ONTARIO NORTHLAND DIARY

CANADIAN TRANSPORTATION 1936-1960

C. H. RIFF

act is in force, duly appointed part 1 of the fied physician, c. 11 provides ior so shipped, shall bear in label containaddress of the ige and of the ge is to be dec and quantity the package. enforcement of $20 nor more e, under secs. force in every h the Canada xcepting Halind Richmond the act comes n of the exist-

following the inion Atlantic succeeded the operated over to Yarmouth, uro, 57 miles; miles; and the ship Line, bed Digby, N.S., Boston, Mass. en over is 50. Boston, Mass., estern Express

charged by the telegraph companies operating in and out of Winnipeg set aside, was heard.

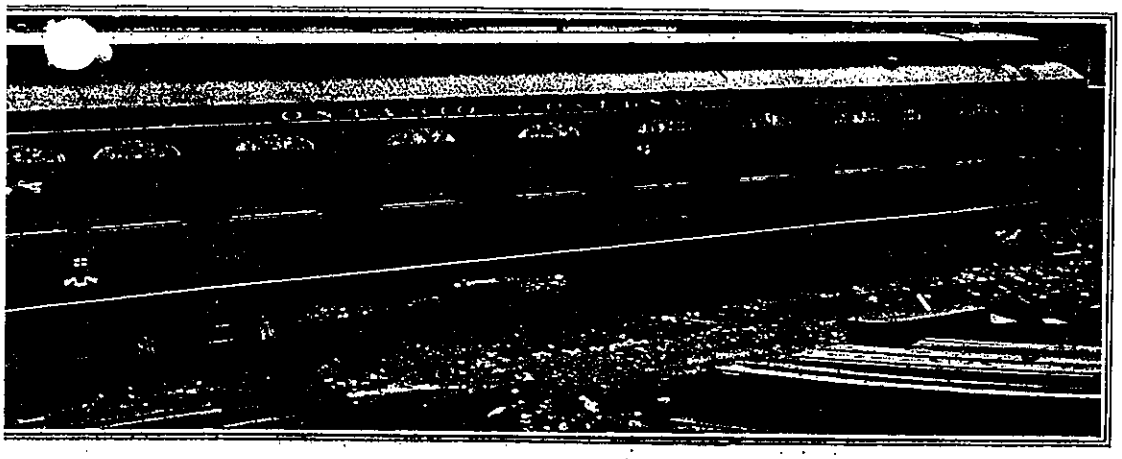
A. B. Smith, Manager G.T.P. telegraphs, while in Fort William, recently, is reported to have said, that the telegraph lines between Fort William and Winnipeg, and between Lake Superior Jct., and Winnipeg, were completed. The line is also being erected westward, concurrently with the construction of the railway.

The Dominion Government has a staff of engineers engaged in locating a route for a telegraph line along the Skeena River to Stewart on the Portland Canal. It is stated that this connection for Stewart will follow up the Kitsumkalum valley, across the Naas valley to Alice Arm, and from thence to the Portland Canal and Stewart.

The Board of Railway Commissioners has approved Tariff C.R.C. 1, the local tolls, of the Anglo-American Telegraph Co. The rate is 25c. for 10 words and 2c. for each additional word, between the company's offices in Prince Edward Island, and also between P.E.I. and New Brunswick. The rates for press messages are 25c. for 100 words, and ¼c. for every additional word.

We are officially advised that the Dominion Wireless Telegraph Service has been transferred from the Department of Marine to the Department of Naval Service. The officials of the telegraph

The Pacific Cable Board's report for the year ended Mar. 31, shows that 115,663 messages were dealt with against 103,812 in the previous year, the number of words being 1,356,135 against 1,225,048. One of the increases was in press messages, due to the decrease in rates, as a result of the negotiations of the Imperial Press Conference held in London, Eng., last year. The chief increase, however, was in ordinary messages, amounting to about 10%. The total receipts were £111,723, with a credit balance of £17,956. The traffic receipts show an increase of £403, but owing to transfer delays, £2,211, which should have been credited to 1909-10, has had to be included in the current year's accounts. The report states that difficulties, largely geographical and climatic, with the land lines in Canada, have been spoken of in previous reports, after full consideration, the Board has come to the conclusion that much could be done to minimize these if it had in its own hands the working of the line between Bamfield and Montreal. It has, accordingly, entered into an agreement with the C.P.R. for a lease, exclusively, for five years, of a line between these points, which the company is to maintain in good condition, while the Board provides the working staff and retains such portion of the tolls as have hitherto been paid to the C.P.R. This arrangement, it is claimed will have several advantages,



Temiskaming and Northern Ontario Railway Commissioners' Official Car.

over has been . Co.'s Atlantic R. Vickers is Superintend- F. W. Bransbeen placed in y, and he will T. R. McKen- A. R. agents at all stations, re F. Fennell, has taken re J. H. Greig n, N.B., where appointed, and an exclusive ied, charge ster. Co.'s s., been Masters.

Matters.

Telegraph Co. omer, Durban, Pleasant Point andian, Carles- id Pelly, Sask. rd of Railway Winnipeg, Sept.

service, are, C. P. Edwards, Superintendent of Radio-telegraph Service, Ottawa, and E. J. Haughton, District Superintendent of Radio-telegraph Service, Victoria, B.C. The latter has charge of the Pacific coast branch of the service, and reports to the Superintendent.

J. Kent, Manager C.P.R. telegraphs, and B. S. Jenkins, General Superintendent of Telegraphs, C.P.R. Western Lines, were in Vancouver recently, on an inspection trip. It was stated that the delay in the completion of the cable, which will improve the communication between Vancouver and Victoria, was due to manufacturers in the east being unable to ship material, owing to congestion of orders. It was, however, expected that the cable would be ready for operation by Oct. 1.

The Dominion Wireless Telegraph-Telephone Co., Ltd., has been incorporated under the Ontario Companies Act, with a capital of $40,000 and offices at Windsor, to deal in wireless telegraph and telephone instruments, to erect and operate wireless telegraph and telephone systems, and to conduct a general wireless telegraph and telephone business for hire. The provisional directors are:—J. Clark, A. Beckett, S. Anderson, Windsor;

keeping, at all times, a clear line for the Board's messages and allowing the adoption of the Continental system of operating, thus involving less risk of error in transmission than the American system.

Grain Elevator Notes.

The Brown Brothers Elevator Co., has been incorporated under the N.W.T. Companies Ordinance, with a capital of $10,000 and offices at Regina, Sask.

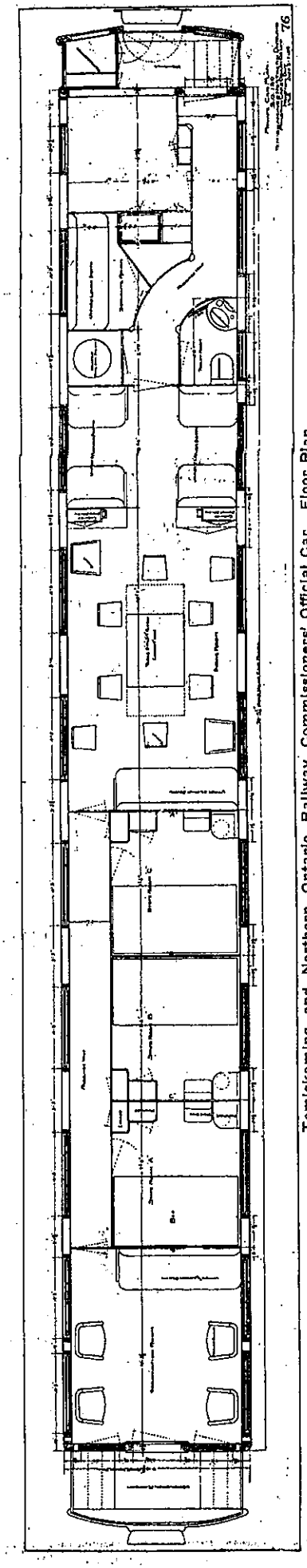
The Dominion Premier is reported to have stated, while on his western tour, that the Government would build an elevator at Prince Rupert, B.C.

