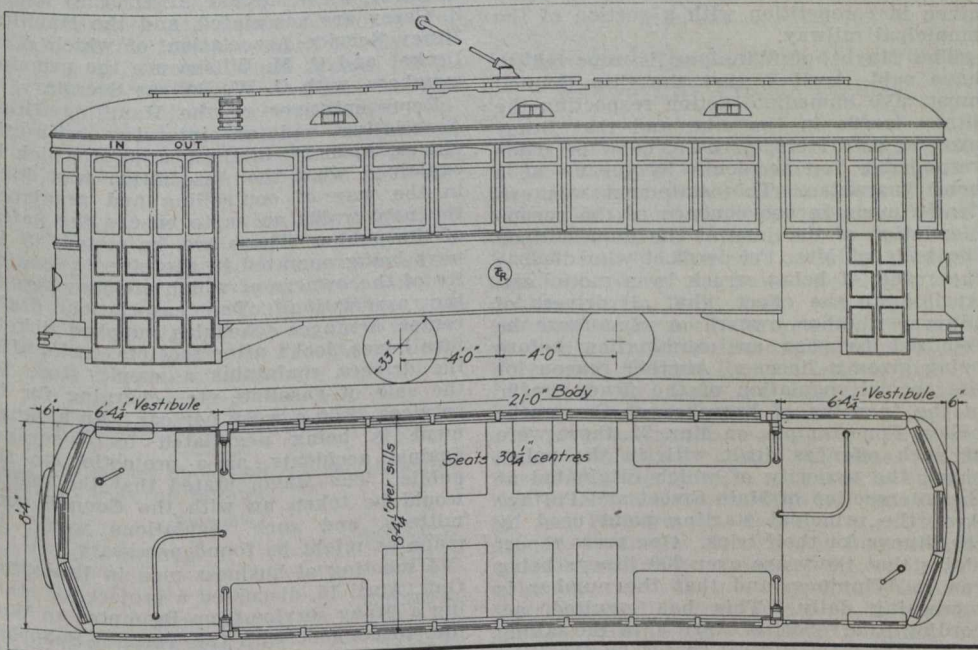
The roof will be of the single arch or turtle back type, supported on seven steel carlines, one over each side post, and carried through from end to end of the car, with no bulkheads in the ends of the car body. There will be 8 windows on each side of the car, at 30 $\frac{1}{4}$  in. centres, the lower sash dropping into a wall pocket, and the upper stationary. There will be three 5 $\frac{1}{4}$  x 7 $\frac{1}{4}$  in. ventilators on each side of the roof.

Both longitudinal and cross seats are to be finished in rattan. There will be 16 hand straps, 24 ins. long, with enamelled grips. Each side post will have a push button, connecting with a buzzer in each vestibule. The interior of the car is to be varnished quartered oak throughout. They

The cab is to be of the straight vestibuled type, 6 $\frac{1}{2}$  ft. high, sheathed inside and out, and floored with two layers of  $\frac{3}{4}$  in. pine, and with two hinged end doors, centre doors with baggage door hangers, side windows, and regulation three windows in each end, and mounted on a steel under-frame.

The brooms will be of rattan, 32 ins. diam., extending 15 ins. outside of the tracks. These brooms are to be built in segments of four each, making eight at each end of the car. They will be raised and lowered in malleable iron pedestals by hand wheels in each end of the cab, and will be driven through a shaft from a GE80 form A motor. The ploughs will be of  $\frac{3}{8}$  in. steel plate, 24 ins. high and 6 ft. long, operated by raising and lowering mechanism in the cab. The ploughs will clear 4 ft. outside the rail in the open position.

The trucks will be of the heavy pedestal type, on 33 in. chilled iron wheels, 2 $\frac{3}{4}$  in. tread. Each axle will carry a GE80 motor, from stock. To replace these two motors and the broom motors, which are also from stock, four Westinghouse no. 533 commutating pole ventilated motors were included in this tender. The electrical equipment will include in addition two K10 controllers, a R28 controller, set of resistance for car motors, set of resistance for broom motor, lightning arrester, and two circuit breakers.



Single Truck Double End Operation Cars for Toronto Civic Railway.

The underframing is to be entirely of steel, with side members of steel plate with bottom angles, with the end sills also built up of plates and bottom angles. The cross members will be channels, with gusset plate connections to the side plates. The platform knees will be steel plates, with top and bottom angles, and there will be the channel centre platform members, with the flanges turned up, which will act both as sustaining members for the platform and buffing members, to which the draw bar chains will be riveted. The bumpers will be 6 in. channels, extending continuously from knee to knee, conforming to the shape of the vestibule, with an anti-climber section, 3 $\frac{1}{2}$  ft. long, on the face of each bumper.

The platform flooring will be single of  $\frac{7}{8}$  in. oak, while that in the body of the car will be double, with an intervening waterproof felt, the lower layer of Georgia pine, and the upper maple, each 13-16 in. thick. The framing above the steelwork will be white ash and Georgia pine, with the corner posts of the vestibule and body covered with steel pressings.

will be equipped with pantasote curtains, polished bronze trimmings, Crouse-Hinds headlights, handbrakes, life guard fenders, 4 sanders, coal burning forced ventilation heater, fare box holders, sign boxes, and side window guards.

The trucks will each carry two GE80 form A motors, which will be supplied out of stock. To replenish stock, 8 Westinghouse interpole ventilated motors, no. 533, are being ordered. Each car will have two K10 controllers, two 200 to 600 amp. circuit breakers, a lightning arrester, choke coil and set of resistance.

Tenders were also received for a sweeper body and equipment for the St. Clair Ave. line. It will be of the single truck type, with steel underframe, and equipped with steel side ploughs and two brooms for double end operation. Following are general particulars:

Length overall .....	28 ft.
Length of cab .....	24 ft.
Width of cab .....	7 ft.
Height to top of cab .....	10 ft. 8 ins.
Wheel base .....	6 ft. 6 ins.
Wheel gauge .....	4 ft. 10 $\frac{3}{8}$ ins.
Track gauge .....	4 ft. 10 $\frac{3}{8}$ ins.
Devil strip .....	5 ft. 4 ins.

### Running Boards on Toronto Railway Open Cars.

The Ontario Railway and Municipal Board, on Apr. 7, considered the question of the safety of the running boards on the Toronto Ry. cars, on the application of the Toronto Ry. employees' union. On the company offering to equip some of its cars experimentally with a wider running board and new grab handles as desired by the men, the Board postponed the hearing until May 15, in order that they might observe the value of the desired changes.

On the double truck car, the change in the running board consists in widening the top board by 4 ins. to 12 $\frac{1}{2}$  ins., and on the single truck cars to 11 ins., the lower board in both cases being left the same width as before, 9 ins. New grab handles of 1 in. pipe, are also being applied experimentally. These handles are midway in the seat depth, running from the seat end frames vertically to the top rail of the car. Their midway position permits the conductor to pass his arm around them, increasing his freedom of action and safety.

This subject was first up for consideration before the Board on June 9, 1914, as mentioned in Canadian Railway and Marine World for July, 1914. That application was that running boards be abolished, and centre aisle cars be used both summer and winter. As a result, centre aisle cars have been tried on the Toronto Ry., as described in Canadian Railway and Marine World for April. Certain of the cars were equipped with the new grab handle late last autumn, and were said to have proved satisfactory. The grab handles and wider running board are advocated as a substitute for the centre aisle cross seated car.

**Hull Electric Co.'s Fares.**—The Board of Railway Commissioners passed order 23447, Mar. 12, approving the Hull Electric Co.'s Standard Maximum Passenger Tariff, C.R.C. no. 1, to apply on its line on the uniform basis of 2 $\frac{1}{2}$  cts. a mile, provided that no toll now being charged by the company for the carriage of passengers be increased unless the Board's permission has first been obtained.

## The Jitney Situation in Canada.

Within a little over three months the jitney automobile has been introduced into six out of the nine Provinces in Canada, and while at present only nine cities are affected, others are taking steps to make regulations which will control the traffic effectively from the start. The difficulties with which many of the cities, not only in Canada, but in the United States, have to contend in connection with the traffic is due to the fact that when jitneys did start there was no real power to control them, and the traffic became to some extent established before the necessity of regulation became apparent. General authority to regulate the traffic has been conferred on municipalities by the British Columbia Legislature, and the Saskatchewan Legislature has been asked to give its cities regulative power over motor vehicles. Some Ontario cities, Edmonton, Alberta, and Winnipeg, are acting, or preparing to act under the general powers of these charters to make regulations for this traffic.

The amendments made in the Municipal Act, by the British Columbia Legislature, include a new subsection to sec. 54, giving power to municipalities to make regulations for licensing and regulating motor vehicles carrying passengers; by limiting the number of passengers to be carried; by defining the routes upon which the vehicles may run; for limiting the hours within which they may be operated; to compel the owner or driver to furnish bonds, and for the licensing and regulating of chauffeurs. The terms of the legislation secured by the city of Vancouver were given in last issue on pg. 150. Under the terms of this power a committee of the City Council drafted a series of regulations. At a meeting of the City Council to discuss the proposed regulations, it was stated that 140 men had been laid off by the British Columbia Electric Ry., and that there were more than 300 jitney drivers in the city. The draft regulations were amended in a number of details. A jitney inspector is to be appointed by the city. Another organization, the Jitney Association of Vancouver, was formed Mar. 30, with A. E. Goodman as chairman, and a large membership. For the interurban service between Vancouver and New Westminster, the Kingsway Motor line has been started. The company, the manager of which is J. Insley Jr., New Westminster, proposes to give a 15 minute service between 8 a.m. and 8.30 p.m., and a 30 minute service after the latter hour.

The first regular jitney started business in Edmonton, Alberta, Mar. 15, as stated in Canadian Railway and Marine World for April, and Superintendent Larmonth, of the Edmonton Radial Ry., in replying to the Commissioners, April 6, said: "We are having a good deal of competition from the jitney busses on the south side, although they have practically gone out of business on Jasper Ave. West." The south side routes go across the high level bridge, and on April 10 four jitney drivers were fined for exceeding the speed limits. The Edmonton City Council, on April 6, gave the first reading to a bylaw to regulate jitney traffic. The provisions include licensing of cars and drivers, car licenses at from \$60 for a five passenger car to \$150 for one carrying more than 10 passengers, with \$2 for driver's license. There is to be a license inspector who is to have general supervision over the traffic. The license is to specify the route upon which the car is to be run, the fares to be charged, etc., and the other regulations provide for the character of the car and its equipment; the operation of the car, etc. The penalty for violating any of the regulations may be

\$100, and if the magistrate so orders the cancellation of the license. Owners and drivers must put up a bond for \$10,000 each, as a guarantee against accident claims.

Up to April 25 no jitneys were in operation in Calgary, Alberta.

Representatives of Saskatchewan cities met at Regina, April 8, to discuss civic problems, one of which was the coming of the jitney. Commissioners Pool, Regina, and Yearth, Saskatoon, were responsible for the passing of a resolution asking the Legislature at the next session, which opens in May, to grant all municipalities power to regulate the traffic, routes and hours of any automobiles or other vehicles used for the transportation of passengers, where a fare of 10 cts. or less is charged. It was explained that it is desired that any one desiring to operate such a service should apply to the civic authorities, when routes could be arranged and schedules of fares and lines drawn up.

A service, controlled by A. W. Beise, is being given between Pleasant Hill and Mayfort, Saskatoon, Sask., and arrangements are being made for putting cars on other routes. A seven minute service is being given in competition with a section of the municipal railway.

The Mayor of Winnipeg is reported to have said, April 8, that the City Council must take immediate action respecting the jitney traffic in the city, and that jitney owners, or drivers, or both, must be made responsible for accidents by means of a bond guarantee. This statement was evidently made in consequence of the recommendation of the jury at the inquest upon the body of Mrs. Friedereich, who died as the result of being struck by a motor car, April 5, to the effect "that all drivers of jitneys, whether owners or chauffeurs be required to pass an examination before being given a license. Another reason for the special regulation of the jitney traffic is the increase of breaches of the traffic bylaw. For example, on Mar. 31, there were 48 such offences dealt with in the police court, the majority of which originated at the intersection of Main Street and Portage Ave., the principal starting point used by the jitneys for their trips. One press report states that there are over 200 jitneys being run in Winnipeg, and that the number is increasing daily. This has resulted, according to a report of April 8, in the taking of 22 cars from several routes by the Winnipeg Electric Ry. It was reported, April 10, that over \$50,000 had been paid to the Municipal Commissioner in the previous nine days for auto licenses, many of which were being used for jitneys. A motorcycle jitney has been running in the city since April 1, having a capacity for six passengers and being operated by an eight horse power engine. The Winnipeg Jitney Association has been established, and is arranging with an insurance company to carry a general policy to cover accidents.

The Winnipeg Electric Ry. applied to the Manitoba Public Utilities Commission, April 16, for permission to cut down its service in the city by taking off 20 cars. Counsel for the company stated that the number of passengers carried during March was 4,419,031, against 4,992,593 in Mar., 1914, and 4,884,609 in Mar., 1913, while in the first 12 days of April there had been a drop of nearly 400,000 in the number of passengers carried, as against the first 10 days of April, 1914. The company had been promised the sole franchise for carrying passengers along the city streets, and the city is now encouraging the jitney business, which simply angles after business during the fine weather, dropping out altogether when rain and

the cold weather comes. Counsel for the city stated that all possible information regarding the jitney business is being collected, with a view of preparing a bylaw approving regulations for its control in the city. The city does not object to the present reduction of cars, provided a precedent is not established. The Commissioner's decision was reserved.

The Mayor of Port Arthur, Ont., called the attention of the City Council, Mar. 30, to the probability that a jitney service would be inaugurated there, and it was mentioned that there was already a "jitney" freight service in operation between Port Arthur and Fort William.

The Stratford, Ont., city authorities have been approached with the view of a license being obtained for the operation of a jitney service in that city.

At a meeting of the Hamilton, Ont., Board of Control, April 2, the Mayor said a bylaw was being prepared for consideration giving the police the necessary authority to regulate the jitney business. One of the Controllers complained of the overcrowding and high speed of the cars in the service. There are two concerns operating jitneys in the city: The Hamilton Jitney Co., with a capital of \$40,000, with which, C. V. Langs, A. Carey, F. W. Reinke, L. H. Alley and G. S. Carey are associated, and the Hamilton Jitney Service Association, of which A. A. Decker and C. M. Wilson are the principal members, with C. W. Bell as Secretary.

Representatives of the Hamilton Jitney Association had an interview with the Mayor, April 20, in the course of which he explained what the Association was doing in the way of controlling and regulating the new traffic so as to ensure the safety of the public. There are, he stated, 40 jitneys being operated in the city, the majority of the owners of which are members of the association. The association drafts routes, arranges schedules, supplies tickets, fare boxes, looks after receipts, looks after the drivers, maintains a supply store for the sale of gasoline, etc., charging for its services \$2.50 a week per car. An arrangement is being negotiated for insurance against accidents, as a protection to the public. The Mayor stated that the matter would be taken up with the Council committees, and such regulations would be made as might be found necessary.

A meeting of business men in Brampton, Ont., April 15, discussed a project for starting a jitney service from Brampton to Weston, to connect with the Toronto Suburban Ry. there, as a means of securing more frequent connection with Toronto than is provided by the G.T.R. and the C.P.R., and as a feature in the campaign which has been going on for the past seven years to induce these companies to grant commutation fares between Brampton and Toronto. The project also contemplates the putting on of a jitney to run to Meadowvale, as soon as the Toronto Suburban Ry.'s extension from Lambton to Georgetown is put in operation.

The first "jitney" made its appearance in Ottawa, April 5, the car being labelled "Jitney Passenger Service, Bank and Rideau Streets, fare 5 cents." C. Levesque, who owns the car, is reported to have said he can make 30 round trips in the day, and can carry seven passengers at any one time. Other motors are now reported to be running on other routes, but up to the time of writing the city police authorities have not been asked to issue any licenses. At the meeting of the Brotherhood of Teamsters, Chauffeurs, etc., held in Ottawa, April 10, the General President stated that the jitney drivers were being organized wherever there was any number of them, and associations of jitney drivers had already been formed at Victoria and Winnipeg.

A jitney bus service was started in Mont-



real, April 12, and according to a statement made by R. Spaulding, Vice President of the Jitney Association of Montreal, the following day there were seven cars in operation and arrangements were being made for an increasing number, it being expected to have at least 100 in operation by May 1. The principle on which the service is operated is that a fee of \$2.50 a week per car is paid to the Association; the balance being divided 40 per cent to the operator, and 60 per cent. to the owner of the car. The Association has a set of rules governing the service, the time schedule at present being 7 a. m. to 7 p. m., day service, and 7 p. m. to 11.30 p. m., night service. The officers of the Association are: President, E. P. Gordon; Vice President, R. Spaulding, Secretary-Treasurer, L. L. Gordon; General Traffic Manager, G. H. Pearsall. The City Council has drafted a bylaw which proposes to regulate motor traffic in such a way that all such vehicles plying for hire will have to go on stands.

The jitney service in Montreal is being rapidly extended, not only in the city, but also in the suburban districts. Motor owners possessing touring cars, which they ran as taxicabs, are joining the Jitney Association, and are being assigned routes. The number of routes is being increased, while special services are being organized for Sundays, as for instance, April 18, six cars were put on a route round Mount Royal, each making six trips. Another development is a special car service in the residential districts for shopping and visiting, for women only. For this service there are already applications by women for positions as drivers.

In Halifax, N.S., a person has applied to the City Board of Control for permission to run a jitney service and it was referred to the city solicitor for report as to whether or not such a service would interfere with the Halifax Electric Tramway Co.'s rights. The jitney situation in Toronto is dealt with in a separate article.

**Calgary Municipal Railway Matters.**

The results of operation for the calendar year 1914 were as follows:

Revenue.	
Car earnings	\$680,197.71
Miscellaneous earnings	10,811.12
Bank interest	11,521.43
	<u>\$702,530.26</u>
Expenditure.	
Maintenance way and structures	\$ 14,671.52
Maintenance of equipment	60,772.19
Transportation	398,337.05
General expenses	41,298.10
Taxation	3,373.41
Rental land and conduits	1,010.91
Debt interest	106,359.48
Debt sinking fund	41,478.77
Depreciation	29,399.33
Bad debt	1,997.90
Surplus to old revenue account	3,831.60
	<u>\$702,530.26</u>

**Miscellaneous Statistics for 1914.**

Passengers carried	16,213,731
Car miles operated	3,112,407
Car hours operated	347,801
Car earnings per car mile	21.854 cts.
Miscellaneous earnings per car mile	0.347 cts.
Gross earnings per car mile	22.201 cts.
Car earnings per car hour	\$1.95
Miscellaneous earnings per car hour	0.03 cts.
Gross earnings per car hour	\$1.98
Operating expenses per car mile	16.549 cts.
Operating expenses per car hour	\$1.48
Proportion operating expenses to operating revenue	74.5%
Average fare	4.195 cts.