The Alberta-Canadian Elevator Co. is reported to have leased a storehouse in New Westminster, B.C., while it is arranging to erect an elevator there.

The contract for the erection of a 200,000 bush. elevator at Sudbury, Ont., costing $135,000, is reported to have been placed with the Barnett and Record Co.

The Suplee Elevator Co., has been granted a license to do business in the province of Quebec, with its chief place of business at Montreal, and R. F. Ogilvie, as its principal agent.

October 1910



Temiskaming and Northern Ontario Railway Commissioners' Official Car. Floor Plan.

with chairs upholstered in green plush, and green leather in the smoking room. Each of the cars will have a library, free to the occupants, with the latest books, and the whole will be equipped with the most approved appliances for comfort and convenience.

The new dining cars which the G.T.R. has recently built at its Point St. Charles shops, for the International Limited, are equipped with six-wheel trucks, fitted with 38 in. Krupp steel tires and steel bolsters, steel platforms with standard wide vestibules, high speed air brakes and air signals, heated with straight steam from the locomotive and with cooking ranges. They are lighted by electricity, and the dining rooms are finished in African mahogany, with accommodation for 30 diners in each. The kitchens are equipped with the most improved devices for expeditious service, and special arrangements have been made for a supply of water under air pressure. Following are the chief dimensions:—

Length over end sills	70′ 7″
Length over buffers	78′ 7″
Extreme width	**10′ 1½″**
Extreme height	14′ 6⅛″
Total inside length	69′ 10″
Length of dining room	32′ 6″
Width of dining room	8′ 8″
Length of kitchen	15′ 10″
Width of kitchen	6′ 7″

The Intercolonial Ry. is building, at its Moncton shops, N.B., one stores car with steel underframe, made by the Canadian Car and Foundry Co., Montreal, and six cabooses, of which the following are the chief particulars:—

Stores Car.

Length over end sills	41′ 0″
Width over side sills	9′ 1⅝″
Height, top of sills to under side of plates	7′ 9″
Length inside	40′ 2⅜″
Width inside	8′ 6″
Outside of end sill to centre of body bolster	5′ 6″
Centre to centre of cross frame tie timber	9′ 0″
Height, top of rail to centre of drawbar	2′ 10½″
Wheel base of truck	5′ 6″
Door openings	3′ 0″
Distance between truck centres	30′ 0″
Underframes	Steel
Truck bolsters	Simplex
Journal boxes	McCord
Air brakes	Westinghouse

Six Cabooses.

Length over platform sills	35′ 6″
Length over nailing strips on end sills	30′ 0″
Width over nailing strips on side sills	9′ 0″
Height, top of nailing strips to under side of plates	6′ 8″
Length inside	29′ 6¼″
Width inside	8′ 6⅛″
Height inside, top of floor to under side of carlin	7′ 1¼″
Outside of end sill to centre of body bolster	5′ 0″
Centre to centre of cross frame braces	6′ 4″
Height, top of rail to centre of drawbar	2′ 10½″
Wheel base of truck	5′ 0″
Door opening, side	2′ 10″
Door opening, end	2′ 3″
Distance between truck centres	20′ 0″
Platforms	Standard Coupler Co.
Journal boxes	McCord
Air brakes	Westinghouse

The Temiskaming and Northern Ontario Ry. has added to its rolling stock a private car, named Sir James, which has been built by the Preston Car and Coach Co., Preston, Ont., for the use of the members of the Commission. It is unique, and is said to be the first of its kind, either built or used, in Canada. The underframe is entirely of steel, the centre member being a box girder, composed of two 20 in. channels, extending continuously from buffer beam to buffer beam, boxed top and bottom, with ½ in. by 20 in. steel. The draft gear is encased in the end of the box girder. On the side framing, which is of structural steel cased with wood, is a steel plate, extending continuously from end to end of the car, and from the outside sill to the sash stool. On the top of this is rivetted a compression member of ⅝ in. by 6 in. steel extending from end to end of the car body. There are no under

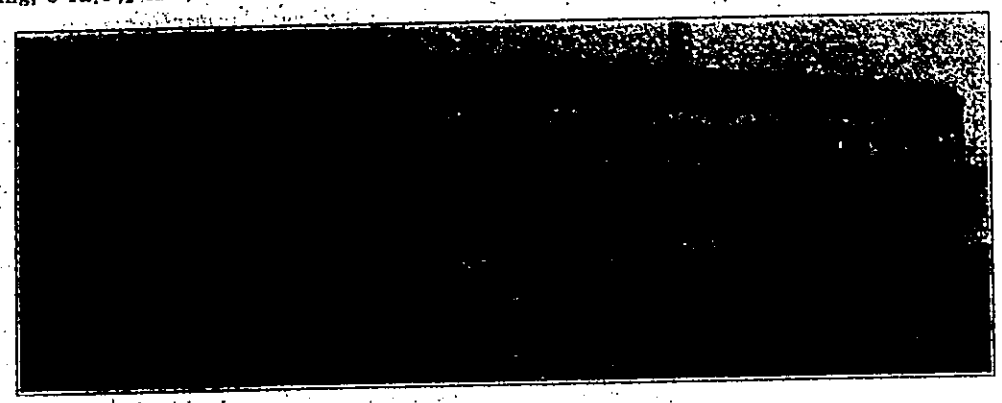
Oct 1910

October 1910

Electric Railway Department

Interurban Passenger Cars on Nipissing Central Railway.

The two interurban cars for the Nipissing Central Ry., which were described preliminarily in Canadian Railway and Marine World for June, have been delivered, and a floor plan and exterior of one of them are given herewith: They have a total seating capacity of 52 in the three compartments. Following are some of the principal dimensions: Length over buffer, 51 ft.; over vestibules, 50 ft.; over body, 40 ft.; centre to centre of trucks, 28 ft.; width over sheathing, 8 ft. 9½ ins.; aisle width, 1 ft. 10 ins.; height from rail to underside of side sills, 3 ft. 1 in.; height from rail over roof, 12 ft. 4 ins.; height from floor to top of window sill, 2 ft. 5 ins.; and height from vestibule platform to floor of car, 10 ins.



Exterior View of Interurban Car, Nipissing Central Railway.

The underframing is of steel throughout, comprising essentially two centre sills of 7 in. 17½ lb. I beams spaced 12½ in. centres, extending from end sill to end sill, with a ¼ in. cover plate top and bottom, extending from bolster to bolster, and two side sills of 6 by 3½ by 7-16 in. angles extending from end sill to end sill, with a 3-16 in. truss plate, 30 ins. deep, extending from end sill to the baggage door post, with the side sills under the baggage door reinforced by a 6 by ⅝ in. plate, 9 ft. long. Pine side sills resting on the short flange of the steel side sill, are bolted to the latter. The end sills are built up of a 9-by ⅜ in. steel plate, having a 6 by 3½ by 7-16 in. angle along the bottom outer face. The wooden end sills are of oak. The side and centre sills are tied with 4 in. 6¼ lb. channels at each side of each bolster, and braced diagonally each side of the bolster with 4 in. channels. There are 5 intermediate cross bearers of 4 in. 6¼ lb. channels, evenly spaced, and two crossbearers of 4 in. 7½ lb. I beams, located 4 ft. each side of the car centre line, extending beneath the sill.

The vestibule platform is dropped 10 ins. below the car level, the side sill knees being 3-16 in. plate 12 ins. deep at the end sill plate, reinforced top and bottom with 2 by 2 by ¼ in. angles, and secured to the underside of the sills. The centre sill knees are two 6 by 3½ by 7-16 in. angles, extending from the bumpers to 4 ft. back from the body bolster. The bumpers are 6 in. 8 lb. channels, bent to the contour of the vestibule end, and with the top bevelled back at 45 degrees and covered with sheet iron.