Following are the expenses and revenue for March, 1914 and 1915. The deficit is made up of debenture interest, sinking fund, depreciation, taxes, etc.

	March, 1915.	March, 1914.
Operating expenses	\$32,195.54	\$47,480.43
Overhead and fixed charges	16,635.28	15,121.76
	<u>\$48,830.82</u>	<u>\$62,602.19</u>

Operating revenue	46,157.22	56,606.70
Deficit	\$2,673.60	\$5,995.49

Following are the operating results for the first three months of 1914 and 1915, Jan. 1 to Mar. 31, both inclusive, which notwithstanding largely decreased earnings, show a great reduction in the deficit:

	1915.	1914.
Operating Expenses	\$ 93,495.61	\$145,117.88
Overhead and fixed charges	49,855.77	45,365.26
	<u>\$143,351.38</u>	<u>\$190,483.14</u>
Operating revenue	135,965.98	166,310.85
Deficit	\$7,385.40	\$24,172.29

The contingent and accident accounts (2% of gross earnings) have only been provided for 1915, had the same provision been made in 1914 the deficit for the three months would have been \$27,498.50.

The Calgary City Commissioners have refused to consider a proposition to lay a street railway track connection between the C.P.R. and the G.T. Pacific Ry. on North Ave. E., for car switching purposes, the switching to be done by the Calgary Municipal Ry.

The Calgary City Council is being asked by its legislative committee to abolish transfers on the municipal railway and to charge a straight five cent fare.

**Ontario Ends the Building of Interurban Railways by Private Capital.**

The position of a number of electric railways in Ontario was considered during the recent session of the Ontario Legislature, and as the result of the discussions, the extensions sought by the Toronto and York Radial Ry. of time to complete already authorized lines, and power to build a new double track line from its southerly terminus to the northern bounds of Toronto, was refused; while the applications of the Forest Hill Electric Ry., the Ottawa and St. Lawrence Ry., and the Eastern Ontario Electric Ry., which were in the organization and pre-construction stage, were rejected, thus terminating their existence. The Forest Hill Electric Ry., proposed to build a line in North Toronto, between the Yonge St. and Bathurst St. districts, the Ottawa and St. Lawrence Electric Ry. had already graded some miles in Russell tp., of its 300 miles of projected lines to connect Ottawa, Morrisburg, and other points, in the north-eastern triangle of Ontario, bounded by the Ottawa and St. Lawrence rivers, and the Eastern Ontario Electric Ry., was originally authorized to build lines from Cornwall to Toronto and from Ottawa to Brockville, with branches.

The opposition to the extension of all these charters came from the Hydro Electric Power Commission of Ontario, through its chairman, Sir Adam Beck, M.L.A. for London, who appeared before the railway committee of the Legislature and explained the policy of the Commission in reference to electric railway construction. The commission has power under the act of 1914 in co-operation with the various municipalities to build electric railways anywhere in the Province, wherever the power lines of the Commission exist or may hereafter be carried. In the section east of Toronto, a number of municipalities have voted to raise funds by debentures for such construction, and municipalities in many other parts of the Province are investigating the matter. The Commission desires to have a free hand in dealing with the whole question, and it is claimed that its action would be considerably hampered if the charters above mentioned intervened. As a result of Sir Adam's representation the Legislative Committee refused to recom-

mend the passing of the bills, and they were thrown out.

The general position taken by the Commission was outlined by Sir Adam, at a meeting of the Hydro Electric Railway Association of Ontario, held at Toronto, a report of which appeared in Canadian Railway and Marine World for April. It was further stated in a meeting at Ottawa, April 6, at which representatives of municipalities lying between the Ottawa and St. Lawrence rivers were present, covering a great deal of the area proposed to be served by the Ottawa and St. Lawrence Electric Ry., and the Eastern Ontario Electric Ry. At that meeting Sir Adam said: "If the people in any part of Ontario want a radial railway then they can have it." He added all that it would be necessary to do would be that the representatives of the municipalities should get together and pass resolutions asking the Commission to investigate, and give an estimate of the cost. Then the matter would be voted upon, and if the vote was favorable, municipal debentures would be issued, and the Commission would build the lines. The debentures would be guaranteed by provincial bonds, which would be liquidated by the revenues of the lines and by a tax on the municipalities if the revenues were not sufficient. The Provincial Government should subsidize the lines to the extent of \$3,500 a mile, and the Dominion Government had been asked for subsidies of \$6,400 a mile, but even if these subsidies were not forthcoming, the lines would be built if the municipalities were willing to assume the full liability.

**Edmonton Radial Railway Matters.**

The Edmonton, Alberta, Property Owners' Association discussed the electric railway situation in the city at a general meeting on April 7. J. McBride moved that if the city failed to relieve the taxpayers of the monthly recurring deficits on the line within 60 days, the Association should take steps to restrain the city from operating the system. The motion did not meet with much encouragement. J. Chalmers, a former city commissioner, explained many details of operation and administration and expressed the belief that the appointment of an independent commission to operate the railway for a long term was the only real solution of public ownership ills. The general sense of the meeting was in favor of public ownership of all utilities, and that, in regard to the electric railway, a special commission should be appointed to thoroughly investigate the distribution of capital expenditure, the basis upon which depreciation charges are fixed, the present routing of cars, the possibility of the further reduction of charges for power, and the advisability of a revision of fares to secure increased traffic.

The City Council, on April 6, passed a resolution giving Superintendent Larmonth a free hand in the management of the Edmonton Radial Ry. until Aug. 1. This resolution was passed on the following recommendation of the street railway operation committee: "Your committee are of opinion that, under the conditions under which the street railway has been operated, Mr. Larmonth has not had an opportunity to make a good showing. We therefore recommend that he be given an entirely free hand until Aug. 1, and that at that time the matter be again brought to the attention of the council. Your committee also are of opinion that the Superintendent would be well advised to use the street cars in preference to the department's automobile."

A new schedule for the operation of cars was put in operation, April 5, which gives a faster service on a number of routes.

## Electric Railway Projects, Construction, Betterments, Etc.

**Brandon Municipal Ry.**—A press report states that the Brandon, Man., City Council has decided to connect the two dead ends of the Municipal Ry. with 22nd St., at a cost of \$16,500. (Jan., pg. 28.)

**Brantford and Hamilton Electric Ry.**—The Dominion Parliament has granted an extension of time for building the projected line from Langford, on the present line, to Galt, Ont. (Mar., pg. 108.)

**Brantford Municipal Ry.**—The commission is rebuilding the track in Brantford, Ont., to the south of the canal and extending it so as to take in the Cockshutt, Verity and Adams factories and in addition complete a loop to enable one-way cars to be run. It is expected to have the work completed by the end of May.

Ties for the betterment of the Grand Valley Ry. have been delivered at Blue Lake, and their laying will be started at once. (April, pg. 147.)

**British Columbia Electric Ry.**—The General Manager wrote the Vancouver City Council, April 7, that the proposed construction of tracks on Cambie and Main streets with the Harris-Georgia St. viaduct must remain in abeyance for the present. (Mar., pg. 108.)

**Edmonton, Stoney Lake and Wabamun Ry.**—The Alberta Legislature has granted an extension of time for building this projected electric railway from Edmonton to Stoney Lake and then on to Wabamun. (Sept., 1913, pg. 443.)

**Elbow River Suburban Ry.**—The Alberta Legislature has granted an extension of time for building this projected railway from the junction of Canyon Creek and Elbow River, skirting the Sarcee Reserve, and into Calgary. (April, 1913, pg. 185.)

**Hamilton Mountain Electric Ry.**—The Ontario Legislature has granted an extension of time for the building of this projected electric railway from the Hamilton Mountain Road, Ancaster Tp., to Ryckman's Corners, at the Hamilton and Caledonia Road, three miles. (March, pg. 108.)

**Humber Valley Electric Ry.**—An extension of time has been granted by the Ontario Legislature for building this projected railway, along the Humber River from Bloor St., to Lake Shore Road, Toronto. (Feb., pg. 70.)

**London and Port Stanley Ry.**—It is expected that this line will be completely electrified, so as to permit of its opening as an electric railway on July 12.

**Montreal and Southern Counties Ry.**—The Dominion Parliament has granted an extension of time for the completion of the various lines authorized. The line from St. Cesaire to Granby, about 16 miles, is approaching completion. It was put under contract in May, 1914, and grading was completed in Oct., 1914. It is expected that the line will be completed and put in operation during the summer. (Mar., pg. 108.)

**Montreal Tramways Co.**—The agreement which may be entered into with the town of Mount Royal, provides that a 20 years franchise be granted for a street railway service within the limits of the town, under and on the surface of the streets. The terms and conditions of the franchise to be fixed by agreement, or in default, by the Quebec Public Utilities Commission. The period within which the agreement may be made is extended for five years from Mar. 5. The agreement, which may be made between the town and the Montreal Public Service Corporation, is for the supply of light and power within the town.

Controller Duncan McDonald submitted to the Montreal Board of Control, Mar. 28, a proposition for a new agreement with the M. T. Co., making four propositions now under consideration. The Board decided to take up the consideration of all the proposals, and has been doing so at its various meetings since, but does not appear to be making very much progress. (April, pg. 148.)

**Niagara, Welland and Lake Erie Ry.**—The Ontario Legislature has confirmed the agreement made between the company and the town of Welland, a summary of which was given in our last issue. (April, pg. 147.)

**Ontario Hydro Electric Railways.**—The Ontario Legislature during the recent session directed that a return be prepared as to requests made by the Lieut.-Governor-in-Council to the Hydro Electric Power Commission, under the provisions of sec. 3 of the act of 1914 to enquire and report upon the proposed electric railways in Ontario; what enquiries had been held; what reports had been presented as a result, and whether approval had been given for the building of any electric railways. (April, pg. 143, and Mar. pg. 108.)

**The Sandwich, Windsor & Amherstburg Ry.** is reported to have offered to build a belt line via Lincoln Road and Ottawa St., to be in operation by Oct. 1, if the Windsor, Ont., City Council will extend the franchise for 12 years.

**Three Rivers Traction Co.**—Press reports state that construction is to be started at an early date on this projected six mile line, centring in Three Rivers, Que. (Mar., pg. 108.)

**Toronto, Barrie and Orillia Ry.**—The Ontario Legislature has granted an extension of time for the building of this projected railway in Barrie, northerly to Orillia, and southerly to Toronto. The only portion of the line outside Barrie upon which surveys have been made is as far as a junction with the C. P. R. Toronto-Sudbury line at or between Udney and Baxter. (Mar., pg. 108.)

**Toronto Eastern Ry.**—The Dominion Parliament has granted an extension of time for the building of the line from Toronto to Cobourg, Ont., with its projected branches to Peterborough, Markham, Stouffville or Uxbridge, Lindsay, and to the Lake front near Oshawa. (Feb., pg. 71.)

**Toronto Suburban Ry.**—Ties are being laid on the extension of the line to Georgetown, and Guelph, Ont., easterly from Islington towards Lambton. The first stop will be at the steel bridge across the Mimico Creek, and when this single span has been put in track will be laid to the Humber, at which point the piers for the steel bridge are about one-third complete. At other parts of the line to Georgetown, ballasting, and overhead construction work is going on, while beyond Georgetown, the grading is being completed. The Georgetown section is expected to be ready for operation by August. (April, pg. 147.)

**Transcona.**—A proposition for the building of an electric railway in Transcona, Man., has been submitted to the Council by H. W. Adcock, Winnipeg. Another proposition from W. J. Christie & Co., Winnipeg, to build a line from the corner of Oxford and Regent Sts. to the western limits of Transcona, and to connect with the Winnipeg Electric Ry. on Talbot Ave., Elmwood, was laid before the council, April 15, and it was stated that the line could be completed within three months after a franchise was granted.

In regard to the franchise which was

granted a year or so ago to J. H. Kern for building a line in Transcona, we are advised that the necessary legislation has been passed and awaits final action to rescind the contract and throw the matter open for competition. (April, pg. 147.)

## Brantford Municipal Railway Operating Results

The commissioners, C. H. Hartman, W. R. Turnbull and A. K. Burwell, have presented a report on the operation of the lines from Aug. 5, 1914, when possession was obtained from the receiver, to Dec. 31, from which the following are extracts:

Operating revenue .....	\$33,411.91
Operating expense .....	25,506.85
	<hr/>
	\$7,905.06
Sufficient to pay—	
Interest on bonded debt .....	2,692.75
Interest on advances by city .....	2,666.32
Taxes, including city, except instalment of principal due in 1914 on pavement debt .....	2,545.99
	<hr/>
	\$7,905.06

This instalment on pavement debt has been charged to capital, but the commissioners hope to meet future instalments out of earnings.

### ASSETS.

Property taken over from receiver, less old material sold .....	\$294,899.91
Improvements and betterments by commission .....	64,233.57
Cash, stores, etc. ....	8,996.42
	<hr/>
Valued on the basis of cost .....	\$368,129.90

### LIABILITIES.

Advances by city .....	\$135,000.00
Ordinary accounts, etc. ....	40,558.16
Mortgages .....	2,400.00
City current account for taxes, etc., due by old company plus sundry other items .....	28,548.28
Bonds, due July 1, 1932 .....	125,000.00
Pavement instalments to mature ...	36,623.46
	<hr/>
	\$368,129.90

The first two items of liabilities, aggregating \$206,506.64, will be paid out of the proceeds of bonds for \$270,000 authorized to be issued by the city, leaving a balance of \$63,493.36 for extensions and improvements. Out of this the following appropriations have been made: Paris station, \$1,500; Paris hydro station, \$4,500; improvements to Grand Valley cars, \$14,000. The balance, some \$40,000, is to be used for remodelling old power house for terminal station; rebuilding Eagle Place line and extending same to provide for loop; new cars for Eagle Place, and Holmedale section; improvements to Grand Valley track; terminal at Galt. Payment for these will exhaust the money available, and before further extensions and improvements can be undertaken more funds will require to be provided.

**Union Station for St. Paul.**—The reconstruction and rearrangement of the union passenger station at St. Paul, Minn., has been under consideration for several years. The adoption of definite plans has been delayed by the difficulty of effecting agreement between the nine railway companies and the municipal and other interests involved. The burning of the old station building on Oct. 3, 1913, gave an unexpected impetus to the work. In Jan., 1915, plans for a new station and terminal were submitted to the city authorities by the St. Paul Union Depot Co., which owns the terminal property and in which the several railways are represented. These plans have been approved by the city council. The total cost of the project is estimated at \$15,000,000.

G. H. Stagg has been appointed Travelling Passenger Agent, Niagara Gorge Rd., with office at Buffalo, N.Y.

**Mainly About Electric Railway People.**

Garrett Pettingill, Superintendent, Winnipeg, Selkirk & Lake Winnipeg Ry., Selkirk, Man., is convalescing after an attack of smallpox.

E. P. Coleman, General Manager, Dominion Power & Transmission Co., has been elected President of an architects and engineers' club which has been established in Hamilton, Ont.

Col. H. H. McLean, K.C., M.P., President, St. John Ry., St. John, N.B., will probably be in command of one of the divisions now training for service with the Canadian Overseas Forces.

J. S. Mackenzie, Purchasing Agent, Winnipeg Electric Ry., visited Toronto recently to attend the celebration of his parents' 50th wedding anniversary. He also visited his old home at Kirkfield, Ont.

Sir Adam Beck, M. L. A., Chairman of the Hydro Electric Power Commission of Ontario, left London, Ont., April 20, for France in connection with the supply of horses for the Canadian Overseas Expeditionary Forces.

S. L. Prenter, who for the past six years has been connected with the British Columbia Electric Ry.'s transportation department, at Vancouver, was presented with a suite of library furniture by the head office staff, April 3, on leaving the service.

Edward Garrett, Superintendent, Park & River Division, International Ry., Niagara Falls, Ont., who was born at Catarqui, Ont., May 24, 1868, is one of six sons of the late Albert Garrett, who was in charge of laying the first steel on the G.T.R. out of Montreal, about 1850.

Martin N. Todd, President, Galt, Preston & Hespeler St. Ry., has also been appointed General Manager, Lake Erie & Northern Ry., vice W. P. Kellett, resigned. This line, which is under construction between Galt and Port Dover, Ont., via Paris, Brantford and Waterford, and which will be 51 miles long, has been leased to the C.P.R. It is being built as a steam road, but will probably be electrified.

C. Balmer Jr., Chief Electrician, Chatham, Wallaceburg and Lake Erie Ry., was killed, Apr. 2, by electrical shock, while making some repairs at one of the Chatham, Ont., theatres. At the inquest the evidence showed that he received a 240 volt current, which, it was stated, was not considered dangerous for a normal man. The verdict was to the effect that death was caused by his being electrocuted by accidentally coming in contact with the blades of an electric switch.

Herbert John Somerset, who died in Toronto, April 11, from pneumonia and pleurisy, after three weeks illness, was a son of the late J. B. Somerset, at one time Superintendent of Education for Manitoba, and was born in St. Catharines, Ont., in 1870. He graduated from the Worcester Polytechnic Institute in 1891, receiving the degree of B.Sc., in mechanical engineering. In the following year he took an expert course with the Canadian General Electric Co., at Peterborough, Ont. In 1894 he received an appointment from the Winnipeg Electric St. Ry., and was Manager up till 1899, when he went to Australia. For the next 13 years he was Manager, Engineer, and Local Director of the Perth Electric Tramways, Ltd. He was also consulting Engineer for the Kalgoorlie Tramways Co., the Kalgoorlie Power & Lighting Co., and the North Melbourne Tramway & Lighting Co., Ltd. After successfully negotiating the sale of the Perth Tramways to the West Australian Government for the London directors, he spent a few months in England, returning to Canada in 1913.

**Saskatoon Municipal Railway Matters.**

A statement submitted to the City Council by the Commissioners of Public Utilities, shows that the deficit on the Municipal Ry. for the two months ended Feb. 28, was \$7,900.84.

R. B. Hamilton, of Winnipeg, who was appointed Superintendent, Saskatoon Municipal Ry., recently, informed the City Council that he could not accept the position at the salary offered—\$150 a month, but suggested that he be appointed for one year, at \$150 a month for six months and \$175 a month thereafter. The Council decided to adhere to its original offer, which he definitely declined, April 6.

The City Council is considering a proposition for the operation of the spur lines on the Municipal Ry. by one man, instead of two as required by statute, which the Legislature is to be asked to amend. It was stated that all cars in Brandon, Man., and cars running on spur lines in Edmonton and Lethbridge, Alberta, were operated by one man.

**Electric Railway Notes.**

The Winnipeg Electric Ry., in the calendar year 1914 issued 20,277,197 transfers, an increase of 5,238,181 over 1913. We are advised that this was on account of a rerouting of cars.

The Moose Jaw, Sask., Electric Ry. has made a further cut of 5 per cent. in wages, laid off 11 more men, and reduced the car service on the east and west routes. This makes a total cut of 15 per cent. in wages, and the reduction of the staff by 17 men.

At a meeting of representatives of Saskatchewan cities held in Regina, April 8, a resolution was adopted asking the Legislature to amend the City Act, in such a way that electric cars on all lines, on Sundays, and cars on the less important lines on week days, may be operated by one instead of two men as at present.

The City of Toronto is being sued by John Mackay and Co., auditors and accountants, Toronto, for \$42,546.50, for services rendered and disbursements, in connection with a report on the proposal to purchase the Toronto Ry. and Toronto Electric Light Co., which eventually fell through. The City Council has disputed the amount on the ground that the firm was not properly engaged to make the report, and that the Mayor was not authorized by the Council to make such an arrangement as is claimed to have been made.

**Detroit's Transportation Problems.**—Barclay Parsons & Klapp, New York, retained as consulting engineers by the Board of Street Railway Commissioners of Detroit, Mich., to study street railway traffic conditions and the possible necessity for a subway, have made an elaborate report. The larger part deals with the street railway traffic congestion caused by the convergence of car lines to a central interchange district. To relieve the congestion they recommend rerouting of the main radial lines in such a way as to loop through the interchange district without mutual interference, two-car rush hour trains and station stops on the heaviest line, and many minor changes. For the future it is to be anticipated that the city's growth "will in time make demands beyond the possible limits of surface street car transportation." As first relief a short street car loop subway is recommended. For a still later period, a long subway with independent train service is suggested.

**Electric Railway Finance, Meetings, Etc.**

**British Columbia Electric Ry.**

	Jan. 1915	Jan. 1914	July 1, 1914 to Jan. 31, 1915	July 1, 1913 to Jan. 31, 1914
Gross earnings	\$640,495	\$777,102	\$4,689,394	\$5,330,828
Expenses	497,170	561,146	3,671,738	3,983,467
Net earnings	143,325	215,956	1,067,656	1,437,361

The percentage paid to the City of Vancouver for the first quarter of this year was \$5,398.51, against \$10,870.58 for the same period 1914. The amount paid for March was \$2,167.83, against \$4,674.08 for March, 1914. The number of passengers carried over the city and suburban lines in March was 1,912,510, against 3,273,774 for March, 1914.

**Cape Breton Electric Co.**

	Feb. 1915	Feb. 1914	Two months 1914	Two months 1915
Gross earnings	\$23,430.01	\$25,284.98	\$52,493.07	\$55,083.0
Expenses	15,059.10	15,697.72	32,841.48	34,260.97
Net earnings	8,370.91	9,587.26	19,651.59	20,822.32

**London St. Ry.**

	Feb. 1915	Feb. 1914	2 months 1915	2 months 1914
Gross	\$29,231.28	\$25,896.07	\$59,847.38	\$54,250.22
Expenses	20,794.78	18,907.66	42,313.40	38,761.30
Net	8,436.50	6,988.41	17,533.98	15,488.88

**Lethbridge Municipal Ry.**

	Feb.	March.
Receipts	\$ 3,438.65	\$ 3,494.36
Passengers carried	70,167	70,817

**Moncton Tramways, Electricity and Gas Co.**—The directors for the current year, as re-elected at the annual meeting recently, are as follows,—R. Law, President; E. B. Reeser, Vice President and General Manager; E. O. Bartlett, Secretary; H. C. Stewart, Treasurer, all of Pittsburg, Pa. A. B. Coryell, Moncton, N.B., is Superintendent of Tramways and Electricity and Purchasing Agent.

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

	Jan., 1915.	Jan., 1914.
Gross earnings	\$843,351	\$847,945
Expenses	440,500	440,337
Net earnings	402,851	407,608

Gross receipts for the Toronto Ry. for March, \$488,468, against \$510,751 for March, 1914. The city percentage was \$93,141, a decrease of about \$9,000. Total receipts for three months ended March 31, \$1,400,008, a decrease of about \$73,000 from the same period 1914.

**Winnipeg Electric Ry.**

	Jan., 1915.	Jan., 1914.
Gross earnings	\$350,681	\$382,670
Expenses	214,205	226,177
Net earnings	136,476	156,493

**Proposal to Buy Municipal Railways.**—Practically simultaneous offers were made at the end of March, through Caldwell, Mills & Co., Solicitors, Moose Jaw, Sask., to purchase the municipally owned electric railways in Regina, Sask.; Calgary and Edmonton, Alberta. The letters stated that they desired to know on behalf of clients if the cities would be willing to consider selling out their electric railway systems, and granting a franchise to the clients on whose behalf they were acting. Edmonton City Council, Mar. 23, directed a reply to be sent in the negative, an example which was followed by Regina and Edmonton.

**Detroit United Ry.**—It was announced, April 2, that the stockholders had authorized the directors to accept the offer of the Detroit, Mich., City Council of \$24,900,000 for the company's lines within the city. This amount represents the mortgage debt on the lines, which indebtedness the city will assume. There are a number of minor details to be settled before the transfer can be made. The D.U.R. retains its suburban lines in Michigan, and its ownership of the Sandwich, Windsor and Amherstburg Ry., with its subsidiary, the Windsor and Tecumseh Electric Ry. in Canada.

## The Jitney Situation in Toronto.

The operation of jitneys in Toronto is experiencing a sudden boom, each day seeing an increased number of cars in service. It appears that the first jitney car operated in Toronto was owned by W. D. Gregory, of Gregory and Gooderham, barristers. As an alternative to laying up his car and dismissing the chauffeur, it was suggested to him by his son, G. Gregory, a law student, that the car be placed in jitney service in the Rosedale residential district. This was done Feb. 22, and as a result four of the largest automobile dealers, Hyslop Bros., McLaughlin Carriage Co., Russell Motor Car Co., and Ontario Motor Car Co., approached G. Gregory, who was looking after the operation of the original car, with the result that each of the four dealers provided three large cars to form the nucleus of an operating association, which was named the Toronto Jitney Association, with offices at 102 Church St. This association comprises G. Gregory, who is Manager; A. T. Crowther, Manager of Commercial Electrics, Ltd.; B. M. Tate, of the Tate Electrics, Ltd., and J. W. Bicknell.

The association commenced operations on Mar. 17, with cars operating on Yonge St. from Front St. to the city terminal of the Metropolitan division of the Toronto and York Radial Ry., about 2 miles, the fare charged being 5 cts., with tickets at 6 for 25 cts. The service has since been extended, so that at the middle of April the association had over 60 cars in operation. The principal run is the Yonge St. line as mentioned above. From the northern terminus of this latter run, other cars of the Association run as far north as Bedford Park, on the Toronto and York Radial Ry., charging a 10 ct. fare, with a 5 ct. fare to Glen Grove, about half way. Occasional cars make the trip from the lower portion of the city to Glen Grove. The original Rosedale line operated by Mr. Gregory is still operating with additional cars. There are also two cars operating under the association from the corner of King and Yonge Sts. to the Kingston road on King and Queen Sts. east. These lines are all that are normally operated by the association through the day, but after 9 p.m., a number of the cars operating on the other lines are placed on a King st. West service to Sunny-side, through the South Parkdale residential district. Other lines are in contemplation.

The Toronto Jitney Association is merely an operating organization, composed of the four men mentioned. The cars operated are owned by individuals, who place the car in the Association to be operated, the duties of the latter consisting of arranging the routes and superintending the operation. The full responsibility for the operation rests on the owners, however, the chauffeur being in all cases employed directly by the owner, and in cases where the owner requires a chauffeur for a car he desires to operate in this way, the association merely acts as a clearing house to place the owner and chauffeur in touch with each other. The association purposes arranging for the cooperative purchase of supplies, such as gasoline and oil, and possibly for tires and other requisites.

The fare collections are handled directly by the association, each chauffeur being supplied with a small fare box and tickets. The fare boxes are taken in daily, and the receipts counted in the association's office. The use of tickets was discontinued towards the end of April. Some of the chauffeurs operate the cars on a straight wage from the owner, but the majority receive as their compensation 40% of the net operating receipts, after deducting for

gasoline and oil, but not for tires, repairs or depreciation, which falls entirely on the owner. The association maintains a motor cycle inspector, who looks after the proper working of the schedules, etc. For the privilege of operating under the name of the association, the car owners pay \$2.50 a week, but this amount is to be materially reduced in the near future. The association is applying to the Ontario Government for a \$40,000 charter, with power to own and operate motor busses.

The Toronto Jitney Association has been the largest jitney operating organization in Toronto to date. At different points throughout the city, individual owners have gone into the business independently, but after a short period, the majority have become converts to the association idea, and have joined the Toronto Jitney Association.

The Canadian Jitney Association, with offices in the Mail Building, is organized along almost identical lines with the Toronto Jitney Association, and commenced operation on April 15 with 4 cars, which were placed on the Yonge St. line in competition with Toronto Jitney Association's cars. It is said that other lines are to be opened shortly, the West Toronto field being under consideration for exploitation. A. G. Blain is Manager and I. J. Ardagh is Secretary-Treasurer of the Canadian Jitney Association, which is applying to the Dominion Government for a charter. The general manner of operation is to be similar to that of the Toronto Jitney Association.

Some independently operated cars have been in operation in West Toronto, but the West Toronto Jitney Association is being formed, in which J. A. Duffin, clothier and furnisher, 1676 Dundas St., is interested. It proposes operating jitney cars from the corner of Dundas and Keele Sts., the West Toronto terminus of the Toronto Ry. cars, to Weston and Lambton, alongside the Toronto Suburban Ry. If successful, other lines in the West Toronto district will be developed.

Enquiry at the Toronto Police Department elicited the information that no official recognition is being made of the jitneys as such and that it is the intention to let them operate long enough to observe their characteristics before passing any regulating municipal bylaws. For the present, all jitney operation is considered as coming under the Cab and Livery Bylaws, nos. 69 and 70, which it is claimed have wide enough powers to cover the jitney situation for the present at least.

On April 20 the City Controllers authorized the City Solicitor to draft a bylaw to regulate jitney operation.

### St. John Railway Co.'s Annual Report.

Following are extracts from the report for the calendar year, 1914, presented at the annual meeting at St. John, N.B., recently:—

The earnings, after providing for interest on the bonds and all other charges, were \$73,908.88, out of which there were paid four quarterly dividends of 1½% each, amounting to \$59,822.78, leaving a balance of \$14,086.10, which has been transferred to profit and loss account. The war has affected, to some extent, the company's business, and the railway earnings were materially reduced in consequence of the interruption to traffic during the summer months by the city repaving Main St. and Paradise Row.

The property has been maintained in a high state of efficiency, and considerable has been spent in upkeep of tracks, rolling

stock, power plant, gas works and buildings. The following works were carried out:—Extending the railway from Kane's Corner to Crouchville, and from the One Mile House past Rural Cemetery to Coldbrook and Glen Falls, in all 3¼ miles. No net return can be expected from the operation of these extensions for several years, but they were built in pursuance of the company's progressive policy to furnish the best service possible. A fireproof car barn, 58 x 213 ft., was built on Wentworth St. Twelve new semi convertible cars were bought.

A strike of street railway employees belonging to the union commenced on July 22 and ended July 24. Since the incorporation of the company (20 years ago), the relations with the employees have been most satisfactory. Questions arising have been amicably and quickly settled. In June last, the Manager, by order of the directors, dismissed a conductor named Ramsay, for cause. The board of conciliation was applied for by the union employees, and the Minister of Labor appointed R. T. Hayes, Judge Forbes, and J. L. Sugrue. After hearing the evidence submitted, the board reported:—"That the action taken by the directors in dismissing Ramsay was properly taken to support the authority of the Manager, and to preserve discipline, and for the best interest of the public, and with a due regard to public safety." The union, however, declared a strike, and in consequence of no police protection being afforded, a gang of rioters on the evenings of July 23 and 24 did serious damage to the plant, equipment, power house, street lights and cars. The amount of the direct damage was \$15,560. The consequential damages by reason of the tying up of the road and business was from \$10,000 to \$15,000. We put in a claim to the city to be reimbursed for the actual damages suffered, but the city refused to recognize any liability. In view of the fact that the police did not afford any protection in the running of our cars, or attempt to control or stop the rioters from damaging our property, your directors are of the opinion that the city should have reimbursed us for the loss the company has suffered. The police force has been reorganized and increased, and a new chief appointed, and we hope that full protection will in the future be given to the city and citizens, and property fully protected.

The directors expected to dispose of treasury bonds to meet payments on capital expenditure, but owing to war conditions and consequent financial depression only \$21,800.00 were sold.

The directors, who were re-elected, are:—H. H. McLean, K.C., M.P., President; F. R. Taylor, Vice President; R. B. Emerson, J. Manchester, Hon. W. H. Thorne and J. K. L. Ross. H. M. Hopper is General Manager and Secretary.

Toronto Suburban Railway's City Extensions.—The Ontario Railway and Municipal Board had the application of the City of Toronto to compel the Toronto Suburban Ry. to lay certain tracks in West Toronto, before it, Apr. 16. The application covers the laying of tracks on Pacific Ave., and Annette and Keele Sts., and on the order of the Board, the company was given until Apr. 30 to announce its policy. Counsel for the company stated that the proposed new lines would cost between \$65,000 and \$80,000, and owing to the state of the market at present, the company could not raise the money. It is suggested that if the company is opposed to building the lines mentioned, that it surrender its franchise so far as these streets are concerned, and leave the city open to lay tracks there.

# Marine Department

## Dominion Canal Statistics for 1914.

The following abstract has been prepared by J. L. Payne, Comptroller of Statistics, Railways and Canals Department:

The total volume of traffic through the canals of Canada for the calendar year 1914 was 37,023,237 tons, a decrease of 15,030,676 from 1913. The increases and decreases were distributed among the various canals as follows:

	Tons.	Tons. Increase	Tons. Decrease
Sault Ste. Marie . . . . .	27,549,184	.....	15,100,140
Welland . . . . .	3,860,969	290,255	.....
St. Lawrence . . . . .	4,391,493	89,066	.....
Chambly . . . . .	436,905	.....	118,697
St. Peters . . . . .	54,180	.....	17,334
Murray . . . . .	83,907	.....	96,669
Ottawa . . . . .	335,132	.....	30,306
Rideau . . . . .	151,739	.....	19,484
Trent . . . . .	67,715	11,915	.....
St. Andrews . . . . .	42,013	.....	39,282
<b>Total . . . . .</b>	<b>37,023,237</b>	<b>391,236</b>	<b>15,421,912</b>

Of the total decrease of 15,030,676 tons, 1,748,669 was in Canadian, and 13,282,007, in U. S. waterborne traffic. The falling off was almost wholly at Sault Ste. Marie, and applied chiefly to iron ore belonging to the U. S. As compared with 1913, Canadian traffic decreased by 15.7%, and U. S. traffic by 32.6%.

The movement of waterborne traffic in 1913 and 1914 was distributed, by months, as follows:

	1913, Tons	1914, Tons
January . . . . .	397	494
April . . . . .	875,226	554,111
May . . . . .	7,260,227	5,307,123
June . . . . .	7,647,189	6,136,657
July . . . . .	8,137,169	6,339,831
August . . . . .	7,625,782	6,261,380
September . . . . .	7,531,379	6,069,946
October . . . . .	7,350,914	4,660,484
November . . . . .	4,891,143	1,470,471
December . . . . .	734,487	222,740
<b>Total . . . . .</b>	<b>52,053,913</b>	<b>37,023,237</b>

By classes of commodities, the movement of freight in 1913 and 1914 was as follows:

	1913, Tons	1914, Tons
Products of agriculture . . . . .	8,552,327	7,963,868
Animal products . . . . .	19,301	18,681
Products of the forest . . . . .	1,678,925	1,621,967
Products of the mine . . . . .	39,951,661	26,204,196
Manufactures . . . . .	1,881,699	1,218,525
<b>Total . . . . .</b>	<b>37,023,237</b>	<b>52,053,913</b>

The tonnage of Canadian and U. S. traffic in 1913 and 1914 was:

	1913, Tons	1914, Tons
Canadian . . . . .	11,130,875	9,382,206
United States . . . . .	40,923,038	27,641,031

In 1913 U. S. traffic made up 78.7% of the whole, and in 1914 it was 74.7%. It should also be pointed out that 1,068,812 tons of Canadian traffic passed through the U. S. Canal at Sault Ste. Marie. Of the aggregate volume of traffic through all the canals of Canada, 74.4% passed through the canal at Sault Ste. Marie. Of the total traffic at that gateway 86.9% was United States. Joining the traffic which passed through both the Canadian and U. S. canals at Sault Ste. Marie in 1914, it was found that out of a total of 50,692,092 tons belonging to the U. S. 47.3% passed through the Canadian canal, while out of a total Canadian traffic of 4,678,559 tons only 22.8% sought the U. S. channel. Put in another way, while 86.9% of the total traffic through the Canadian canal was U. S., only 3.9% of the aggregate freight tonnage through the U. S. canal was Canadian.

At the Welland canal 47.6% of the total traffic was U. S., through the St. Lawrence canals it was 37.7%, and through the Chambly canal 29.5%.

Another fact of importance in relation to the traffic through the Canadian canal at Sault Ste. Marie in 1914 is that 86.2% of the

eastbound U. S. freight tonnage consisted of iron ore. When iron ore is eliminated, Canadian eastbound business at that point amounted to 2,785,114 tons, as against 919,725 tons of U. S. eastbound commerce.