The flooring is of 1 by 2½ in. yellow pine, laid longitudinally with a special mat surface. The platform flooring is hard maple, ⅞ by 2½ in. The floor has trap doors. The body posts are of ash 2½ ins. thick. The car roof is of the single arch type, supported on 14 steel carlines, 1¾ by ½ in., with intermediate ash carlines at 10 in. centres. The roof boards are ½ in. thick, covered with no. 8 canvas.

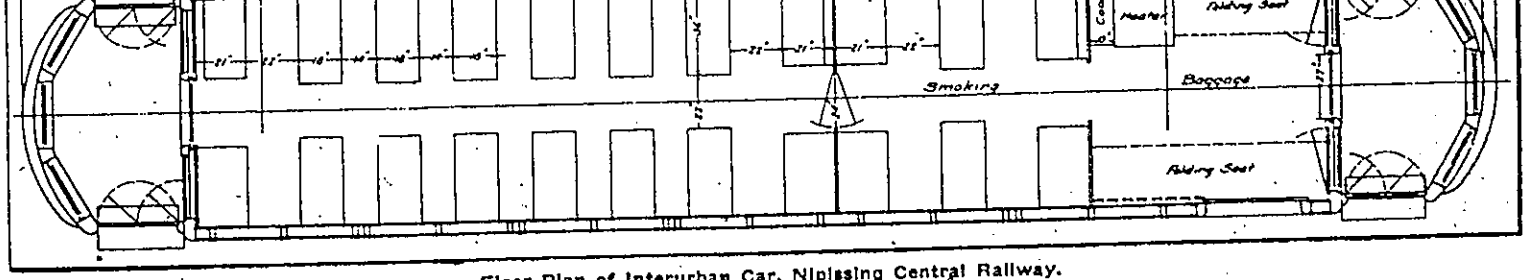
There is a 24 in. swinging door between the general and smoking compartments, and a single sliding door in each bulkhead. The vestibule doors are folding, in two parts, hinged against the bulkhead, and fitted with automatic folding apparatus. The car steps are 36 ins. wide, double at each door, the lower one with a 10 in. tread, and the upper one with a 9 in. tread, with 10 in. risers. There are 14 reversible seats, 36 ins. long, on a single pedestal and spring upholstered in rattan. There are also 8 stationary cross seats of similar construction, and two folding seats, one along each side of the baggage compartment.

The heating is provided for by a forced draught heater in the baggage compartment, and there are 10 ventilators, five on each side of the roof. The equipment also includes destination signs, signal bells, hand straps, fare register, arc headlight, signal whistles, etc. The car lighting is by two rows of pendant lights along the ceiling with a 3 lamp cluster in each vestibule.

The air brake equipment is the Westinghouse A.M.M. type, supplied by a D.I.E.G. compressor with a 600 volt motor. It has a type J governor, M. 15 D brake valves, B 6 feed valves, M 1 triple valve, a type R, 10 by 12 in. brake cylinder, B 3 conductor's valves and 3½ in. air gauges illuminated by a 6 volt lamp. There is also a geared hand brake equipment at each end of the car.

The trucks are Brill 27 M.C.B. type, with a 6½ ft. wheel base. The wheels are 33¼ ins. diam., steel tired with retaining rings, and with cast steel centres. The tires are 5 ins. wide by 3 ins. thick, and the axles have 4¼ by 8 in. journals. The motor equipment on these cars is the Westinghouse 306 double end control, with four motors, two on each truck, with a controller in each end of the car. The car is also equipped with an integrating wattmeter, rated at 600 volts, 400 amperes.

These two cars were built by the Preston Car and Coach Co., under order from the Timiskaming and Northern Ontario Ry. Commission, which also operates the N.C.R.



Floor Plan of Interurban Car, Nipissing Central Railway.

Saskatoon Municipal Ry. Operating Results.

The financial statement of the city of Saskatoon, Sask., for the ten months ended Oct. 31, contains the following, covering the operations of the municipal railway and of its extension to Sutherland, operated under an agreement with the council of that town:—

Saskatoon Municipal Railways.	
Cash fares	$73,468.13
Ticket sales	44,683.87
City departments	783.31
Chartered cars	269.55
Advertising	1,829.84
Rents	110.06
Miscellaneous	484.33
	$121,627.02

Superintendence of way and structures	$ 721.36	
Maintenance of way	3,021.73	
Maintenance of electric lines	964.73	
Maintenance of buildings and fixtures	496.57	$ 5,194.39
Superintendence of equipment	565.84	
Maintenance of cars and locomotives	3,890.52	
Maintenance of power equipment	60.64	
Maintenance of electrical equipment of cars and locomotives	1,370.30	
Miscellaneous equipment expenses	3,849.13	9,739.43
Traffic expenses		914.84
Superintendence of transportation	2,091.97	

Act, 1919, for approval of its Standard Freight Mileage Tariff, C.R.C. no. 646.

Michigan Central Cheese Rates.

30,920. April 23.—Re application of Michigan Central Rd. for permission to publish, on one day notice, revised rates on cheese from stations in Canada to the Atlantic seaboard, for export. Upon it appearing that an error has been made in the publication of commodity rates on cheese, by transposition of the rates for carloads, and less than carloads, and immediate correction being necessary, in order to give effect to the proper rates, the Board orders that the company be permitted to publish a supplement to its tariff C.R.C. 3003, so as to give effect to the proper rates on cheese; the said supplement to be made effective upon one day notice.

Railway Rolling Stock Orders and Deliveries.

The Timiskaming & Northern Ontario Ry. is in the market for several cabooses.

The estimates for the year ending Oct. 31, 1922, submitted to the Ontario Legislature recently, include $150,000 for two mikado locomotives.

The four switching locomotives which the Railways and Canals Department has ordered from Montreal Locomotive Works, as mentioned in our last issue, will be used in construction work on Welland Ship Canal.

W. W. Butler, President, Canadian Car & Foundry Co., and W. H. Woodin, a director of that company and President, American Car & Foundry Co., are in England, endeavoring to close a large equipment order with British interests, for the two concerns.

Canadian National Rys., between Mar. 5 and Apr. 9, received the following rolling stock; 140 stock cars, completing an order for 350; 17 sleeping cars, completing an order for 18, and 20 baggage cars, completing an order for that number, from Canadian Car & Foundry Co.

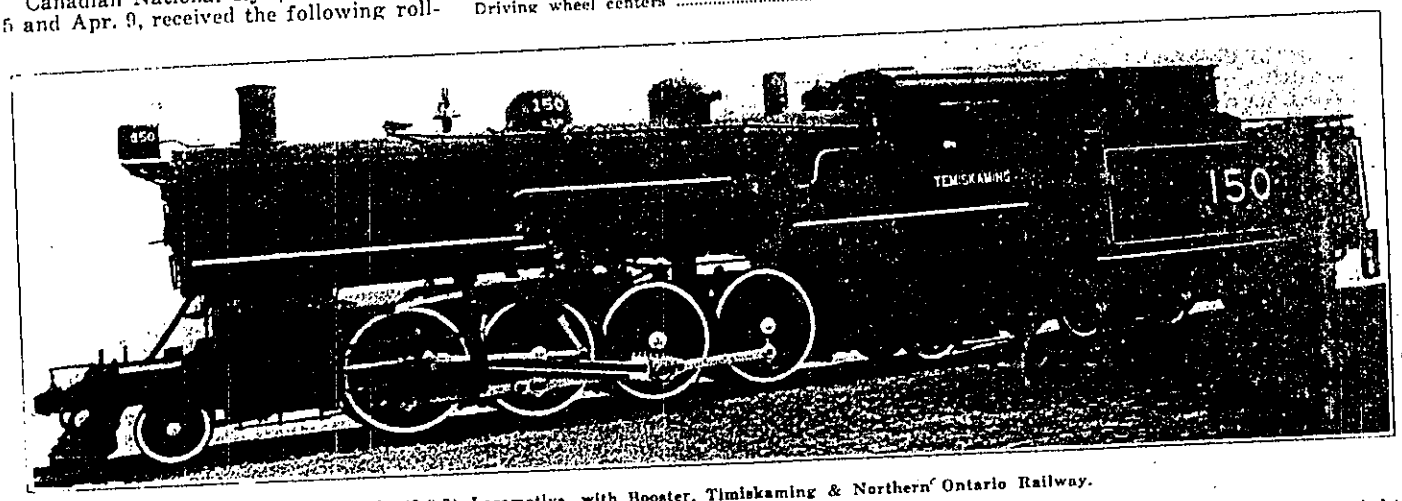
The G.T.R., during February and March, received the following additions to rolling stock: 7 switching locomotives from its Montreal shops; 840 automobile cars, 80,000 lb. capacity, and 50 baggage and express cars, from Canadian Car & Foundry Co.; and 42 automobile cars, 80,000 lb. capacity, from American Car & Foundry Co.