**Wheat Traffic.**—The volume of Canadian wheat moved down from the west by water in 1914 amounted to 95,032,066 bush., against 141,726,899 in 1913. In the form of flour, 14,739,872 additional bush. of Canadian wheat were moved, bringing the total up to 109,771,938. The falling off in shipments of wheat including flour, totalled 42,867,059 bush. for the year. The distribution of Canadian wheat from the head of Lake Superior in 1913 and 1914 was as follows:

From Port	1913	1914
Arthur, Fort	Bushels	Bushels
William and	%	%
Duluth		
To Montreal . . . . .	15,186,632	10,283,166
To Georgian Bay ports . . . . .	26,054,001	24,864,466
To other Canadian ports . . . . .	28,973,333	34,350,700
To Buffalo . . . . .	71,522,933	25,533,734
<b>Total . . . . .</b>	<b>141,726,899</b>	<b>95,032,066</b>

The diversion to Buffalo in 1914 was 26.8% of the whole, compared with 50.4% in 1913. The distribution by months showed marked changes for the autumn period, due, no doubt, in large measure to the influences of a short harvest and the war.

The freight rates on practically all cargoes of wheat shipped from Port Arthur and Fort William were ascertained, and when worked out they yielded the following averages for the seasons of navigation 1913 and 1914:

	1913	1914
To Montreal . . . . .	1913	1914
Per ton per mile . . . . .	.142 cent	.124 cent
Per bushel . . . . .	5.35 cent	4.53 cent
Per ton . . . . .	\$1.78	\$1.52
To Georgian Bay ports:		
Per ton per mile . . . . .	.148 cent	.095 cent
Per bushel . . . . .	2.28 cent	1.46 cent
Per ton . . . . .	76.00 cent	48.61 cent
To other Canadian ports:		
Per ton per mile . . . . .	.104 cent	.065 cent
Per bushel . . . . .	2.44 cent	1.48 cent
Per ton . . . . .	81.21 cent	49.29 cent
To Buffalo:		
Per ton per mile . . . . .	.103 cent	.061 cent
Per bushel . . . . .	2.43 cent	1.63 cent
Per ton . . . . .	81.00 cent	53.72 cent
To Kingston:		
Per ton per mile . . . . .	.096 cent	
Per bushel . . . . .	3.08 cent	
Per ton . . . . .	\$1.00	

The freight rates were also tabulated by months to fit the foregoing routes of distribution: but they would take up too much space in an abstract of this nature. Charges paid by vessel owners out of freight rates ranged from 0.38c. per bush. to 0.59c., according to the destination of the cargo.

The volume of Canadian oats shipped down from the west by water in 1914 was 26,240,701 bush., compared with 43,423,367 in 1913.

At Port Colborne, 35,760,979 bush. of grain, chiefly wheat, were passed through the Government elevator during the year.

The capital cost of the canals of Canada up to Mar. 31, 1914, was \$107,486,316, and the cost of maintenance for the year was \$1,763,898.

The Montreal and St. Lambert Terminal Development Co., a Quebec corporation, has reduced its capital from 3,500 shares of \$100 each, to \$315,000 by returning to the stock holders \$10 a share, and declaring the shares to be of the value of \$90 each.

## Toronto Harbor Improvements.

During this year the Toronto Harbor Commission will expend about \$2,000,000 on the extension of the harbor scheme developed by it about two years ago. Half the amount will be supplied by the Commission and the other half by the Dominion Government. No changes will be made in the previously accepted plans.

On the western water front, from the Humber River easterly, about 3,900 ft. of crib substructure for the sea wall has been completed, and this year the concrete topping will be placed and that section of the sea wall completed. In addition, there will be added to the east about 5,000 ft. of crib substructure, which will also be filled ready for the concrete topping next spring.

On the ship channel at the east end of the improvement work, about 7,500 ft. of substructure has been completed, and a portion will be topped with concrete this year. Some 9,900 ft. of substructure will be placed this year, and a portion of it topped with concrete. This section includes the turning basin at the east end of the ship channel. The central 2,800 ft. of the north slip, which extends from the Don river to the harbor, was completed last year, and the balance will be completed this year. The bulkhead pier at the contemplated docks on the east side of the harbor has been completed. Across the east slip, a 120 ft. span, 86 ft. wide bascule bridge is being built at a cost of \$105,000, which is apart from the \$2,000,000 appropriation for this year.

It is the intention to pump about 3,500,000 cu. yds. of sand from the lake into the Ashbridge's Bay industrial area. There will also be some sand pumped behind the western sea wall, and on certain low sections at the island. We are indebted to A. C. Lewis, Secretary of the Commission, for the foregoing information.

## Great Lakes Vessels Insurance.

A dispatch from Cleveland, Ohio, states that the underwriters in hulls have reached an agreement regarding rates of insurance and forms of policy for this season. Some changes are announced, all of which are in favor of vessel owners. The dispatch says that all steel boats will get the preferred rate, which will be a little lower than in 1914, and in addition the season has been extended. The regular season will be from midnight Apr. 15 to midnight Nov. 30, but owners will be permitted to make sailings up to midnight Dec. 12. The extra charge for extensions in insurance will be 1/2% up to Dec. 5, 3/4% up to Dec. 8, and 1% up to Dec. 12. In 1914 the preferred rate for the sailing season was 3 3/4%. Under the new policy the same rate will be charged for the year, which insurance agents figure is a reduction of 1/4%. The new arrangement for extension gives owners of insured vessels a chance to operate late in case profitable rates are paid, and they can line up business ahead, which could not be done under the old plan. Most of the big lines have been placed, and considerable business was lined up last January at 3 3/4%, with the understanding that if a lower rate was made the boats would get the benefit of the cut. Including the 25% that will be carried by the Great Lakes Protective Association, the bulk of the business will be placed with U. S. companies, but the London underwriters will get some of lake business.

Coast, Lake and River Officers for 1915.

The following appointments, made by navigation companies, engaged in Canadian navigation, for their various steam vessels and tugs, for this year, have been reported to CANADIAN RAILWAY AND MARINE WORLD by the managements since those published in the April issue. The first column shows the names of the vessels, the second those of the captains, and the third those of the chief engineers.

BASSETT STEAMSHIP CO. LTD., TORONTO.		
Mariska	C. H. Playter	F. Lugin
BOWRING BROS. LTD., ST. JOHN'S, NFLD.		
Eagle	E. Bishop	A. McKinlay
Florizel	W. J. Martin	J. V. Reader
Hawk		J. Fitzgerald
Portia	J. W. Kean	A. Smith
Prospero	A. Kean	J. McKinlay
Ranger		F. Maher
Stephano	C. Smith	J. M. Fernandez
Terra Nova	W. J. Bartlett	A. G. Osmond
Viking	W. J. Bartlett, Jr.	C. N. Lewis
Zelda (tug)	W. White	W. Squires
CANADA STEAMSHIP LINES, LTD., MONTREAL.		
Aletha	J. Crawford	J. S. Thurston
Alexandria	W. Bloomfield	G. Boyd
America	C. J. Hinckley	Jas. Gillie
Belleville	Jos. Rinfret	Jno. Kennedy
Boucherville	A. Laviolette	C. Hamel
Cascapedia	Jno. Hearn	Jno. Van Koenig
Caspian	J. J. Jarrrell	C. McWilliams
Louis Philippe	H. Mandeville	H. Noel
Montreal	F. X. LaFrance	N. Beaudoin
Murray Bay		A. Charbonneau
New Island Wanderer	W. C. Hudson	R. A. Bergen
Quebec	L. R. Demers	J. Matte
Ramona	E. M. Charlebois	S. M. Pelow
Rapids Prince	G. Batten	G. M. Hazlett
Rapids Queen	J. P. Stephenson	J. E. Kane
Saguenay	Jos. Simard	A. Godin
Ste. Irene	W. Gagne	G. Gagnon
St. Lawrence	Jno. Bertrand	B. F. Farrell
Tadousac	Jos. Dugal	M. Latulippe
Thousand Islander	C. H. Kendall	W. M. Willix
Three Rivers	A. Mondor	C. Gendron
THE CANADIAN FISHING CO., VANCOUVER, B.C.		
Celestial Empire	D. Barry	P. Vint
Emma H.	H. Whitman	J. H. Woodbury
Flamingo	A. Freeman	A. Morrow
Pescawha	W. H. Gillen	R. Duke
CANADIAN TOWING & WRECKING CO., PORT ARTHUR, ONT.		
Home Rule	W. Nuttall	W. Faloune
James Whalen	A. Morrison	H. Cross
Minnie W.	R. Nuttall	J. Currie
Orcadia	G. Buel	
Roi Tan	W. Garrick	C. Kennedy
Salvor	E. J. Cadotte	A. Vigers
Sarnia	G. Stitt	J. Farquharson
Superior	A. Fader	L. Williams
Viper	A. McDonald	M. Cosgrave
CENTRAL CANADA COAL CO., BROCKVILLE, ONT.		
Samuel Marshall	W. A. Tulloch	J. R. Ferguson
DETROIT, WINDSOR & BELLE ISLE FERRY CO., DETROIT, MICH.		
Britannia	D. Jaugins	W. Nolan
Clare	R. Ferguson	H. Furby
Columbia	J. Denstead	H. McAlpin
Excelsior	H. Hugson	S. Merrill
Pleasure	A. Bains	D. Reid
Promis	J. Clentworth	W. Linter
Sappho	G. Chareite	W. Wilkes
Victoria	P. Williams	E. Seamour
GREAT LAKES & ST. LAWRENCE TRANSPORTATION CO., CHICAGO, ILL.		
A. D. Davidson	C. Babb	B. Hammond
A. M. Marshall	T. B. Greenway	O. T. Biddle
Geo. C. Howe	F. P. Russell	J. R. Jones
H. G. Dalton	F. C. Hector	C. E. Crampton
J. S. Keefe	D. Barry	G. Squier
John Cerar	C. Bennett	W. Vollmer
John Lambert	E. Quackenbush	J. A. Gallarno
S. N. Parent	F. H. Johnson	R. S. Mott
Robt. Wallace	J. A. Connelly	O. F. Larson
HALIFAX & INVERNESS STEAMSHIP CO., HALIFAX, N.S.		
Strathlorne	W. Dickson	J. Conrad
GEO. HALL COAL CO., OGDENSBURG, N.Y.		
A. D. McTier	S. V. Anderson	J. W. Estes
Adrian Iselin	S. Hourigan	E. A. Barker
F. P. Jones	H. M. Russell	W. C. Thompson
Fred. Mercur	S. LeBraun	B. J. Mainwaring
Harry B. Hall	D. A. Kiah	J. W. Aline
John Rugee	J. J. Powers	R. G. Jardin
Lucius W. Robinson	W. A. Russell	W. J. Brown
Phenix	H. Russell	J. A. Riga
HOME STEAMSHIP CO., SYDNEY, N.S.		
Eskasoni	J. L. Newman	Jas. Macrae
HUDSONS BAY CO., WINNIPEG.		
Athabasca River	E. B. Haight	Jno. Sutherland
Fort Murray	J. W. Mills	W. Johnson
McKenzie River	G. Patton	G. King
Port Simpson	C. A. Gardner	W. L. Alexander
IMPERIAL OIL CO., SARNIA, ONT.		
Imperial	H. C. Mimms	A. Davidson
Imperoyal	N. Scott	S. Brown
Iocoma	G. T. Cross	J. Smith
INSULAR STEAMSHIP CO. LTD., WESTPORT, N.S.		
Westport III	E. Lewis	Jas. Strickland
LAKE COMMERCE LTD., TORONTO.		
Arabian	W. Beatty	J. M. Morris
Valcartier	G. Mackey	O. Flumerfelt

MAGDALEN ISLAND STEAMSHIP CO., PICTOU, N.S.	Lady Sybil	F. Ferguson	C. B. McArthur
MAJESTIC STEAMSHIP CO. LTD., ST. JOHN, N.B.			
ChAMPLAIN	C. J. Wasson	B. Estabrooks	
MERCHANTS TRANSPORTATION CO., SYDNEY, N.S.			
Weymouth	W. E. LeBlanc	Jos. McDonald	
MIDLAND TRANSPORTATION CO. LTD., MIDLAND, ONT.			
C. W. Chamberlain	B. W. Morgan	H. Smith	
NORTH SHORE STEAMSHIP CO., SYDNEY, N.S.			
Aspy	D. McDonald	Jno. Jackson	
OTTAWA RIVER NAVIGATION CO., MONTREAL			
Duchess of York		F. Piche	
Empress	A. Blondin	A. L. de Martigny	
OTTAWA TRANSPORTATION CO. LTD., OTTAWA, ONT.			
Dolphin	Z. Lavigne	D. Moranville	
Florence	E. Lefebvre	A. Madore	
Hall	J. Barclay	W. Drury	
Ottawan	R. Malette	C. Lilburn	
Scotsman	E. Francoeur	N. Lavigne	
Sir Hector	W. Mainville	Z. Belanger	
PEACE RIVER NAVIGATION CO., EDMONTON, ALTA.			
Northland Call	G. Magar	A. Grant	
PROGRESSIVE STEAMBOAT CO., VANCOUVER, B.C.			
Harry S.	H. Grouer	Jno. Inches	
Progressive	L. Hagen	G. Dixon	
Pronative	Jno. Walters	O. Mathewson	
QUEBEC & LEVIS FERRY CO. LTD., QUEBEC, QUE.			
Charles H. Shaw	P. Levesque	J. Michaud	
John S. Thom	A. Lessard	A. Dion	
North	A. Labadie	E. Boivin	
Pilot	P. Levesque	W. McMillan	
Polaris	A. Lessard	N. Lamontagne	
Queen	A. Labadie	P. Ouellet	
South	G. Fortin	A. Barron	
REID NEWFOUNDLAND CO., ST. JOHN'S, NFLD.			
Argyle	G. O'Reilly	T. Moyst	
Bruce	G. Spracilin	F. C. Barnes	
Clyde	J. Knee	J. Pollock	
Dundee	D. Blandford	H. Crawford	
Ethie	J. Day	P. Burton	
Glencoe	A. Blandford	E. J. Birch	
Home	S. Harbin	J. Cunningham	
Kyle	B. Taverner	Jas. McFarlane	
Meigle	J. Goobie	Jno. McFarlane	
Sagona	N. Kennedy	J. Roberts	
RICHMOND STEAMSHIP CO., SYDNEY, N.S.			
Richmond	W. H. Micheau	R. C. Morrison	
SEVERN RIVER & LAKE COUCHICHING NAVIGATION CO., LTD., ORILLIA, ONT.			
Champion		T. Marshall	
Sonicie	T. W. Wood	H. A. Wood	
SHEPODY NAVIGATION CO., LTD., MONCTON, N.B.			
Wilfrid C.	C. W. Edgett	J. B. Blessdale	
WESTERIAN TRANSPORTATION CO., LTD., OTTAWA, ONT.			
Westerian	A. Lefebvre	O. Lamoureux	

British Columbia	484,900	291,100
Yukon	5,000	.....
General	40,000	.....
Dredging, general	\$4,418,980	\$2,639,250
Mail subsidies—Atlantic Ocean	\$2,307,000	\$679,000
“ Pacific Ocean	.....	\$1,844,167
“ Local	.....	487,142
Naval service	.....	310,125
Ocean and river service	.....	2,355,400
Marine Department, capital account	.....	1,256,900
Lighthouse and coast service	.....	2,458,000
Hospitals and distressed seamen	.....	2,429,540
Steamboat inspection	.....	78,000
	.....	83,265

Included in the foregoing are appropriations for the provision of a number of steamships for service at various points. A revote of \$500,000 was made for an ice-breaker for use in the St. Lawrence River. This vessel was ordered from Canadian Vickers, Ltd., Montreal, last year, and but for the war, would have been delivered early this year. The new vessel will be an icebreaker alone, and will be of much greater power than any other of the Government vessels.

A steamship for testing and sweeping the St. Lawrence Ship Channel is approaching completion at the Government shipyard at Sorel, Que., and it is expected that she will be launched during May. A lighthouse and buoy steamer, named Grenville, has been built at Polson Iron Works, Toronto, it was expected that she would be put through her trials at the end of April. This vessel is to replace the Scout in the lighthouse buoy service. The vessel to replace the s.s. Maisonnette, will be built at the Government shipyard at Sorel, Que.

In addition to the amounts voted as mentioned above, \$354,000 was re-voted for the provision of an additional car ferry steamboat for the Intercolonial Ry. service on the Strait of Canso, and for a dock for same at Mulgrave, N.S. This vessel was launched recently at Newcastle, Eng., as mentioned elsewhere in this issue. For a fisheries patrol steamboat for Lake Winnipeg, a further \$100,000 was voted for the current year, and for which, \$184,400 was voted last year. A description of this vessel was given in Canadian Railway and Marine World for July, 1913, and she is now nearing completion at Selkirk, Man. It is expected that she will be placed in service during June.

The Dominion Coal Co. announces the discontinuance of the passenger and general cargo service, which it has, for many years, operated in connection with the Black Diamond Line between Montreal, Prince Edward Island, Sydney and St. John's, Nfld. The service has become unprofitable during the last few years and the company has lost while engaged in this service, the steamships Cacouna and City of Sydney, the latter having been specially purchased for this service. The present market rates make it impossible to build or purchase suitable steamers to replace these lost and the company has, therefore, decided to discontinue the freight and passenger service at least until conditions justify its resumption.

Drawback on Vessel Construction Materials.—An order in council has been passed providing that in the payment of drawback on materials used in the construction of vessels built and registered in Canada, or built and exported under Governor's pass, for sale and registry in any other country, the certificates of Lloyd's Register, British Corporation, Bureau Veritas and Norwegian Veritas may be accepted in determining the class of vessel. The certificate of a Dominion hull inspector may also be accepted, when setting forth that the vessel has been so built as to fill the requirements of any one of the foregoing societies.

Marine Votes for 1915-16.

Amounts voted by the Dominion Parliament for the fiscal year ending Mar. 31, 1916, include the following items:

TO BE CHARGED TO CAPITAL ACCOUNT.		
Welland Ship Canal	\$5,500,000	Revotes \$500,000
Canals—		
Lachine	\$ 181,000	.....
Rideau	40,000	\$40,000
Soulanges	34,500	20,000
Trent	1,516,000	.....
Welland	50,000	50,000
	\$1,821,500	\$110,000
Harbors and rivers—		
Esquimaux dry dock	\$ 250,000	\$250,000
French River waterway	450,000	450,000
Halifax dry dock	250,000	250,000
Port Arthur and Port William	1,200,000	.....
Quebec Harbor—		
Lauzon dry dock	700,000	700,000
Levis wharf	34,200	34,200
Improvements	500,000	500,000
St. Charles River	500,000	500,000
St. John harbor	1,500,000	.....
Toronto harbor	1,000,000	.....
Vancouver harbor	1,000,000	.....
Victoria harbor	1,400,000	.....
	\$8,784,200	\$2,684,200
TO BE CHARGED TO INCOME ACCOUNT.		
Canals—		
Chambly	\$ 13,500	\$ 6,500
Cornwall	19,500	7,500
Quebec	41,000	26,000
Rideau	45,000	12,000
St. Peters	299,000	23,000
Soulanges	11,200	10,000
Trent	40,000	.....
Welland	36,000	5,000
	\$505,200	\$90,000
Harbors and rivers—		
Nova Scotia	\$ 691,950	Revotes \$573,050
Prince Edward Island	158,100	112,000
New Brunswick	546,900	295,600
Quebec	819,650	483,900
Ontario	1,413,580	712,600
Manitoba	167,900	112,000
Saskatchewan and Alberta	91,000	59,000

## Another Car Ferry for the Ontario Car Ferry Company.

An all steel car ferry, Ontario No. 2, a sister ship to Ontario No. 1, which is being operated between Cobourg, Ont., and Charlotte, N.Y., by the Ontario Car Ferry Co., was launched by the Polson Iron Works, Toronto, Apr. 3, the christening ceremony being performed by Mrs. Hugh Calderwood, Barrie, Ont., wife of the designer. The Ontario Car Ferry Co. is a combination of the G.T.R. and Buffalo, Rochester and Pittsburg Ry. interests, formed some years ago to handle the coal traffic originating on the latter company's lines, destined to points in Eastern Ontario on G.T.R. lines, the object being to eliminate the long haul around the west end of Lake Ontario. The business handled by the company has increased to such a degree that the addition of another vessel became necessary. The new one is almost identical with the one at present in service, which was described in Canadian Railway and Marine World, May, 1907. Descriptions of the new ferry appeared in Canadian Railway and Marine World, Apr. 1914, and Jan. 1915, with plans, etc.

It is of the shelter deck type, with four tracks for cars on the main deck, and will be propelled by twin screws. The main deck is of steel throughout, without wood covering; the shelter deck is of steel laid flush, with a deck house running through-

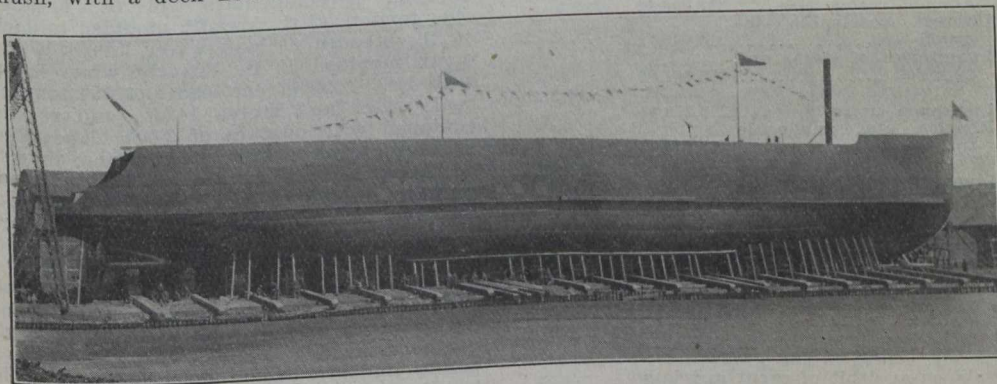
working speed of 13 miles an hour, with reserve power to make 15 miles an hour under emergency conditions. Following are the principal general dimensions:

Length overall .....	318 ft.
Length between perpendiculars.....	307½ ft.
Beam moulded .....	54 ft.
Beam on main deck .....	56 ft.
Depth at centre, main deck to prom- enade deck .....	17 ft.
Depth at side, main deck to prom- enade deck .....	17 ft.
Draught of water full loaded .....	16¼ ft.
Camber of main and promenade decks.....	9 ins.
Depth to promenade deck .....	20½ ft.
Rise of floor .....	2 ft.

The vessel is built on the transfer system, with solid plate floors and bulb angle frames, with the steel plate extra heavy for working in ice, and not reduced forward. It is built to pass the inspection of the Great Lakes Register, and to receive its highest rating.

The propelling machinery consists of two triple expansion, 20½ x 33 x 54 x 36 in. jet condensing engines, operating normally at about 110 r.p.m., both engines turning outwards. The boilers will be fitted with forced draught, and will operate at 180 lbs. pressure.

Among those witnessing the launching were the following: H. G. Kelley, President, Ontario Car Ferry Co. and Vice President,



Car Ferry Ontario No. 2, on the Ways before Launching.

out its greatest length, and containing accommodation for passengers, officers and crew. It has a wooden pilot house and bridge on top of the deck house forward, and a pilot house at the rear end of the deck house. It is divided into six transverse watertight bulkheads, extending from the keel to the main deck, with a longitudinal bulkhead along the centre line in three watertight ballast tanks 13 ft. deep. Two of these ballast tanks are immediately forward of the boiler room, and the third immediately aft of the engine room. The steel lower deck, laid throughout the forward and aft holds and both peaks, forms the top of the deep water ballast tanks. There are two shaft alleys, leading back from the engine room, one on each side, extending into the stuffing box bulkhead. The boiler room contains four single ended Scotch marine boilers placed amidships, with one firehold athwartships and one wing coal bunker on each side of the boiler room. The hull is bossed out on each side to enclose the propeller shafts. There are two steel pole spars without masts or sails.

The vessel has a capacity for 30 standard coal cars of 70 tons gross weight each, and 200 tons of coal in the bunkers. There will also be accommodation for 800 first class, and 200 second class passengers. Her tonnage is 5,430 gross, and her launching tonnage was 2,400 deadweight. The draught will be about 16¼ ft. when fully loaded, and the vessel will have a normal

G.T.R.; W. H. Smith, Manager, Ontario Car Ferry Co.; G. A. Bowman, Asst. Gen. Freight Agent, Buffalo, Rochester and Pittsburg Ry.; W. D. Robb, Superintendent of Motive Power, G.T.R.; J. B. Miller, Pres. and Gen. Man., A. H. Jeffry, Secretary and Manager, H. H. Miller, Vice President, and W. H. Newman, Works Manager, Polson Iron Works; T. B. F. Benson, representing Lloyds; Capt. Foote, representing the underwriters; Capt. Forrest and A. Nichol, captain and chief engineer of Ontario No. 1, who will hold similar positions on Ontario No. 2.

### Canadian Pacific Ocean Services, Limited.

Canadian Pacific Ocean Services, Ltd., has been registered in London, Eng., with a capital of £2,000,000 in shares of £10 each, to design, lay out, build, purchase, charter, sub-charter, lease, hire, take in exchange or otherwise acquire, hold, own, improve, maintain, operate, let out on hire by charter or otherwise, sell or dispose of ships, tugs, barges, scows, vessels, tenders, lighters and craft of every description, whether propelled by sail or by steam or other power; to employ the company's vessels in the conveyance of passengers, mails, troops, munitions of war, freight, live and dead stock, coal, minerals, treasure, produce, and goods and merchandise of every kind; to acquire any postal or other subsidies; to enter into mail and

other contracts; to carry on the business of ship and loading brokers, managers of shipping property, ship chandlers, tourist, forwarding and general agents, etc.

The signatories to the articles of association are,—H. Maitland Kersey, Manager in Chief of Ocean Services, C.P.R.; G. McL. Brown, European Manager, C.P.R.; G. A. Crawley; A. J. Campbell; W. W. Paine; Sir Thomas Skinner, Director, C.P.R., and T. H. Skinner, all of London, Eng. The first directors are: I. G. Ogden, Vice President, C.P.R.; G. M. Bosworth, Vice President, C.P.R.; E. W. Beatty, Vice President and General Counsel, C.P.R.; D. McNicoll, Director, C.P.R., and F. E. Meredith, K.C., all of Montreal, and H. Maitland Kersey and Sir Thomas Skinner, London, Eng. The directors' qualification is 100 shares, and any remuneration will be fixed by the company.

### Lake Vessels Chartered for Gulf and Ocean Service.

Canadian Railway and Marine World for April contained considerable information as to a number of lake vessels chartered for service in the St. Lawrence River and Gulf, and for coasting and ocean service as far as the West Indies. Among the vessels mentioned, we have been advised that the Turret Cape, Turret Crown, Canadian, Acadian and D. A. Gordon, have been chartered by the Nova Scotia Steel and Coal Co., New Glasgow, N.S., and that they will be used in the coal trade between North Sydney and St. Lawrence points. We have also since been advised that the Dominion Iron and Steel Co., Sydney, N.S., has chartered the Canadian Lake and Ocean Navigation Co.'s s.s. Scottish Hero, for three years. She was ordered recently to proceed from Goderich to Ashtabula, Ohio, where she is being cut in two, to enable her to pass through the Welland Canal locks. She is the largest of the turret type of vessels which have been operating in the upper lake service, and was built at Sunderland, Eng., in 1895, her dimensions being, length 297 ft., breadth 40 ft., depth 24.1 ft.; tonnage, 2,201 gross, 1,386 register. She is equipped with quadruple expansion engines with cylinders 19½, 27½, 39 and 54 by 42 ins. supplied with steam by three Scotch boilers, each 11 by 10½ ft., at 110 lbs. pressure.

Reference was made in our April issue to the statement in the press that certain vessels owned by Canada Steamship Lines, Ltd., had been operating in the ocean service during the winter, implying that these were lake vessels, and it was then stated that none of that company's vessels had been operated in ocean service during the winter, except the regular ocean vessels which had been running full. These vessels are Parima, Korona and Guiana, running between New York, Windward Islands and Demerara, the Bermudian, running between New York and Bermuda, and the Trinidad, running between New York and European ports.

A press dispatch from Ottawa, Apr. 19, stated that to increase ocean tonnage, arrangements are being made which will bring a considerable number of larger lake vessels into trans-Atlantic service until the end of the war. Canadian steamship lines doing business on the Great Lakes will supply 15 vessels, while other vessels will be secured. Officers of these vessels are being examined for new certificates which will be required to enable them to sail on the Atlantic. Several additional vessels will also be assigned to the Canadian trade. These will include a large new vessel which has just been completed.

## Canada Steamship Lines Annual Report and Meeting.

Following are extracts from the report presented at the first annual meeting in Montreal, Mar. 25, for the period from Dec. 15, 1913, to Dec. 31, 1914:

The year 1914, which began with reasonable prospects, will long be remembered as having witnessed the greatest political, commercial and financial upheaval in the world's history. That Canadian undertakings have had to bear an unprecedented strain is well known; but so far, Canada is passing through the crisis in a way that is commendable. That the worst is over seems manifest, and the country is working out a readjustment of conditions which are daily becoming more normal. Your company was, perhaps, to a greater degree than most others, affected by the war, a large part of its great fleet being tied up for over a month in the heart of the season owing to the practical suspension of ocean traffic at the commencement of the war. The partial failure of the northwest crops and the consequent very low freight rates obtained in the fall made a further serious impression on your company's earnings. The shortage in the wheat and oat crops alone was over 100,000,000 bush. The outbreak of war practically suspended passenger travel, and although a more normal condition in this respect soon became apparent it was too late to benefit the year 1914. The business done by your company preceding the war was fully up to expectations, and consequently your directors declared and paid quarterly dividends on the preference shares on March 1 and June 1. The balance of the 7% dividend on these shares (which is cumulative), was, however, owing to the effects of the war, deferred. In this connection your directors have decided that dividends in the future should only be paid after the year's business has been closed and accounts audited.

The fixed assets have been increased by over \$1,000,000, representing new vessels; and depreciation to the extent of nearly \$500,000 has been written off. The fleet now consists of 103 vessels.

During the year the company suffered a severe loss in the death of its senior Vice President, the late Wm. Wainwright, who for nearly 30 years had been Vice President of the Richelieu & Ontario Navigation Co., and whose long experience and world-wide connection with transportation as Vice-President of the G.T.R. was of great value and assistance in building up Canada's mercantile marine. On June 11, 1914, J. E. Dalrymple and Geo. H. Smithers were elected directors to fill vacancies on the board.

### OPERATING ACCOUNT FOR YEAR ENDED DEC. 31, 1914.

Operating Revenue	
Vessels .....	\$ 6,272,232.86
Docks and wharves .....	193,338.62
Miscellaneous .....	78,929.21
	<u>6,544,550.69</u>
Other revenue .....	41,259.84
Total revenue .....	\$ 6,585,810.53
Expenses .....	5,657,773.63
	<u>928,036.90</u>
Interest on mortgage bonds .....	\$166,230.47
Interest on debenture stock at 5% .....	285,234.42
Funded debt expense .....	5,622.23
Other interest .....	10,252.36
Reserve for depreciation under trust deed .....	455,630.18
Reserved for doubtful debts, claims, etc. ....	50,000.00
Directors' fees .....	15,000.00
	<u>987,969.66</u>
Net loss for year .....	\$ 59,832.76

### PROFIT AND LOSS ACCOUNT.

Loss Dec. 15 to 31, 1913 .....	\$ 18,299.50
Loss for year 1914 .....	59,932.76
	<u>\$ 78,232.26</u>
Loss on sales, etc. of fixed assets .....	\$ 30,826.11
Proportion of following charged off:	
Organization expenses .....	59,304.25
Discount on Debenture stock .....	1,028.34
	<u>\$ 60,332.59</u>
Dividends to May 31, 1914, paid on cumulative preferred stock .....	401,041.63
	<u>492,200.33</u>
Debit balance at Dec. 31, 1914 .....	\$ 570,432.59

### ASSETS.

Vessels .....	\$ 18,200,493.02
Real estate, buildings, docks and wharves .....	5,229,136.80
Other Fixed assets .....	568,486.32
	<u>\$ 23,998,116.14</u>
Less depreciation reserve .....	455,630.18
	<u>\$ 23,542,485.96</u>
Cash in banks and on hand .....	\$131,566.05
Accounts receivable, less reserve for doubtful accounts .....	720,661.30
Insurance and other claims — estimated amount recoverable .....	293,096.72
Interest receivable accrued .....	13,007.72
Inventories of stores and supplies .....	255,882.82
	<u>1,414,214.61</u>
Insurance unexpired .....	\$208,272.14
Repairs, etc., applicable to 1915 season .....	52,118.93
	<u>260,391.07</u>
Investments (at cost) .....	189,433.37
Funds deposited with trustees for mortgage bonds and debenture stock .....	801,340.08
Organization expenses, less proportion written off .....	237,217.01
Discount on debenture stock, less proportion written off .....	29,821.87
	<u>\$ 26,474,953.97</u>
Leases, contracts and goodwill .....	8,589,646.79
Balance at debit of profit and loss account .....	570,432.59
	<u>\$ 35,635,033.35</u>

### LIABILITIES.

125,000 shares 7% cumulative preferred stock .....	\$12,500,000.00
120,000 shares common stock .....	12,000,000.00
	<u>\$24,500,000.00</u>
First mortgage bonds .....	\$2,664,462.20
5% debenture stock .....	6,351,666.66
Loan to be secured by issue of debenture stock and vessel mortgages .....	851,666.66
First mortgage bonds—Northern Navigation Co., deposited as collateral security for bank loans .....	\$200,000.00
	<u>9,867,795.52</u>
Bank loans .....	\$ 166,783.12
Notes payable .....	45,652.13
Accounts payable .....	839,148.76
Bond and other interest accrued .....	150,409.46
	<u>1,201,993.47</u>
Reserves:	
For freight and other claims .....	30,179.63
For premium on redemption of Richelieu & Ontario Navigation Co. bonds .....	35,064.73
	<u>65,244.36</u>
	<u>\$35,635,033.35</u>

The directors were all re-elected and at a subsequent meeting of directors J. W. Norcross, formerly Managing Director, was elected Vice President and Managing Director,

and the two vice presidencies held previously by M. J. Haney and J. P. Steedman, were abolished. The Board for the current year is: Sir Trevor Dawson, Honorary President; Jas. Carruthers, President; J. W. Norcross, Vice President and Managing Director; Sir H. Montagu Allan, M. J. Haney, J. P. Steedman, C. A. Barnard, H. B. Smith, Hon. J. P. B. Casgrain, J. R. Binning, D. B. Hanna, Edmund Bristol, J. E. Dalrymple, J. C. Newman, Aemilius Jarvis, G. H. Smithers.

### Car Ferry Scotia No. 2, for Intercolonial Railway Strait of Canso Service.

The car ferry Scotia No. 2 was launched at Newcastle-upon-Tyne, England, Apr. 15, the christening being performed by Lady Drummond, of Montreal. About the time of the launching the neighborhood of the yards where the vessel was built was visited by German aircraft, and a few bombs were dropped without, however, doing any material damage.

The Scotia No. 2, is similar to the Scotia, now employed in the I. R. C. service between the main land of Nova Scotia and Cape Breton Island, across the Strait of Canso, except that she is of somewhat larger dimensions. Her principal dimensions are, length overall 300 ft., length between perpendiculars 276 ft., breadth over fenders 48 ft., breadth moulded to deck 46 ft., breadth at load water line 43½ ft., depth moulded 19 ft., draught when laden with 1,400 tons of car load and 150 tons of coal, water and stores 14 ft., and she is equipped with engines of 3,000 i.h.p. The engines are of the triple expansion, inverted, direct acting, surface condensing type, working on three cranks, each set being a duplicate of the other, and they are so arranged that one engine can be made to work both propellers. There is a complete electrical installation, with a searchlight of the 15,000 c.p. pilot house type. Accommodation is provided for the officers and engineers in four rooms, with mess room, pantry and provision room. The crew will be placed in an open compartment below the main deck, and the whole accommodation is steam heated. A complete description of the vessel was given in Canadian Railway and Marine World for Nov. 1913, pg. 546.

### Atlantic and Pacific Ocean Marine.

It was stated in the House of Commons, Apr. 4, that French financial interests will organize a company shortly to establish a steamship service between the Canadian Pacific coast and Vladivostock, Russia.