The C.P.R., between Feb. 11 and Apr. 13, received the following additions to rolling stock: 84 automobile cars and 160 refrigerator cars from its Angus shops, Montreal; 790 steel frame box cars from Canadian Car & Foundry Co., Fort William, Ont.; 250 steel frame box cars from National Steel Car Corporation; and 218 steel frame box cars from Eastern Car Co.

The Canadian Car & Foundry Co., between Mar. 14 and Apr. 12, delivered the following rolling stock: From Montreal, 13 sleeping cars and 18 baggage cars, to Canadian National Rys.; and 20 baggage express cars and 714 automobile cars to G.T.R.; from Fort William shops, 357 box cars to C.P.R.; and from Amherst shops, 200 trucks to Reid Newfoundland Co.

The Timiskaming & Northern Ontario Ry. has received 4 mikado (2-8-2) locomotives from Canadian Locomotive Co. One of them is equipped with a booster, a description and illustrations of which were published in Canadian Railway and Marine World for Dec., 1920, and an illustration of the completed locomotive is given on this page. The chief particulars are as follows:—

Weight on drivers	197,000 lb.
Weight, total	258,000 lb.
Wheel base of engine, rigid	16 ft. 6 in.
Wheel base of engine, total	34 ft. 8 in.
Heating surface, firebox	208 sq. ft.
Heating surface, tubes	3,016 sq. ft.
Heating surface, total	3,224 sq. ft.
Driving wheels, diar.	63 in.
Driving wheel centers	Cast steel
Driving journals, diar and length	Main 10 x 13 in. Others 9 x 13 in.
Cylinders, diar. and stroke	25 x 30 in.
Boiler, type	Radial stayed
Boiler, pressure	180 lb.
Tubes, no. and diar.	202 2 in.; 32 5¾ in.
Tubes, length	20 ft.
Brakes	Westinghouse
Superheater, Locomotive Superheater Co.'s type	A
Weight of tender loaded	143,000 lb.
Water capacity	6,500 imp. gal.
Coal capacity	12 tons
Tender truck, type	4 wheel equalized
Wheel, type	Rolled steel
Wheel, diar.	33 in.
Journal, diar. and length	M.C.B. 5½ by 10 in.
Brake beam	Trussed type



Mikado (2-8-2) Locomotive, with Booster, Timiskaming & Northern Ontario Railway.

Rolling Stock Ordered for Government Railways, Etc.

The following, evidently officially inspired, press dispatch was sent from Ottawa April 5:—"If Canadian railways have not been able to handle all Canada's freight requirements in 1918, 1919, and 1920, it is not the fault of the Dominion Government. Orders were given by the Government for delivery to the Canadian National Rys. in 1918 and 1919, and to the Canadian National-Grand Trunk Pacific and Grand Trunk Rys. in 1920, of 382 locomotives, costing $21,328,247; 21,463 freight cars, costing $65,710,094, and 331 passenger cars, costing $11,314,469; or $98,352,811 in all. All Canadian car building and locomotive works participated in this business, but some of the rolling stock was constructed outside trhe country for G.T.R. Western Lines. Most of this money, however, was spent in Canada.

"For delivery in 1918 the Government ordered for the Canadian National Rys. 185 locomotives, of all types, 21 passenger cars, and 8,715 freight cars, at a total cost of $36,217,998. For delivery in 1919 to the Canadian National, the Government ordered 50 locomotives, 3,037 freight cars and 260 passenger cars at a total cost of $18,718,820, and for delivery to the same road in 1920, 75 locomotives, 4,776 freight cars and 50 passenger cars, at a total cost of $22,058,272.

"The Government ordered for delivery in the same year to the Grand Trunk Pacific Ry. 37 locomotives and 860 freight cars, valued at $5,243,925, and to the Grand Trunk Ry. 35 locomotives and 4,075 freight cars, at a total cost of $16,113,795.

"The locomotives cost from $37,000 to $40,500 each, for switching locomotives, to $72,500 for the Santa Fe type obtained from Montreal Locomotive Works. Freight cars cost from $2,370 for flat cars, to $48,500 for a steel rotary snow plough, also obtained from the Montreal company. The passenger cars ranged from $24,000 for colonist cars to $49,348 for sleepers."

Particulars of these orders were, of course, given from time to time in Canadian Railway and Marine World, but it was not stated that the orders had been placed by the Government. The Minister of Railways is constantly reiterating that the Government does not interfere in the management of the Canadian National Rys., etc., and that the directors have a free hand. If that is the case, why should it be stated that the Government places the rolling stock orders? Does the Minister want to take the credit for popular things and to place the responsibility for others on the directors?

port of the British Columbia Minister of Railways for 1920 states that during the year $542,832.69 was paid by the Government from the proceeds of the guaranteed terminal securities on account of work done on the terminals on the Vancouver Island and mainland water fronts. The estimated total cost of the terminals was $9,141,503.40, and the total amount of cash available from the securities issued was $9,403,843.12. The total amount earned up to Dec. 1920 was $7,353,906.19, of which $84,250.34 was being retained under the terms of the contract. The following table shows the distribution of these sums:—

Terminal work	Estimated cost	Cash available	Earned to Dec. 1920
Vancouver	$4,308,455.19	$4,268,363.21	$3,626,418.44
New Westminster	2,203,601.50	2,179,118.97	1,822,458.41
Port Mann	1,213,424.62	1,200,570.16	1,175,129.92
Steveston	353,988.39	349,996.73	296,892.54
Patricia Bay	209,908.29	208,008.39	204,304.68
Victoria	853,125.00	843,790.66	238,202.20

(May, pg. 247.)

Railway Rolling Stock Orders and Deliveries.

Canadian National Rys. have received 12 dining cars from Canadian Car & Foundry Co., completing an order for that number.

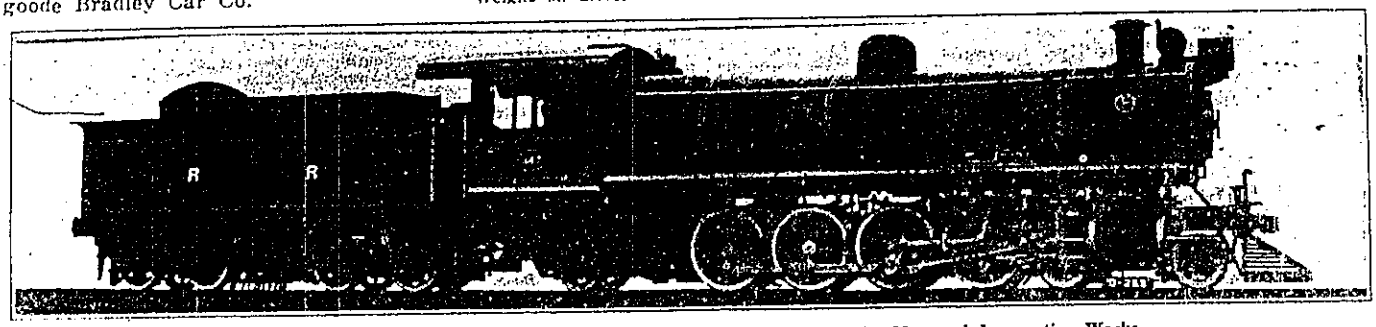
The G.T.R., between Apr. 11 and May 12, received 2 switching locomotives from its Montreal shops, 160 automobile cars, 80,000 lb. capacity, from Canadian Car & Foundry Co., 50 flat cars, 100,000 lb. capacity, from National Steel Car Co., and 4 express horse cars from Osgoode Bradley Car Co.

shops; and 2 box cars to C.P.R. from its Fort William, Ont., shops. The company reports an order from Toronto Transportation Commission for 100 motor cars and 60 trailer cars, as mentioned in our last issue.

The Timiskaming & Northern Ontario Ry. has received 4 Pacific (4-6-2) type locomotives from Canadian Locomotive Co., all equipped with boosters. Following are the chief details:—

Weight on drivers	155,000 lb.
Weight, total	252,000 lb.
Wheel base of engine, rigid	12 ft. 2 in.
Wheel base of engine, total	32 ft. 6 in.
Wheel base of engine and tender	69 ft. 3½ in.
Heating surface, firebox and arch tubes	217 sq. ft.
Heating surface, tubes and flues	2,716 sq. ft.
Heating surface, total	2,933 sq. ft.
Driving wheels, diar.	69 in.
Driving wheel centers	Cast steel
Driving journals	10 x 13 in.
Cylinders, diar. and stroke	23 x 28 in.
Boiler, type	Radial stayed
Boiler pressure	200 lb.
Tubes, no. and diar.	170—2¼ in.; 32—5½ in.
Tubes, length	18 ft. 8 in.
Injectors	Ontario
Safety valves	Coale
Brakes	Westinghouse American
Packing	Paxton-Mitchell
Superheater	Superheater Co.'s type A
Booster engine	Franklin Railway Supply Co.
Speed recorder	Boyer
Cab	Vestibule type, all steel
Weight of tender loaded	156,000 lb.
Tender capacity, water	6,500 Imp. gall.
Tender capacity, coal	12 tons
Tender, type	Water bottom, vestibule attachment
Truck, type	4 wheel, Commonwealth
Truck wheel, type	Steel-tired, cast steel center
Truck wheel, diar.	36 in.
Truck journals	5½ x 10 in.
Brake beams	Simplex high speed

Rhodesia Ry. Locomotives.—As stated in Canadian Railway and Marine World for Nov. 1920, the Rhodesia Rys., South Africa, ordered 12 mountain type (4-8-2) locomotives from Montreal Locomotive Works, which have been completed. These locomotives, an illustration of one of which is given herewith, are superheated, and equipped with brick arch, piston valves, outside valve gear, etc. The chief details are as follows:—



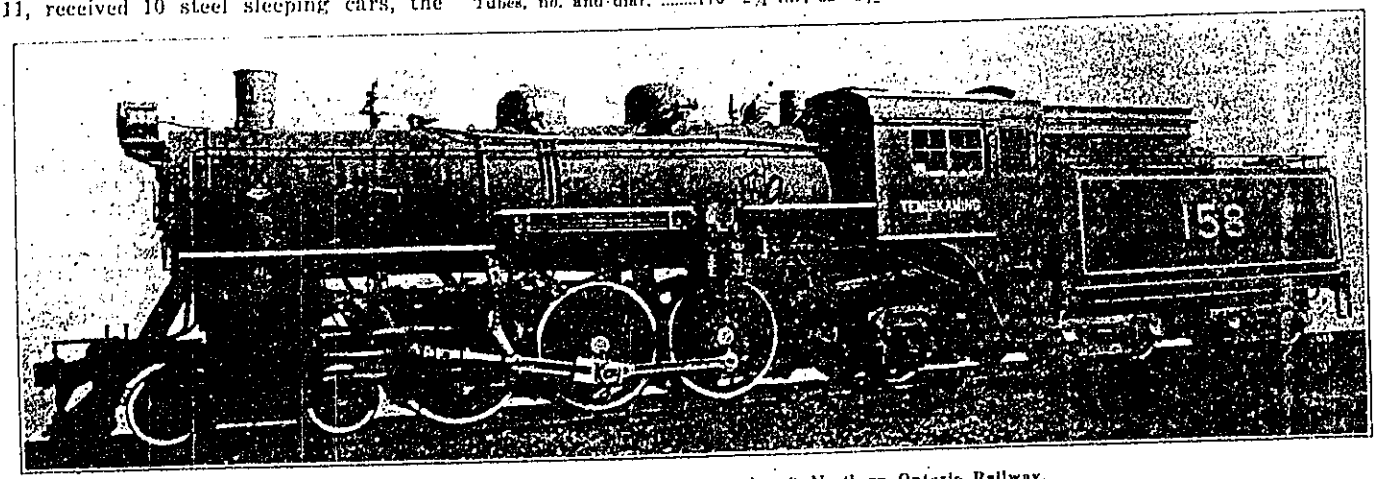
Mountain Type Locomotive, Rhodesia Railways, South Africa, built by Montreal Locomotive Works.

Gauge	3 ft. 6 in.
Fuel	Soft coal
Wheel base, driving	12 ft. 9 in.
Wheel base, engine	30 ft. 7 in.
Wheel base, engine and tender	56 ft. 10½ in.
Weight, engine	173,000 lb.
Weight, tender	108,000 lb.
Weight on drivers	119,000 lb.
Weight on leading truck	29,500 lb.
Weight on trailing truck	24,500 lb.
Boiler, type	Belpaire, straight top
Boiler, diam. inside first ring	65 in.
Boiler pressure	180 lb.
Firebox, length and width	80¾ x 62¾ in.
Tubes	129—2¼ in. diam; 26—5½ in. diam.
Tubes, length	18 ft. 9 in.
Heating surface, tubes	1,415 sq. ft.
Heating surface, flues	695 sq. ft.
Heating surface, firebox	137 sq. ft.
Heating surface, arch tubes	16 sq. ft.
Heating surface, total	2,263 sq. ft.
Superheating surface	589 sq. ft.
Grate area	35.2 sq. ft.
Maximum tractive effort	37,000 lb.
Factor of adhesion	3.22

The item of $150,000 in the estimates for the year ending Oct. 31, 1922, passed by the Ontario Legislature recently, as mentioned in Canadian Railway and Marine World for May, is for two additional Mikado locomotives for the Timiskaming & Northern Ontario Ry. We were advised recently that it had not then been actually decided to order these.

The C.P.R., between Apr. 14 and May 11, received 10 steel sleeping cars, the frames of which were built by Canadian Car & Foundry Co., and the cars finished at Angus shops, Montreal; 282 steel frame box cars from Eastern Car Co., and 2 steel frame box cars from Canadian Car & Foundry Co., Fort William.