The C.P.R. s.s. Metagama sailed from Liverpool, Eng., Mar. 27, on her maiden voyage to Canada, arriving at St. John, N.B., Apr. 5. She is of the single class cabin type, with accommodation for 500 cabin passengers and 1,200 third class.

The British s.s. Delmira, which was reported to have been sunk by a German submarine, in the English Channel, towards the end of March, was bound from Havre, France, for St. John, N.B. She was on her third trip to Canada for war supplies.

The Great Northern Steamship Co.'s s. s. Minnesota was wrecked near Iwajima, Japan, Apr. 11. She sailed from Nagasaki on the morning of that day for Kobe, Yokohama and Seattle. It is stated that a hole 120 ft. long was cut in the fore part, by striking a rock. All the passengers and crew were saved.

The s.s. Epsom, which was stranded at Carrera Point in the Magellan Straits, Aug.



9, 1914, and afterwards refloated and repaired at Punta Arenas, while en route from Nova Scotia to Port Mann, B.C., with rails for the Canadian Northern Ry., was drydocked at Esquimalt during April for a general overhaul. She was expected to go to Portland later to load grain for Europe.

The Neptune Association of Masters and Mates has submitted a request to steamship companies operating out of New York, that consideration be given to increases of pay for officers, and suggesting that masters receive \$200 a month, chief officers \$125, second officers \$100, third officers and all other deck officers \$90, representing increases of approximately \$70, \$35, \$30 and \$30 respectively.

Furness Withy and Co. have announced that their weekly sailings between Montreal and Manchester, Eng., by way of the Manchester Ship Canal, will be continued this season as heretofore, the first vessel sailing from Montreal about May 6. In addition to this service there will be a fortnightly one to Hull, Eng., the first vessel sailing from Montreal early in May. These are in addition to a number of tramp vessels.

The Australian Government is making use of a number of the German merchant vessels, which it has captured since the outbreak of war, by chartering them to local shipping firms for use in trade with Great Britain. They are chiefly engaged in carrying wool and general supplies to London. The German names of the vessels have been obliterated and numerals are used in their place, all preceded by the letter C.

A marine insurance company at Liverpool, Eng., has recovered £289 11s. 7d., from the British and Chilian Steamship Co., representing the amount paid in excess against claim for the loss of the s.s. Helvetia, which collided with the C.P.R. s.s. Empress of Britain in 1912. In the enquiry into the causes of the disaster, it was held that the Helvetia was seven-twelfths, and the Empress of Britain five-twelfths to blame.

The Canadian Salvage Co., which had in hand the salvage work on the C.P.R. s.s. Empress of Ireland, has obtained judgment from several insurance companies for \$22,685 for salving a quantity of silver from the wreck. It was on board when the vessel sank, and for this, the companies paid claims, and eventually engaged the services of the salvage company, for which \$36,172 was paid as expenses, but nothing for the silver brought up. Other amounts received by the salvage company for work in connection with the wreck were \$10,000 for the mails, and \$35,000 from the C.P.R. for the purser's strong box.

The Minister of Trade and Commerce, in dealing with ocean services in the House of Commons, recently, stated that owing to Admiralty requirements, the C.P.R. fleet had been reduced to three cargo and one passenger vessel, and the best of the Allan and Canadian Northern vessels had also been taken. He continued that efforts were being made to obtain the release of some of the larger freighters, and he hoped that an arrangement would be made by May 1. In the meantime the companies were unable to carry out their mail contracts with the Dominion Government, and in consequence no subsidies were being paid. The arrangement made with the Admiralty for a French service of 18 vessels, provided that such service would be limited to Government supplies.

### Maritime Provinces and Newfoundland.

The steamships Ocamo and Oruru, owned by Pickford and Black, which have been laid up at Dartmouth, N.S., for some time, have been sold for West Indies service.

It is reported from Nova Scotia ports that about 16 sailing vessels owned in the Province will engage in the trans-Atlantic trade this season, carrying deals to Great Britain. Several have already sailed and others are loading at various ports.

The Department of Marine has announced that the channel of the Elliott, or West River, from the West River bridge to Bonshaw bridge, P.E.I., for four miles has been marked by 20 hardwood bushes on the starboard side and by 20 spruce bushes on the port side.

The Department of Marine announces that before May 31 the characteristic of the light shown from the Little Hope gas and whistling buoy, on the south coast of Nova Scotia, about 1¼ miles from the lighthouse on Little Hope islet, will be changed from occulting white to occulting red.

The Public Works Department's s.s. Tyrian is undergoing considerable overhaul and repairs at Halifax, N.S. The work is covered by three contracts, one for repairs and renewals to machinery for \$16,750, for new boilers \$9,200, and for removal of old boilers, alterations to boiler room and installation of new boilers \$9,841.

The s.s. Senlac, owned by H. McC. Harb, Halifax, N.S., which has been laid up at Dartmouth, N.S., for some time, is reported to have been sold to R. P. Bell, of Halifax. She was built at St. John, N.B., in 1904, and is equipped with engine of 66 n.h.p., driving a screw. Her dimensions are, length 182.4 ft., breadth 33 ft., depth 16.1 ft.; tonnage, 1011 gross, 615 register. She was formerly operated between St. John and Halifax.

The winding up of the May Queen Steamship Co., Ltd., was before the courts at St. John, N. B., Apr. 6, when the question of the handing over to the curator of the estate, of \$4,000 which had been paid to certain creditors, was dealt with. It was ordered that \$500 retained by Capt. F. H. Colwell, for a personal claim, be handed over, and if authority for payment of the other amounts cannot be shown, they must also be handed over.

A Montreal press report states that the Black Diamond Steamship Co., controlled by the Dominion Coal Co., and which has operated a freight and passenger service between Montreal, Prince Edward Island, Sydney and St. John's, Nfld., for several years, will discontinue such service this season. It is stated that the service has been unprofitable during the last few years. Two of the vessels, the steamships Cacouna and City of Sydney, the latter having been purchased especially for this service, have been lost, and the present market rates make it impossible to build or purchase suitable vessels to replace them.

The Minister of Marine, replying to questions in the House of Commons, Apr. 8, regarding the s.s. Noreen, chartered by the Marine Department, stated that she was formerly owned by the Dominion Government, and was sold to A. B. Crosby, Halifax, N.S., Jan. 31, 1912, for \$900, and was formerly known as Lily. She was subsequently rebuilt by her owner, and the name changed. She is now engaged in transporting Marine Department employes between Halifax and Dartmouth, at \$20 a day, the owner providing the crew of three, the Government providing a man to handle moorings, gangways, etc. The Government also supplies coal and water, the owner providing oil and supplies. She has been under charter since Sept. 18, 1914, and \$2,800 had been paid under the charter, up to Feb. 28, and \$506 for coal, etc. She was originally built at Dartmouth, N.S., in 1878, and is screw driven by engine of 17 n.h.p. Her dimensions are, length 65.6 ft., breadth 16.5 ft., depth 6.6 ft.; tonnage, 46 gross, 31 register.

### Province of Quebec Marine.

The Lachine Canal was emptied Apr 1, for the annual cleaning.

The first steamship to leave Quebec this season was the Savoy, Apr. 5, for north shore and Anticosti Island points.

At a meeting of the Montreal City Council Apr. 12, a report of the Board of Control recommending the appropriation of \$900 for the purchase of a vessel for operation to St. Helen's Island was withdrawn, the Mayor announcing that he would purchase a vessel to be used for such service.

The Dominion Government has entered action against the owners of the s.s. Lingan, claiming \$400,000 as damages for the loss of the s.s. Montmagny, which was sunk in collision in the St. Lawrence River, Sept. 18, 1914, when 14 lives were lost. The case is entered for hearing on May 18.

The Department of Marine has established a black wooden spar buoy at the south edge of the channel between Montreal and Longueuil, at the 3 ft. spot midway between Montreal and the Longueuil ferry wharf, 3,250 ft. from Ile Ronde lighthouse, near the alignment of the Ile Ronde range lights.

When interviewed on his resignation as Chairman of the Quebec Harbor Commissioners, Sir William Price stated that of the programme of harbor improvements, all that remained to be done, was the completion of the Louise embankment in the St. Charles River, which was interfered with to some extent last season. The erection of the grain conveyors for the new elevator would probably not be undertaken until 1916.

The Levis Ferry Ltd., which has the exclusive right to operate a ferry service between Quebec and Levis, is applying to the authorities at both points, for approval of an increased tariff of rates and a decreased schedule. The contract with the company dates from May 1, 1910, for 15 years, the sum payable by the company for such rights being \$5,250 a year, and the tariff and schedule were embodied in the bylaws confirming the contract, which can only be changed by a majority vote of the councils concerned. The proposals are meeting with considerable opposition.

The Quebec Corporation of Pilots has asked the Marine Department to have the wrecked s.s. Montmagny removed from the channel at Crane Island, as it is a menace to navigation. The Minister of Marine replying to a question in the House of Commons, Apr. 1, stated that the wreck lies 600 ft. distant from the axis of the channel marked by the Hospital Rock range lights, and therefore forms no obstruction to navigation. The Department will consider the question of removal, when the wreck has been examined after the opening of navigation.

### Ontario and the Great Lakes.

The Welland Canal was re-opened for navigation, Apr. 15.

The Cornwall Canal was opened for navigation, Apr. 15, the earliest for 12 years.

The Dominion Public Works Department will receive tenders to May 20, for building a freight shed, baggage, and waiting rooms, on the wharf at Belleville, Ont.

The light shown on the west end of Depot Island, near Parry Sound on the east side of Georgian Bay, has been changed from occulting red to occulting white.

It is announced that Canadian fishing tugs on Lake Erie are being numbered, and the names of the fishing firms are being placed on buoys marking the territory of

each, to facilitate supervision by Government patrol boats.

The Imperial Oil Co.'s s.s. Imperial, operating on the Great Lakes, is reported to have had certain alterations made at Sarnia, to fit her for ocean service between Vancouver and Peru, but we are officially advised that there is no intention of sending any of the lake vessels to the Pacific.

A concrete pier and lighthouse are under construction in the Detroit River at the head of the Livingstone channel, at the junction of Ballard reef and Livingstone channels. Vessels are warned to go slow when passing the work so that the contractor's operations shall not be interfered with nor the plant and work endangered.

The icebreaking steam tug J. T. Horne, which has been operating on the Great Lakes, chiefly in Thunder Bay, for the past two years, and which was announced to have been sold to the Russian Government recently, sailed from Sydney, N.S., early in April, for Archangel, where she will be used in keeping the harbor free from ice.

The lighthouse on the breakwater at the entrance to Lionhead harbor on the west side of Georgian Bay, which was destroyed in the storm of Nov. 1913, has been repaired, and fixed on the extremity of the undamaged portion of the breakwater. A red painted spar buoy has been moored at the extremity of the damaged portion of the breakwater.

The collision of Canada Steamship Lines s.s. J. H. Plummer and Port Colborne and St. Lawrence Navigation Co.'s s.s. Algonquin, May 7, 1914, was argued before an arbitration board at Toronto, Apr. 13, when evidence on both sides was gone over, and decision reserved. It appeared that the accident occurred in a heavy fog, and that the signals were not properly understood.

The Niagara, St. Catharines and Toronto Navigation Co.'s s.s. Dalhousie City arrived at Toronto, Apr. 1, being the first vessel to enter Toronto harbor for this season. This is the fourth successive year this vessel has opened navigation into Toronto. Capt. Maddocks received the silk hat awarded by the harbor master to the captain of the first vessel to enter the harbor from an outside point.

The Algoma Central Steamship Line s.s. J. Frater Taylor, which was the first vessel from an outside point to enter Fort William harbor this season, for which the captain was awarded the harbor master's silk hat, was reported to be aground, while down bound with grain, at Blake's Point, off Isle Royale, Apr. 21. She was subsequently released and taken to Port Arthur for examination.

The United States Lake Survey reports the levels of the Great Lakes in feet above tidewater, for March, as follows,—Superior 601.50; Michigan and Huron 579.57; Erie 571.37; Ontario 245.27. Compared with the average March levels for the past ten years Superior was 0.13 ft. lower; Michigan and Huron 0.56 ft. lower; Erie 0.38 ft. lower, and Ontario 0.63 ft. lower. It was anticipated that during April, Superior would remain stationary; Michigan and Huron would be 0.3 ft. higher; Erie 0.7 ft. higher and Ontario 0.6 ft. higher.

The proposal of the Canadian Drydock and Shipbuilding Co. to build a dry dock at Owen Sound, is again to the fore. In a recent interview, F. F. Wood, of Niagara Falls, who is interested in the scheme, is reported to have stated that the necessary financial arrangements had been made, and some time had been spent with the Public Works Department at Ottawa in relation to the plans, and he hoped to be able to obtain a Government subsidy for a dock of the first class type, instead of the second class, as at first proposed.

The Great Lakes Engineering Works is proceeding against A. B. Mackay, of Hamilton, Ont., in the Admiralty Court at Detroit, Mich., for \$21,000 for shortening and repairing the s.s. E. M. Peck, purchased by him after damage done to the vessel by boiler explosion in 1913. After the purchase, it was found advisable to reduce the length of the vessel to Welland canal size, and it is now considered that the charges are too high. The name of the vessel was recently changed to Malton, and she is now owned by A. E. Mathews, Toronto.

The Minister of Public Works, replying to questions in the House of Commons, Apr. 3, stated that since Jan. 1, 1913, the work done on the French River improvements consisted of the construction of the Little Chaudiere dam, in connection with which the rock excavation, camp equipment and surveys had cost \$101,067.34. The contractors are Jennings and Ross, and \$3,460 has been paid them for work on the substructure of the Big Chaudiere dam, the contract for the superstructure of which has not been let.

The Reid Wrecking Co., Sarnia, is reported to have sold the s.s. Matoa to Boston, Mass., parties, for the coast trade. It is said that a condition of the sale is that the vessel be cut in two for passage through the canals, and that this is being done at the Sarnia dry dock. The Matoa was built at Cleveland, Ohio, in 1890, and was formerly owned by the Pittsburg Steamship Co., Cleveland. She was wrecked during the storm of Nov. 1913, at Point aux Barques, abandoned by the owners, and subsequently salvaged by the Reid Wrecking Co., by whom she was repaired.

Lake Commerce, Ltd., Toronto, has acquired the s.s. Arabian, formerly owned by Canadian Lake Transportation Co., and latterly operated under J. W. Norcross' management. She was built at Hamilton, Ont., in 1892, and is a steel vessel with double bottom for water ballast, with wooden sheathing on the steel bottom. She is equipped with fore and aft compound engines with cylinders 20 and 40½ by 34 ins., 400 i.h.p. at 80 r.p.m., supplied with steam from one Scotch boiler 11¼ by 10¼ ft. at 107 lbs. pressure. Her dimensions are, length 178½ ft., breadth 31 ft., depth 13½ ft.; tonnage, 1,073 gross, 770 register.

The Owen Sound Board of Trade has not succeeded in its effort to get the C.P.R. to increase its vessel service at that port. George Bury, Vice President, C.P.R., was in Owen Sound recently and received a deputation on the subject. He has since communicated with the Chairman of the Board of Trade, stating that the company could not send another vessel there without interfering with the through passenger traffic. The Board of Trade has since invited Jas. Playfair, President and General Manager, Great Lakes Transportation Co., to visit the port and look over the situation, with the view of that company's vessels making calls there. Mr. Playfair is reported to have stated that if the company were guaranteed 250 tons of freight a week, a vessel would call there each week during the season.

### Manitoba, Saskatchewan and Alberta.

J. D. McArthur Co., contractors for the construction of the Alberta and Great Waterways Ry., will, it is said, build a large number of scows at Athabasca Landing this season, to convey supplies eastward for railway construction, by way of the Athabasca River.

The Peace River Tramway and Navigation Co. proposes to build a steamboat at Peace River Crossing, Alta., during the summer, to

run to Vermillion Rapids, where a tramway is to be built. The dimensions of the vessel will be, length 165 ft., breadth 35 ft., and she will be equipped with engine of 800 n.h.p. Accommodation will be provided for 110 cabin passengers and about 300 tons of freight.

The s.s. Qu'Appelle, which was formerly operated on Last Mountain Lake, Sask., by Wm. Pearson Co., Ltd., Winnipeg, but which has not been in service since 1913, will not be in service this year, unless the ending of the war and the consequent improvement in local business make it advisable. The increased railway service in the neighborhood formerly served by this vessel has made the venture less profitable than before.

### British Columbia and Pacific Coast.

The Dominion Government hydrographic steamship Lillooet has been overhauled and repaired at Esquimalt in readiness for her summer work along the coast.

The construction of the Grand Trunk Pacific dry dock at Prince Rupert is progressing rapidly, and it is reported that the work will be sufficiently advanced to take care of vessels early in June, and that it will be completed by the end of the year.

B. C. Mills Tug and Barge Co., Ltd., has been incorporated under the British Columbia Companies Act, with \$150,000 capital, and office at Vancouver, to own and operate steam and other vessels, and to carry on a general shipping and shipbuilding business.

A Dawson, Yukon, telegram of April 19 said the ice in the Yukon River was breaking up, the earliest date recorded, and that the river was open from Whitehorse, the head of navigation, to Lake Labarge, 16 days earlier than in 1914.

The Grand Trunk Pacific Coast Steamship Co. has recently renewed the insurance on its vessels, paying rates, for the steamships Prince Rupert and Prince George, 5½% against 5% last year; for the s.s. Prince John, 11½% against 8½%, and for the s.s. Prince Albert, 12% against 9% last year.

The Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, which had been moored at Seattle, Wash., since the outbreak of war, was taken to Esquimalt towards the end of March to be drydocked for overhaul and general repairs, prior to re-entering service to northern ports.

In response to questions in the Senate, Apr. 3, it was stated that the Government had equipped 3 tugs, 4 dredges and 1 rock breaker, on the Pacific Coast, with apparatus for burning fuel oil, at a cost of \$34,244. The approximate saving by this change is \$35,000, and there is an additional saving in operation which it was stated is difficult to estimate.

Despite the early breaking up of the ice in the Yukon River, White Pass and Yukon Ry. officials are reported to have stated in Seattle, April 20, that navigation on that stream will not open up until June 1, the low stage of the water along the 50 mile stretch between Whitehorse and Lake Labarge make it inadvisable to start the boats ahead of the usual time.