Canadian Car & Foundry Co., between Apr. 15 and May 15, delivered the following rolling stock:—12 dining cars to Canadian National Rys., 38 tank cars to Imperial Oil Ltd. from its Montreal



Pacific Locomotive, with Booster, Timiskaming & Northern Ontario Railway.

miles an hour and the drawbar pull was 36,000 lb. The drawbar pull quickly increased to 43,000 lb. and speed was maintained at about an average of 8 miles an hour on the 0.8%, 1% and 0.75% portions of the grade until the booster was cut out 0.42 mile south of mile 105. When the booster was cut out, the drawbar pull dropped from 40,000 lb. to an average of 36,000; when the booster was again cut in, 0.42 mile south of mile 104, on the 1% portion of the grade, the drawbar pull increased from 37,000 to 42,000 lb., speed remaining constant for 0.6 mile at 10 miles an hour, but dropping to 9 miles an hour on the 6 degree 12 minute curve, while drawbar pull increased to 43,000 lb. at this speed. The train was thus handled into Cobalt without difficulty, by making the booster operative twice for short intervals on the hardest pulls. It will be noted that the line representing steam pressure in fig. 2 is straight. The reason for this is that mikado locomotive 150, in common with the others of its class used by the T. & N.O.R., and Pacific type locomotive 157, proved to be an exceptionally free steamer, so that no deviation of any importance from the 180 lb. boiler pressure was experienced.

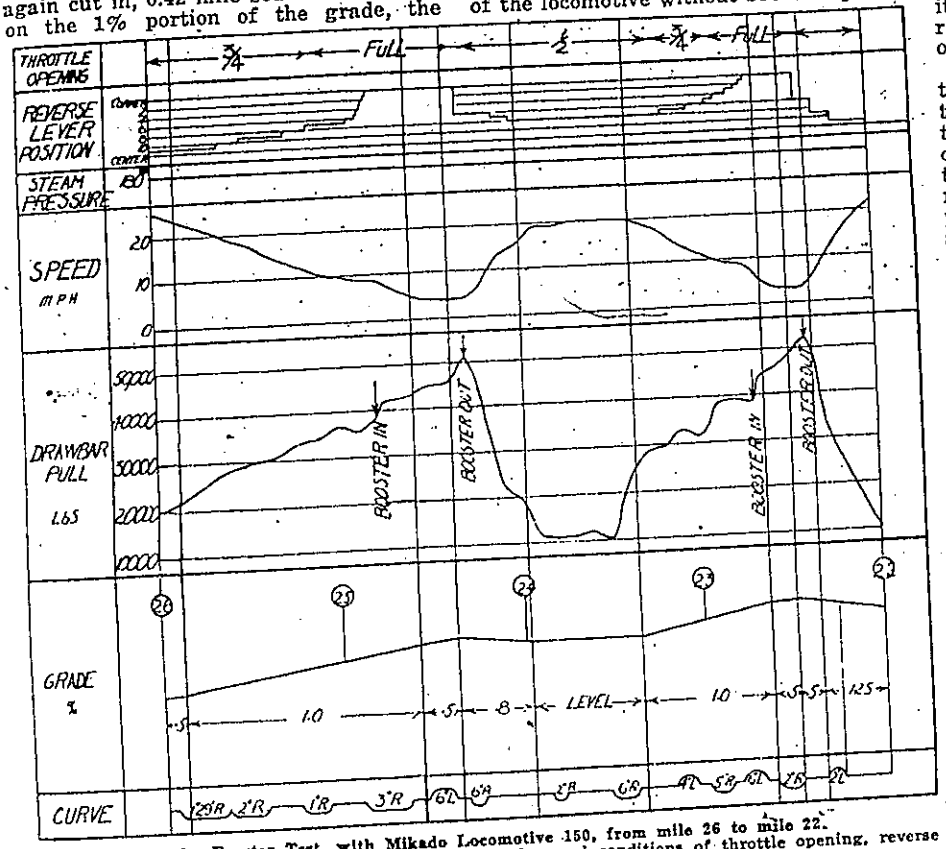


Fig. 3. Booster Test, with Mikado Locomotive 150, from mile 26 to mile 22.
Showing performance with booster cut in, on 1% grades, and conditions of throttle opening, reverse lever position, steam pressure, speed, drawbar pull, grade, and curve at all times.

Southbound, out of Cobalt, another load was switched into the train, making the actual tonnage 1,848, and adjusted tonnage 2,048 tons. Fig. 3 shows the results with this train, between miles 26 and 22. The booster was cut in 0.22 mile south of mile 25, on the 1% grade, when the speed was 9 miles an hour and drawbar pull 39,000 lb. As the speed gradually came down to 4 miles an hour, while the train approached the summit, the drawbar pull gradually increased until it reached a maximum of 51,000 lb. The booster was cut in again 0.32 mile south of mile 23, on a 1% grade, but not until hour, the drawbar pull being 38,000 lb. As the train topped the summit, the speed had decreased to 3 miles an hour and the drawbar pull increased to 52,000 lb. The train then proceeded to North Bay.

Fig. 4 (left) shows tractive effort and speed obtained with Pacific type locomotive 157 in a lift and acceleration test, handling a passenger train of 13 cars, same date. As noted, the tractive power of the locomotive without booster operating, is 36,600 lb. As shown by fig. 4 942.7 tons, northbound out of the T. & N.O.R. North Bay terminal. This locomotive was tried on May 11, and handled Canadian National Rys. transcontinental passenger train 1 from North Bay to Englehart, bringing back train 2 on the booster cut in, on lifting the train, was 45,000 lb. In 60 seconds, the drawbar pull was 37,000 lb., and a speed of 5 miles an hour had been attained; in 2 minutes, the drawbar pull exerted was 28,000 lb., at a speed of 12 miles an hour, and in 170 seconds, or less than 3 minutes, a speed of 15½ miles an hour had been attained, the drawbar pull being 26,000 lb. The manner in which the locomotive handled the train on this lift, which took place over frogs and switches, on a 1% grade, and uncompensated 10 degree curve, and the rapid acceleration shown under these conditions, were highly gratifying, and demonstrated the ability of the booster in getting trains to road speed quickly, in leaving terminals, or after station stops.

Fig. 4 (right) shows the result of a test designed to determine the acceleration obtainable on level track. The same train, of 942.7 tons, was handled north out of Tomiko, mile 27.3 from North Bay, the drawbar pull when lifting the train registering as 38,000 lb. This remained practically constant for 10 seconds, as a speed of 3½ miles an hour was being attained; in 30 seconds it registered as 29,000 lb.; the speed being 8.5 miles an hour. At the end of one minute, the drawbar pull showed as 23,000 lb., and speed had increased to 15.5 miles an hour.

The tests with mikado locomotive 150 amply demonstrated the correctness of the proposition that a largely increased tonnage can be handled over a division without difficulty, if it can be successfully got over the few hard pulls of the division, and they demonstrated the ability of the booster in aiding the locomotive to get it over the hard pulls. The T. & N.O.R. has a profile marked by several short, steep grades, which have acted to limit the tonnage handled in the past. By enabling a locomotive to take a tonnage, increased by 20%, over these grades, the value of the booster applied to the freight hauling units of such a railway is at once evident. In addition, many of the stations and water stops are on grades, so that time saved over the division by the high acceleration of passenger trains obtained by the use of the booster in leaving stations, in addition to that saved on the hills, would be large. The T. & N.O.R. officers have expressed complete satisfaction with the performance of the device and the efficiency shown by it in doing the work for which it was designed.

Canadian Railway and Marine World is indebted to S. B. Clement, Chief Engineer, Timiskaming & Northern Ontario Ry., for the charts reproduced in the accompanying illustrations, which were prepared by Frank Williams, Mechanical Designer, Canadian Government Railways, Moncton, N.B.

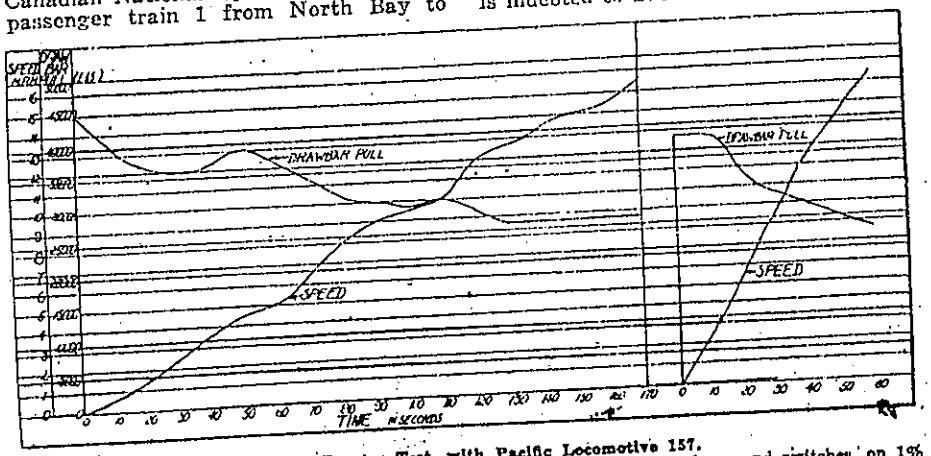


Fig. 4. Booster Test, with Pacific Locomotive 157.
Left side, lift of passenger train of 942 tons out of North Bay yard, over frogs and switches, on 1% grade, and 10 degree curve, uncompensated. Right side, acceleration, with aid of booster, in starting train out of Tomiko station on level track.

BOSTON & MAINE R.R.

Historical Society, inc.

75¢

B&M BULLETIN

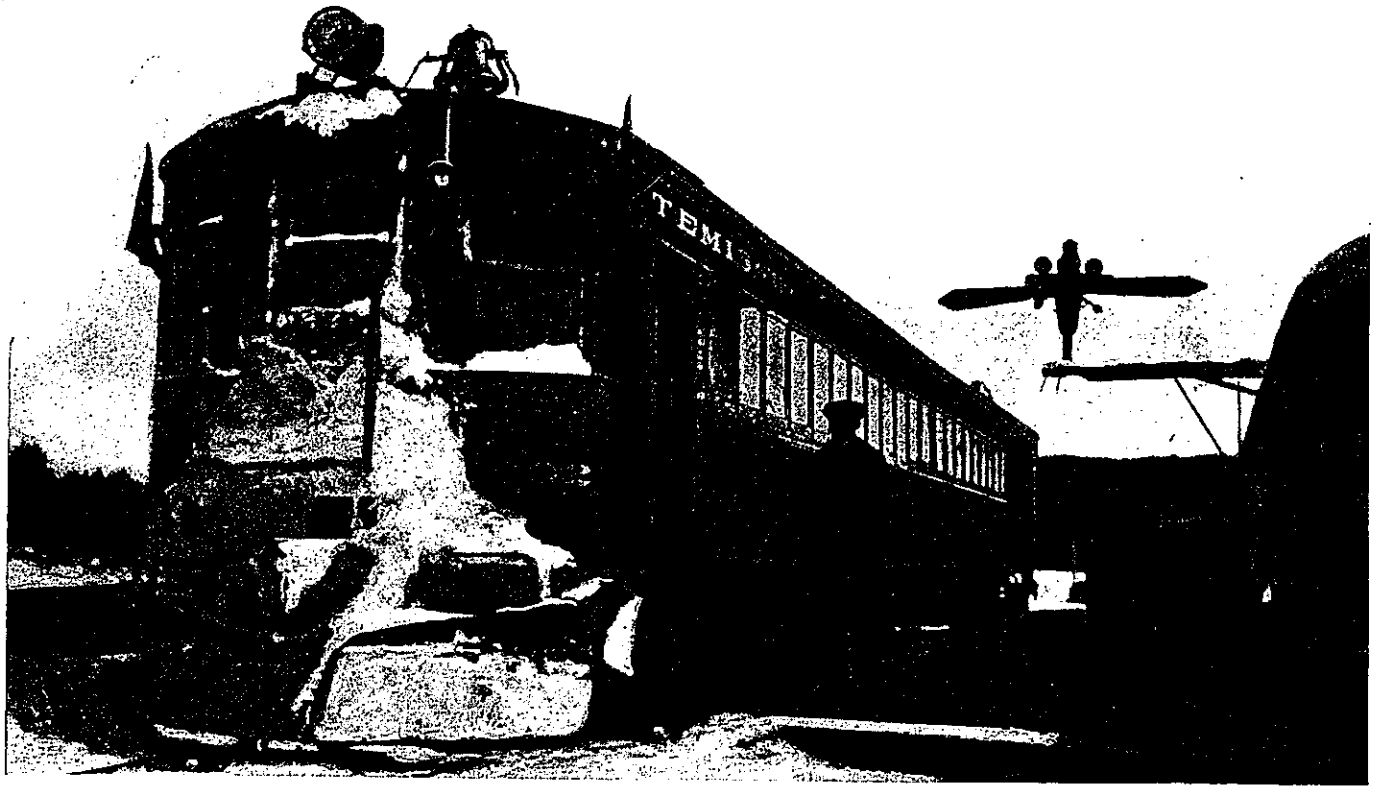
September 1972 Volume 2 Number 1

Nipissing Central Railway Operation Terminated.

After prolonged discussion of the advisability of taking the step, operation of the Nipissing Central Ry., the Temiskaming and Northern Ontario Ry. electric subsidiary, connecting Cobalt, North Cobalt, Haileybury and New Liskeard, was terminated on Feb. 9, and a privately-owned bus service was inaugurated on the following day.

Electric railway service was begun on the line serving the places mentioned in 1907, and the enterprise was taken over by the Temiskaming and Northern Ontario Ry. Commission in June, 1911. Up until about two years ago, an hourly service was given in each direction, but the schedule was then reduced to 1½ hr. headway. No part of the service had been abandoned previous to Feb. 9. No part of the electric railway service was operated over T. & N.O. Ry. steam line tracks, the electric railway cars having been operated on independent tracks, a portion of which paralleled the steam railway line. To Feb. 5, the T. & N.O.R. management had not arrived at a decision as to the disposition to be made of the electric railway tracks.

MARCH 1935



Brill 73 ft. Model 250 Gas-electric Car operated between Swastika and Chemins, Canada, by the Temiskaming & Northern Ontario Railway.

The Broad Field of the Gas-Electric

Brill Gas-electric Cars today are to be found giving satisfactory service under the most varied conditions.

Since the A. R. A. Convention in Atlantic City, where 60-ft. and 73-ft. cars were exhibited, an unusually large number of railroads have introduced in service cars of both capacities equipped with single power plants. Also, the Lehigh Valley Railroad pioneered with the introduction of double power plant cars, 70 ft. 6 in. long.

With ample capacity and power, and unrestricted to any appreciable extent by varying degrees of temperature, the field of the Gas-electric Car is certainly a broad one.