The Grand Trunk Pacific Coast Steamship Co. has announced the withdrawal of the s.s. Prince John, and the discontinuance of the service from Vancouver to the Islands generally and Stewart. A fortnightly service to Massett and the Naas River is however being maintained, providing a weekly service between Vancouver and Prince Rupert in addition to that previously performed by the s.s. Prince George.

A motion to consider the expediency of authorizing the Vancouver Harbor Commis-

sioners to make bylaws for the imposition of tolls, rates, etc., other than those already authorized, and that such additional tolls and fees be retained by the commissioners and for part of their general revenue, came up for discussion in the House of Commons, Mar. 29, and Apr. 1, when the matter was dropped, the Minister of Marine not being prepared to proceed.

### Mainly About Marine People.

**Capt. M. McLeod**, a former harbor master at Vancouver, B.C., died there, Apr. 6.

**Sir William Price**, Chairman, Quebec Harbor Commissioners, has resigned, owing to pressure of private business.

**Capt. Allen McNabb**, who died at Vancouver, B.C., Apr. 6, was, for many years in C.P.R. service on its trans-Atlantic vessels.

**Alex. Elder**, founder of Elder, Dempster and Co., who died Jan. 25, left an estate of the gross value of £309,068 19s. 11d.

**James Ronan**, purser, Northern Navigation Co., died at Sarnia, Ont., Apr. 19. He had been in the company's service over 20 years.

**James Currie**, who died at Toronto, Mar. 31, aged 63, was one of the founders of the works there, now owned by Polson Iron Works, Ltd.

**A. A. Booth**, Chairman, Cunard Line, has been appointed chief organizer of the British Government's scheme to increase the output of war material.

**William Burrill**, who died at Yarmouth, N.S., Mar. 26, aged 74, was engaged in ship-building in the early days of sailing vessels, and latterly was in the ship outfitting business.

**W. F. Cloney**, heretofore General Agent, Canada Steamship Lines, Buffalo, N.Y., has been appointed General Agent at Rochester, N.Y., and has been succeeded at Buffalo, by **J. V. Foy**, heretofore General Agent at Chicago, Ill.

**J. W. Norcross**, Vice President and General Manager, Canada Steamship Lines, Ltd., placed the s.s. *Macassa* at the disposal of the Hamilton contingent of the 19th Battalion in training at Exhibition Park, Toronto, when they visited Hamilton, Apr. 10.

**B. R. Hepburn**, M.P. for Prince Edward, Ont., and formerly President of the Ontario & Quebec Navigation Co., prior to its absorption by the Canada Steamship Lines, has been renominated as the Conservative candidate to contest the riding at the next Dominion elections.

**J. S. Byrom**, who has been appointed Superintendent of Great Lakes Steamers, C.P.R., Port McNicoll, Ont., vice S. Buchanan retired, has been with the Canadian Pacific Steamships and allied lines for 26 years, for the last 14 of which he was port steward of the British Columbia Coast Service at Vancouver.

**W. Newman**, Works Manager, Polson Iron Works, Toronto, who superintended the construction of the Ontario Car Ferry Co.'s car ferry, Ontario No. 2, which was launched Apr. 3, was presented with a diamond ring by the officials and employes of the Polson Iron Works, the evening before the launching.

**G. M. Booth**, a director of the Booth Steamship Line, and other shipowning companies, Liverpool, Eng., has been appointed by the Secretary of State for War to take charge of the recently inaugurated committee which is to take the necessary steps to provide additional labor to ensure that the supply of munitions of war shall be sufficient to meet all requirements.

**Capt. Robt. McKay**, who died at Kingston, Ont., Apr. 17, aged 91, sailed on the Great

Lakes for several years, and subsequently lived at Fulton, N.Y., moving to Kingston a few years ago. His grandfather was a ship carpenter in the British Navy and came to Canada many years ago, working in the old ship yard at Point Frederick, where he helped to build warships for the war of 1812.

**Sam Buchanan**, who retires from C.P.R. service, May 1, after 34 years with that company, was born at St. Catharines, Ont., March 1853, and entered transportation service, Nov. 4, 1871, since when he has been to Mar. 17, 1881, brakeman and conductor, G.T.R., Point Edward, Ont.; June 10, 1881 to Apr. 15, 1885, conductor, C.P.R., Winnipeg and Brandon, Man.; June 17, 1885 to Mar. 31, 1890, General Foreman, Freight Department, C.P.R., Owen Sound, Ont.; Apr. 1, 1890 to Jan. 22, 1905, agent, C.P.R., Windsor, Ont.; Jan. 23, 1905 to June 16, 1908, Superintendent Terminals and Ferries, C.P.R., Windsor, Ont.; June 17, 1908 to Apr. 30, 1915, Superintendent, Upper Lake Steamship Service and Ferries, for the first four years at Owen Sound, and later at Port McNicoll, Ont. Mr. Buchanan will reside at Port McNicoll for a few months after which he will remove to Detroit, Mich.

### Regulations Respecting Examinations of Masters and Mates.

New regulations have been issued by the Government relating to the examinations of masters and mates of inland and coasting vessels, providing that a candidate must not be less than 19 years old, and must have served two years at sea, or must have served one year as mate of a passenger or freight steamship on the Great Lakes, while holding a certificate of competency as mate of a passenger steamship on inland waters. For master's certificate, a candidate must not be less than 21 years old and must have served three years at sea, one year of which he must have served as mate while holding a mate's certificate, or he must have served one year as master of a passenger or freight steamship on the Great Lakes, while holding a certificate of competency as master of a passenger steamship on inland waters. In addition to the qualification for mate, a candidate will be required to know how to act in case of stranding, to answer any questions respecting currents and aids to navigation, which the examiner may think proper to ask, to answer any other questions the examiner may think necessary to ask him concerning the duties of a master of the particular class of sailing vessel or steamship for which he desires a certificate. Service on the inland waters will not be accepted as qualifying for examination for coasting certificates, except under conditions specified in pars. 21 (b) and 24 (b) of the old rules and regulations.

### Suggested Deepening of the St. Lawrence River.

The report of the commission, consisting of E. E. Haskell, Dean of the College of Civil Engineering, Cornell University; V. W. Forneret, Superintending Engineer, St. Lawrence Ship Channel, and W. J. Stewart, Dominion Government Hydrographer, presented to Parliament recently, states that it would cost about \$487,361 to raise the level of the St. Lawrence River by a system of retaining dykes, and the damming of subsidiary channels. The level which has suffered most is that in Montreal harbor, due to various depletions, but mostly to dredging at St. Mary's Rapids. It is suggested that the water be backed up into Montreal harbor, and the level raised 2 ft. 7 ins., by the

obstruction of the river's outflow at suitable points. It is calculated that by raising the water 2 ft. at Lake St. Peter, it would be raised 19 ins. at Sorel, 11 ins. at Longue Pointe and 11 ins. in Montreal harbor. An additional rise in Montreal harbor and at Longue Pointe could be provided for by damming between the islands at the head of the lake. Another dam is suggested at Ile a Bague and Ile Bellegarde. The suggested dams with their estimated cost are as follows:

Rock filled dam, no. 3, Chenal du Castor (between Ile Castor and Ile du Pads), \$25,322.

Rock filled dam, no. 4, Chenal du Pads (between Isle du Pads and Ile St. Ignace), \$16,135.

Rock filled dam, no. 5, Chenal aux Ours (between Ile Madame and Ile aux Ours), \$13,107.

Rock filled dam, no. 7, Chenal Corbeaux (between Ile de Grace and Stone Island), \$23,222.

Rock filled dam, No. 9, Chenal des Barques (between Ile aux Barques and Ile au Moins), \$63,870.

Rock filled dam, at Pointe du Lac, at foot of Lake St. Peter, \$141,960.

Rock filled dam, at Repentigny, between Ile a Bague and Ile Bellegarde, \$203,745. Total, \$487,361.

The stretch between Lake St. Peter and Quebec offers considerable difficulties due to tides, etc., and further examination and tests will be made on portions of the route. There has been a lowering of the level at Lake St. Louis of 3.4 ins. due to diversion of water to the Chicago Drainage Canal, which also contributes to the lowering of the water at Montreal.

### Grain Overages and Shortages.

At various meetings held in the earlier part of the year, the matter of grain overages and shortages was dealt with by vessel owners on the Great Lakes generally, and certain clauses were approved, which were to be added to the bill of lading in shipping cargoes of grain. It was generally agreed that some change was necessary in the Canada Grain Act, to give effect to the various recommendations, and this has now been made. The amendments made provide that the inspector's certificate of grade, as well as the weigh master's certificate as to weight, shall be prima facie evidence of the facts contained therein; that no grain shall leave a terminal elevator without being officially weighed, and the official certificate shall be final, subject to re-investigation as provided for in sec. 120 of the Canada Grain Act. In explanation of the latter amendment, it was announced by the Solicitor-General, in the House of Commons, Apr. 5, that the effect would be to make the official weight certificate conclusive evidence as to weight, but that it would only apply where weigh masters were appointed and under the control of the Grain Commissioners, so that the eastern terminal elevators were not affected. Another amendment provides that certain portions of the act shall apply to all water carriers other than ocean carriers, making it clear that it applies to carriers between the western and eastern elevators, in so far as they carry western grain only.

The act was further amended by adding after sec. 120, the following:

"120a. The board shall also receive and investigate all complaints in writing, under oath, of any shortage in grain upon the delivery of same from an elevator to a vessel or from a vessel to an elevator, and shall have power to assess or apportion the loss arising from such shortage amongst the elevator operators, water carriers, and shippers having to do with

the said grain, and the finding of the board and such assessment or apportionment certified over the hand of a majority of the board shall be delivered or sent to all persons concerned in such finding, assessment or apportionment, and shall be final and shall be enforceable in any court of competent jurisdiction.

"120b. The board may make regulations governing the responsibility for and the disposition of shortages and overages of grain upon delivery of same from an elevator to a vessel, or from a vessel to an elevator, and may assess in such manner and in such amount as it may deem just and proper, contributions from elevator operators, water carriers and shippers, or from any of them, in favor of the board or otherwise, for the purpose of providing against such responsibility.

"Provided that nothing contained in this section shall limit the powers of the board under the preceding section."

In pointing out the importance of this amendment, the Solicitor-General gave a slight history of the case, stating that a conflict had arisen between the lake carriers and the western shippers, the elevators and lake carriers endeavoring to put into effect a form of bill of lading which would have turned back upon the shippers the entire responsibility for any shortages that might occur during transit from western to eastern elevators. Some of the companies have found themselves at the end of the year loaded with considerable loss by reason of shortages, arising from lesser weight being given to the carrier when he went to deliver this grain to the eastern elevator for transshipment to barges and thence to ocean vessels, than the weight given him by Government certificate out of the western elevator. Similarly other carriers had overages by the reverse process, the eastern weight being greater than the western weight. There has been a conflict of interests and efforts to bring the parties together have not met with final success. The intention of the amendment is to provide against two classes of case, the only ones that can arise, the first being where it is possible for the board to fix the responsibility for the shortage to, say, the western elevator operator, or the lake carrier; and the second, where no evidence is available to enable the board to fix the responsibility, which is a frequent occurrence. The amendment provides that the board must investigate complaints of shortage or overage, and gives power to determine who shall stand the loss of the shortage, or get the benefit of the overage. It may also assess loss against all the parties concerned, the scale of contribution being fixed consistent with the responsibility for the loss.

**Great Lakes Register**,—8¼ by 12 ins., leather covered. Great Lakes Register, Rockefeller Building, Cleveland, Ohio, \$25 a year including supplements, by subscription. The 1915 edition of this register has been issued to subscribers. It is published under the control of the lake underwriters, and is adopted by them as their official classification register, on which to base all rates of insurance for both hulls and cargoes. The rules for the classification and construction of steel, iron and wood vessels navigating the Great Lakes also have the approval of Bureau Veritas, and by arrangement the Great Lakes Register Committee can issue certificates of classification for overseas navigation to lake built vessels, the construction and equipment of which are suitable for such navigation. There is a complete list of all Canadian and U. S. vessels operating on the Great Lakes, with very full details of their construction and equipment, and varied information regarding shipbuilders and tonnage turned out of their yards, dry docks with their capacity and location, etc. The whole of the matter is arranged in very convenient form for quick and easy reference, which makes it indispensable to those whose business is concerned with the navigation of the Great Lakes.

## Telegraph, Telephone and Cable Matters.

Telegraph connection, over Dominion Government lines, was made with Fort McMurray, Alta., Mar. 25.

Preparations for the Association of Railway Telegraph Superintendents' annual convention, at Rochester, N.Y., June 22 to 24, are about completed.

G. D. Perry, General Manager, Great North Western Telegraph Co., returned to Toronto recently after a trip of inspection of the company's western offices, as far as Saskatoon, Sask.

The Great North Western Telegraph Co. has opened offices at Glenora, Langruth, Narcisse, Poplarfield, Wakopa, Man.; Rocky Inlet, Ont., and Mossbank, Sask., and has closed its offices at Lavoy, Alta.; Beaver, Berton, Brunkild, Enterprise, Methven Junc., Man.; Richmond, Que., and St. Gregor, Sask.

The Pacific Cable Board has reduced the charge per word from 58 to 50 cents on ordinary messages to New Zealand, Fiji and Norfolk Islands, and from 29 to 25 cents a word on deferred cables. For week end lettergrams, the charge has been reduced from \$2.90 to \$2.50 for 20 words, and from 15 to 13 cents a word for extra words.

Baron de Reuter, the head of Reuter's Telegram Co., the great news gathering organization, committed suicide, Apr. 19, at Reigate, Surrey, Eng., owing to despondency caused by his wife's death. The headquarters of the company, which were in France, were transferred to London, Eng., on the completion of the cable between England and France in 1851.

The Western Union Telegraph Co.'s gross revenue for 1914 was \$46,264,776, and net income \$5,371,394, after paying interest on funded indebtedness. Dividends paid amounted to \$3,988,886, the surplus being \$13,531,921 at Dec. 31. The assets are valued at \$135,586,383. The net revenue for the year was \$2,136,400 greater than in 1913, and it is stated that \$1,475,000 of this was due to the war.

## Among the Express Companies.

The Canadian Northern Ex. Co. has opened an office at Mossbank, Sask.

R. Stewart, Vice President and General Manager, Great Northern Ex. Co., was in Vancouver, B.C., at the end of March, inspecting the company's offices.

H. Coneybeare, a Canadian Ex. Co.'s driver, who, it was reported, decamped from Lindsay, Ont., a short while ago with a package of Home Bank bills, valued at \$3,000, was arrested in Edmonton, Alta., Apr. 2, with \$2,500 of the bills in his possession. He was taken back to Lindsay.

The Canadian Express Co.'s annual meeting was held at Montreal, April 19. The directors who were elected for the current year are: E. J. Chamberlin, Chairman of the Board; J. Pullen, President; F. Scott, Secretary-Treasurer; J. E. Dalrymple, H. G. Kelley, Hugh Paton.

The Canadian Ex. Co.'s returns for Nov., 1914, show charges for transportation \$252,264; express privileges \$124,940; operation other than transportation \$4,287; total operating revenues \$132,151; operating expenses \$128,240; net operating revenue \$3,910; express taxes \$4,000; operating income \$89; against \$254,305 charges for transportation; \$123,873 express privileges; \$7,242 operation other than transportation; \$137,673 total operating revenues; \$143,257 operating expenses; \$5,584 net operating revenue; \$2,850 express taxes; \$8,434 operating income for Nov., 1913.

## Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

Ohio Brass Co., Mansfield, Ohio, has issued a bulletin "Electric Railways, Mine Haulage and Power Transmission."

Canadian Car & Foundry Co., Ltd., G. T. Merwin, heretofore with the W. W. Butler Co., Ltd., Montreal, has been appointed to the Canadian Car & Foundry Co.'s sales staff.

The Fairmont Machine Co., Fairmont, Minn., announces a change of name to one more in keeping with its product, and also an increase of the authorized capital stock to \$1,000,000 to meet a demand of increasing business. The name will hereafter be Fairmont Gas Engine and Railway Motor Car Co.

The Ohio Brass Co., Mansfield, Ohio, has issued a folder, O-B Catenary Materials, giving illustrations of a number of installations, including Montreal & Southern Counties Ry. It is stated that the Chicago, Milwaukee & St. Paul Ry. has ordered approximately 100,000 O-B hangers for the second section of its new electrification and that it will use about 67,000 O-B type X strain insulators on both sections.

Mussens', Limited (in liquidation), Montreal, have issued a circular over the signature of W. H. C. Mussen, President, from which the following are extracts: "J. J. Robson, chartered accountant, of Montreal, who was recently appointed provisional liquidator, has, by order of the court, been appointed permanent liquidator to this company. The court has also granted our application to be allowed to continue the business for a period of six months. We feel able to demonstrate to our creditors that we will succeed in the efforts which will be put forward to reduce our stock, collect our open accounts and materially reduce overhead charges, with a view to getting into a position to reorganize and continue in business. While we are in liquidation, we are carrying on an active campaign for business, and we trust that we may continue to receive your support. We have a good connection throughout the country and all purchases made by us from now on will be paid for by the liquidator. We know that it will take some time to achieve the result at which we are aiming, but if we continue to receive the support of our principals as in the past, we are satisfied we can show good results and ultimately re-establish this business on its old footing. Since the liquidation proceedings were put into effect, we have been flooded with letters from the manufacturers, as well as from our customers, extending their hearty support and assuring us of their continued patronage. We, therefore, take this opportunity of thanking our friends for this evidence of confidence in us and in our ability to win out. We also desire to impress upon our customers the fact that we are carrying on business as usual, and that, although we were always pleased to receive their orders, we are now more anxious than ever to be favored with same. We ask our principals to continue the support which has been so freely given us in the past, and we ask our customers to give us an opportunity of supplying them with any material which they may require. All inquiries will be promptly attended to and orders will be filled without delay."

**Transportation Conventions in 1915.**

May 4-7.—Air Brake Association, Chicago, Ill.  
 May 12.—American Association of General Baggage Agents, Los Angeles, Cal.  
 May 17-19.—Railway Storekeepers' Association, Chicago, Ill.  
 May 17-20.—International Railway Fuel Association, Chicago, Ill.  
 May 19.—Association of Railway Claims Agents, Galveston, Tex.  
 May 19.—American Railway Association, Atlantic City, N.J.  
 May 18-21.—American Association of Freight Agents, Richmond, Va.  
 May 20-21.—American Association of Railroad Superintendents, San Francisco, Cal.  
 May 26-28.—Master Boiler Makers' Association, Chicago, Ill.  
 June 9-11.—American Railway Master Mechanics' Association, Atlantic City, N.J.  
 June 14-16.—Master Car Builders' Association, Atlantic City, N.J.  
 June 15.—Train Despatchers' Association of America, Minneapolis, Minn.  
 June 16.—Freight Claim Association, Chicago, Ill.  
 June 22-25.—Association of Railway Telegraph Superintendents, Rochester, N.Y.  
 June 23-25.—Association of Transportation and Car Accounting Officers, Niagara Falls, N.Y.  
 July.—American Railway Tool Foremen's Association.  
 July 14-17.—International Railway General Foremen's Association, Chicago, Ill.  
 Aug. 17.—International Railroad Master Blacksmiths' Association, Philadelphia, Pa.  
 Aug. 19, 20.—American Association of Railroad Superintendents, San Francisco, Cal.  
 Sept. 14-16.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.  
 Sept. 14-17.—Master Car and Locomotive Painters' Association of the United States and Canada, Detroit, Mich.  
 Sept. 21-24.—Railway Signal Association, Salt Lake City, Utah.  
 October.—American Association of Dining Car Superintendents.  
 Oct. 4, 5.—American Association of Traveling Passenger Agents, Boston, Mass.  
 Oct. 4-8.—American Electric Railway Association, San Francisco, Cal.  
 Oct. 5-7.—Railway Fire Protection Association, Chicago, Ill.  
 Oct. 13-15.—American Association of Railway Surgeons, Chicago, Ill.

Oct. 19-21.—Maintenance of Way and Master Painters' Association of the United States and Canada, St. Louis, Mo.  
 Oct. 19-21.—American Railway Bridge and Building Association, Detroit, Mich.

**Transportation Associations, Clubs, Etc.**

The names of persons given below are those of the secretaries unless otherwise stated:  
 Canadian Car Service Bureau—J. Reilly, Manager, 401 St. Nicholas Building, Montreal.  
 Canadian Electric Railway Association—Acton Burrows, 70 Bond Street, Toronto.  
 Canadian Freight Association (Eastern lines)—G. C. Ransom, Canadian Express Building, Montreal.  
 Canadian Freight Association (Western lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.  
 Canadian Railway Club—J. Powell, St. Lambert, Que. Meetings at Montreal 2nd Tuesday, each month, 8.30 p.m., except June, July, and August.  
 Canadian Society of Civil Engineers—C. H. McLeod, 176 Mansfield St., Montreal.  
 Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.  
 Central Railway and Engineering Club of Canada—C. L. Worth, 409 Union Station, Toronto. Meetings at Toronto, 3rd Tuesday each month, except June, July, and August.  
 Dominion Marine Association—F. King, Counsel, Kingston, Ont.  
 Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.  
 Engineers' Club of Montreal—R. W. H. Smith, 9 Beaver Hall Square, Montreal.  
 Engineers' Club of Toronto—R. B. Wolsey, 94 King Street West, Toronto.  
 Express Traffic Association of Canada—W. H. Burr, Chairman, Toronto.  
 Great Lakes and St. Lawrence River Rate Committee—James Morrison, Montreal.

Hydro-Electric Railway Association of Ontario, T. J. Hannigan, Guelph, Ont.  
 International Water Lines Passenger Association—M. R. Nelson, New York.  
 Niagara Frontier Summer Rate Committee—James Morrison, Montreal.  
 Nova Scotia Society of Engineers—A. R. McCleave, Halifax, N.S.  
 Quebec Transportation Club—A. F. Dion, Quebec.  
 Ship Masters' Association of Canada—Capt. E. Wells, 45 St. John Street, Halifax, N.S.  
 Toronto Transportation Club—W. A. Gray, 143 Yonge Street, Toronto.  
 Western Canada Railway Club—Louis Kon Box 1707, Winnipeg. Meetings at Winnipeg, 2nd Monday each month, except June, July, and August.

**Ontario Jockey Club**  
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**Spring Meeting**  
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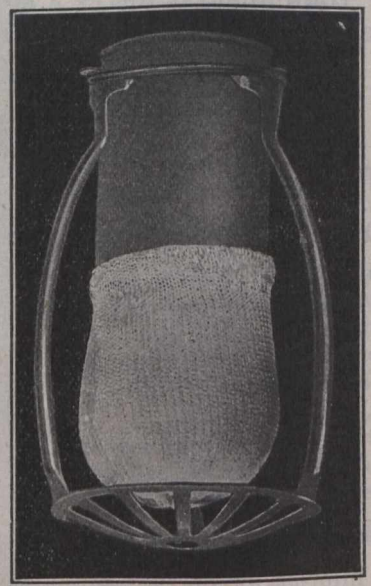
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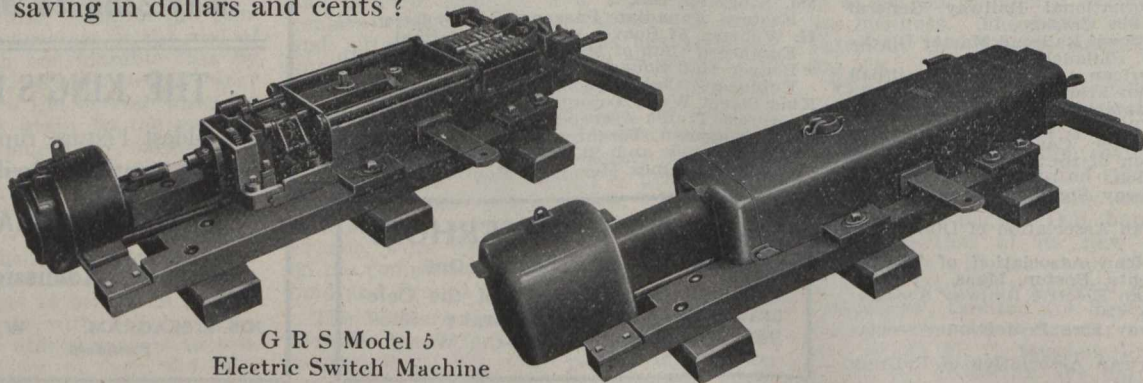
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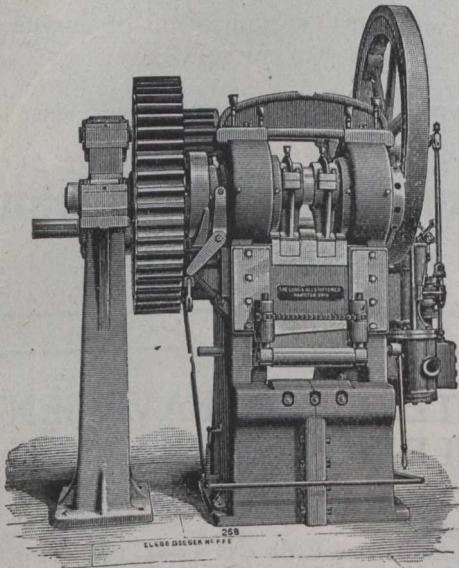
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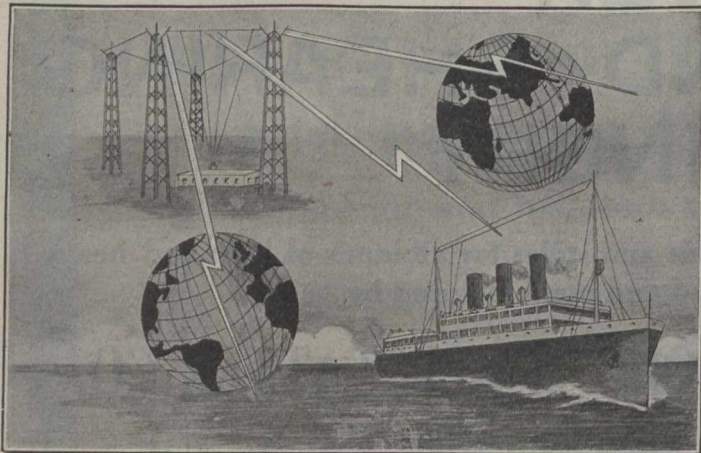
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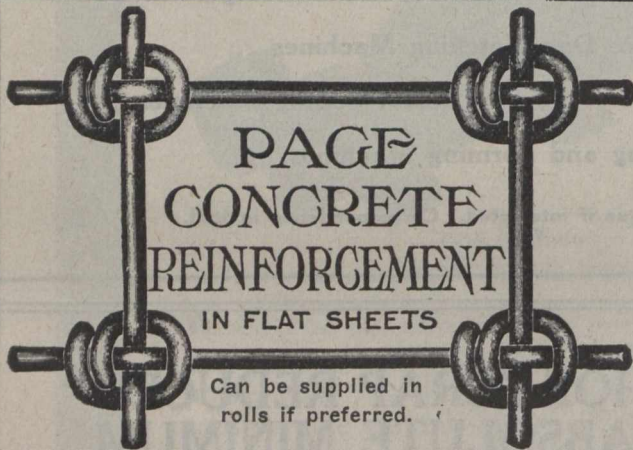
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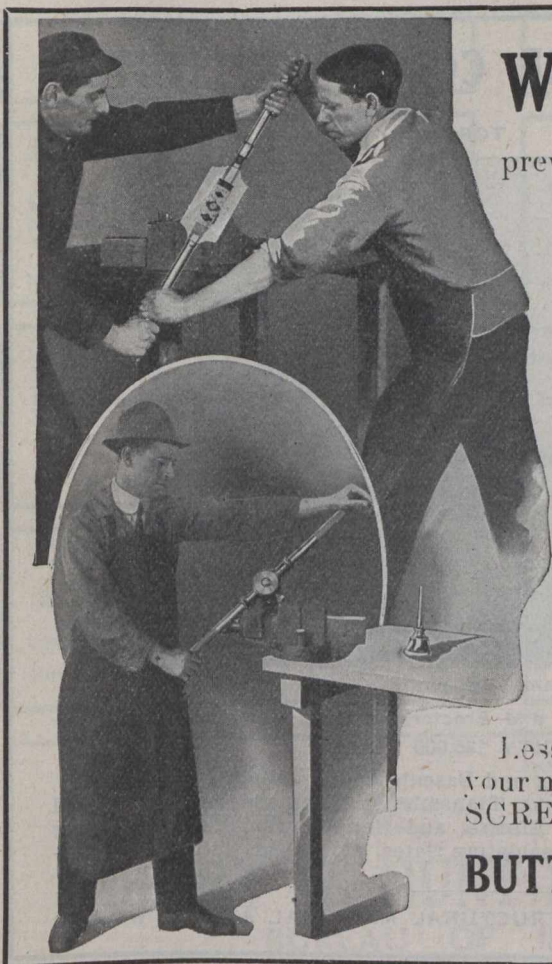
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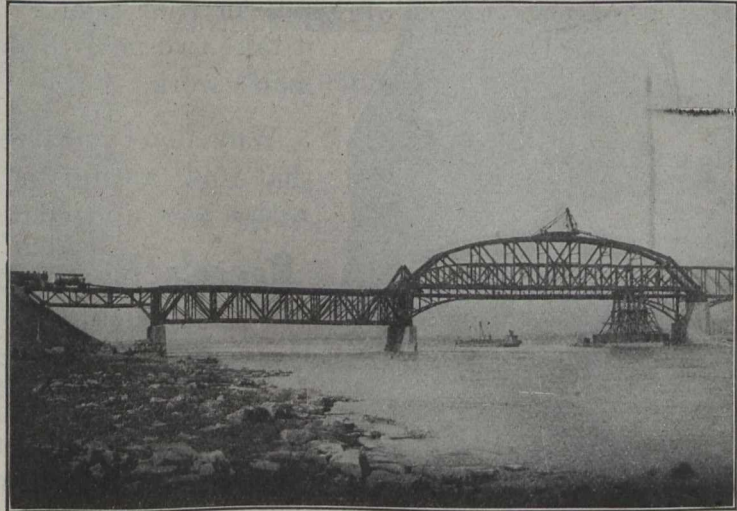
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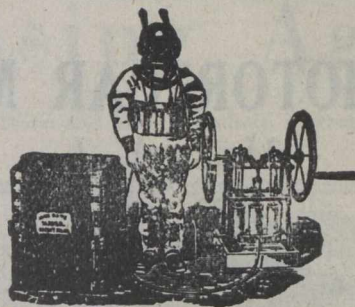
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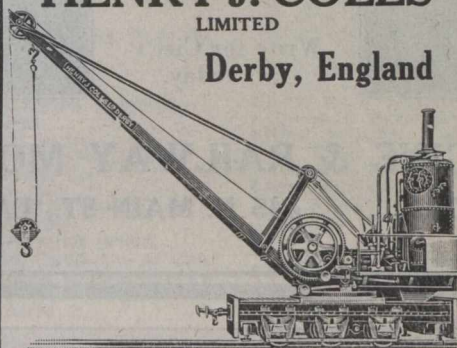
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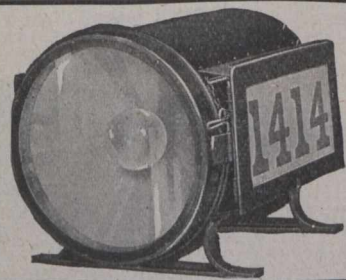
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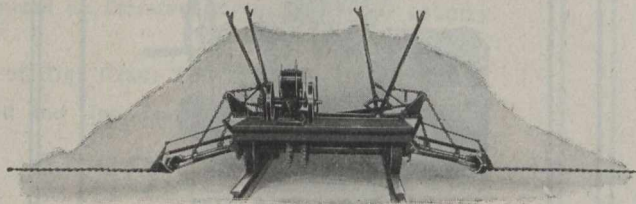
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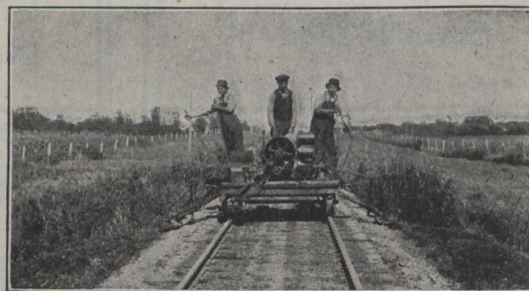


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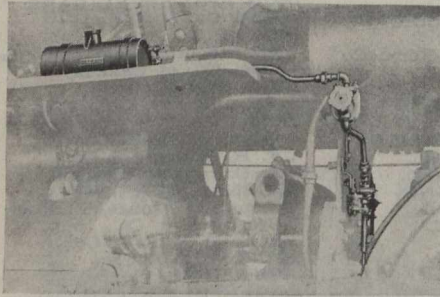
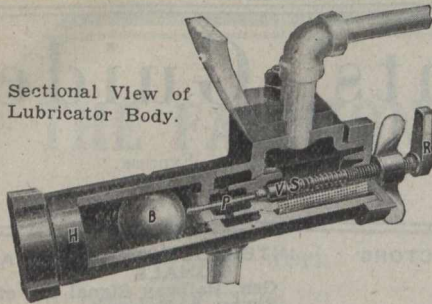
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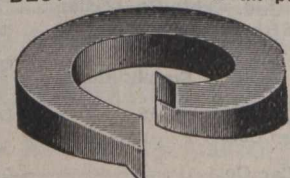
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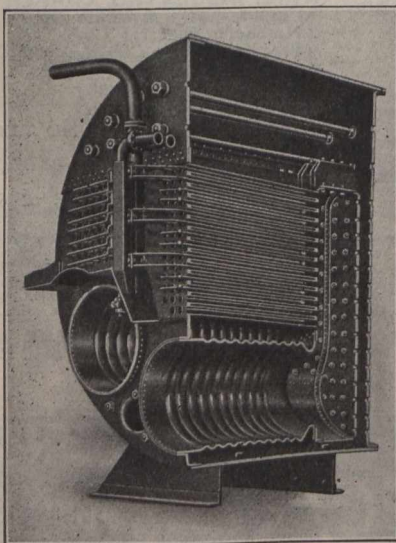
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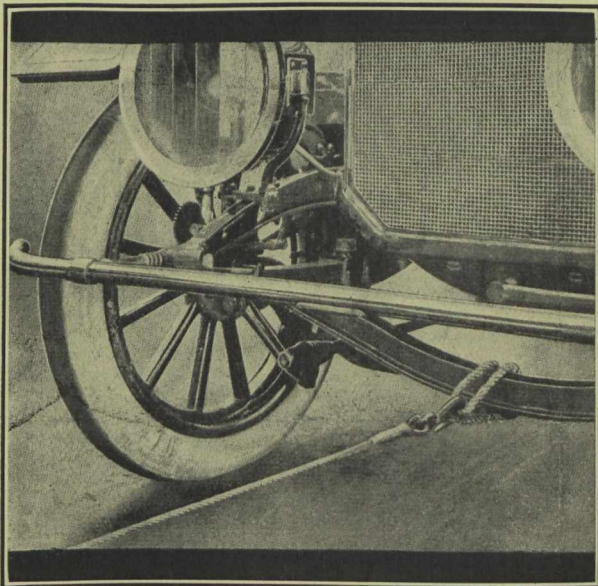
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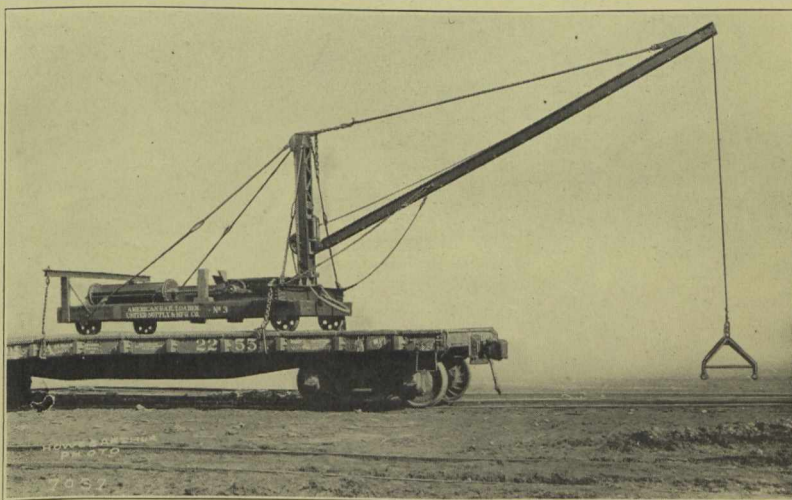


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