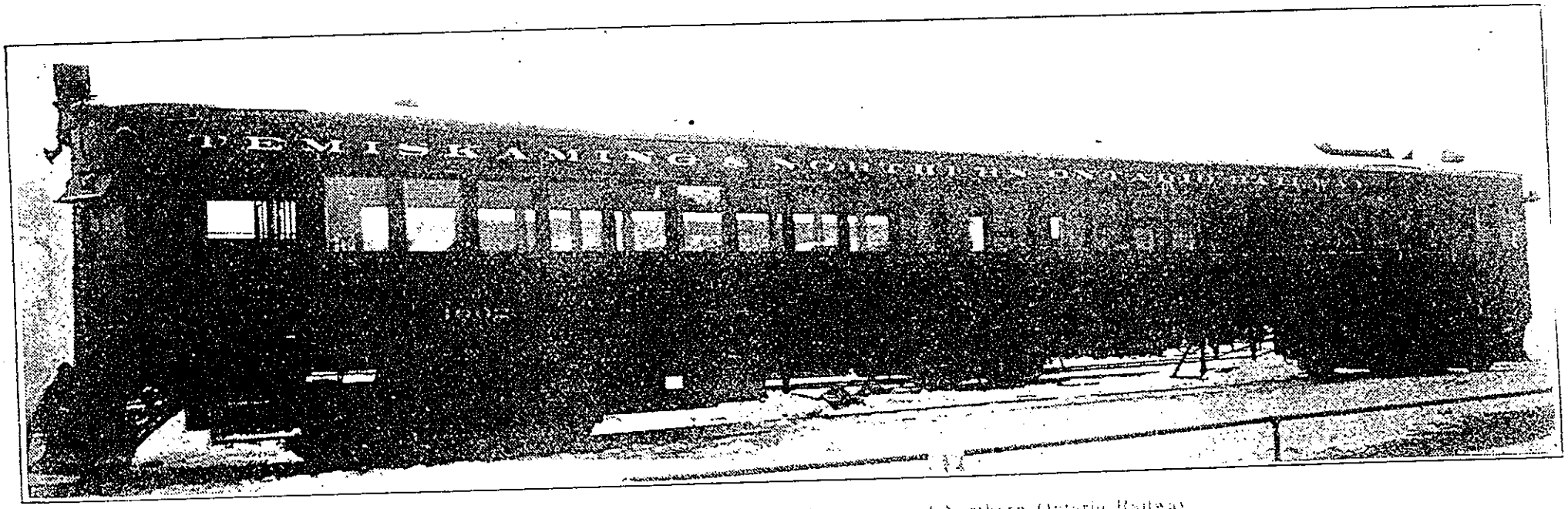
BRILL

AUTOMOTIVE CAR DIVISION

The J. G. Brill Company

Philadelphia, U. S. A.

Chicago Office: Railway Exchange Building



Gasoline-electric Self-Propelled Car, Timiskaming and Northern Ontario Railway

Great Northern Ry., [illegible] B.C., press dispatch states that the Great Northern Ry., in connection with the handling of passenger traffic over its Rexford Branch to Elko, and thence into Fernie over Canadian Pacific Ry. tracks, has placed in operation, as an experiment, a large gas-electric car with main passenger compartment and baggage room, and that if trials are successful, it will be retained in operation there permanently, displacing steam train equipment consisting of light locomotive and 2 cars.

Canadian National Ry.—A St. John, N.B., paper stated early in January that the C.N.R. management had placed in operation, between St. John and Hampton, a "new oil burning Diesel locomotive." Canadian Railway and Marine World's enquiry elicited official advice that the management had transferred oil-electric car 15,823, which had been in service on Prince Edward Island lines, to the Sussex and St. Martins subdivisions, Atlantic Region, where it is operating on the schedules of trains 131 and 136, between St. John and Hampton, and also, during the winter, as trains 49 and 50, between St. John and Moncton, on Sundays only, as follows:—lv. St. John 9.30 a.m., arr. Moncton 1 p.m.; lv. Moncton 4.45 p.m., arr. St. John 8 p.m.

A Montreal dispatch quotes Canadian National passenger department officials as stating that the railway is operating 30 self-propelled car services, with approximate annual mileage of 1,540,084, that placing in operation of additional cars now being built will increase this to about 1,935,220 miles a year, and that by the use of self-propelled cars, loss of short haul passenger traffic to buses and automobiles has been curbed considerably.

Premier Coates, of New Zealand, while in Montreal, on Jan. 12, displayed considerable interest in one of the Canadian National oil-electric cars which he saw at the Bonaventure station. Construction and operation details were explained to him by R. G. Gage, Electrical Engineer, and he made a trip with Mr. Gage to the railway's shops at Point St. Charles, where other oil-electric cars are being built.

Timiskaming and Northern Ontario Ry. has received from Ottawa Car Manufacturing Co. the gas-electric self-propelled car mentioned in Canadian Railway and Marine World for Aug. 1926, pg. 423, as having been ordered. It weighs about 120,000 lb., is 73 ft. long, 9 ft. 10 in. wide over posts, and is divided into main room seating 57 passengers, smoking compartment seating 20, baggage compartment and engine compartment. It is equipped with a rear vestibule 6 ft. 5¾ in. long. The power plant consists of a gasoline engine, with cylinders 7¼ in. bore by 8 in. stroke, developing 250 h.p. at 1,100 r.p.m., direct connected to a Westinghouse type 176 160 k.w. self-ventilated generator with normal rating 500 volts. This supplies current to 2 Westinghouse 557-A-8 140 h.p. railway motors mounted on the leading truck. An auxiliary generator mounted on brackets is used to excite the field winding and supply auxiliary power to other circuits. Control is by manual operation of throttle lever, at each end of car. There are 16 windows on each side of car, having double sash. Seats are upholstered in Pantasote, and are reversible. On one side of the aisle, the seats hold 3 passengers each, and on the other side 2 each. All side windows are fitted with curtains. Interior lighting is provided by 39 lights with standard glass shades. A plow is attached at each end of car. The car exterior is finished in Pullman green, with gold lettering.

Gasoline-electric Self-Propelled Car, Timiskaming and Northern Ontario Railway.

The car was given a trial trip between Ottawa and Renfrew, leaving Ottawa at 10.15 a.m. and returning at 4.20 p.m., a maximum speed of 62 m.p.h. and an average speed over long intervals of 45 m.p.h. being reported. Among the party on the trip were S. B. Clement, Chief Engineer, T. and N.O.R.; W. H. McIntyre, Vice President and General Manager; L. D. Byce, Superintendent of Works; F. S. Beattie, Superintendent, Car Department, and J. R. Allan, of Sales Department, Ottawa Car Mfg. Co.; W. J. Warnick, Superintendent, Toronto, Hamilton and Buffalo Ry.; F. M. Donegan, Superintendent, Algoma Eastern Ry., and representatives of the Canadian National and Canadian Pacific Rys. Lt. Col. L. T. Martin, T. and N.O. Ry. Commissioner, and Mrs. Martin, accompanied the party on the return trip from Renfrew to Ottawa.

The car was delivered at North Bay, Ont., on Dec. 31, 1926, and on Jan. 3 left there under its own power for the T. and N.O.R. Larder Lake branch, which runs easterly from Swastika, 165.8 miles north of North Bay, to Cheminis, on the Ontario-Quebec boundary, serving the Kirkland Lake gold mining area. It is operating on this branch, between Swastika, Kirkland Lake, Larder Lake and Cheminis.

Rapid Transit Shipping Co. Ltd. has been incorporated under the Ontario Companies Act with authorized capital of $40,000 and office at Windsor, to carry on the business of common carrier of every description by rail, water or otherwise. The nominal incorporators include B. H. Furlong, barrister, Windsor.

Marine World's annual [illegible] track laid on new main and branch l during 1926 are tabulated below. total new mileage reported is 455.80 m compared with 458.29 reported in 1 Of this mileage 191.60 miles was laid Canadian Pacific Ry., and 114.99 by C dian National Ry. The latter also during the year a line 8.50 miles long its station at Malagash, N.S., to Malagash Salt Products Co.'s mine, w line will be operated by the salt comp The Canadian National Construc Department also built the National Tr continental Branch Lines Co.'s line Taschereau to Noranda, Que., 44.71 m and is doing the rehabilitation and con tion of the Hudson Bay Ry. Adding mileages of these three lines to the Cana National total of 114.99 miles, giv total of 180.20 of new track laid u C.N.R. management during the year. new mileage laid was distributed provinces as follows:—Nova Scotia, miles; Quebec, 52.11; Ontario, Manitoba, 5.10; Saskatchewan, 2 Alberta, 82.53. Following are the mi laid on the several lines:—

	Miles
ABITIBI, TRANSPORTATION & NAVIGATION CO.:	
Mile 7.50 on main line westerly	2.60
Mile 12.00 on main line easterly	7.00
CANADIAN NATIONAL RY.:	
QUEBEC:	
St. Remi d' Amherst branch	2.30
MANITOBA:	
Pine Falls branch, mile 14.40 to 19.50	5.10
SASKATCHEWAN:	
Bengough-Willowbunch branch, mile 61.94 to 71.71	19.97
Dunblane S.E. branch, mile 24.66 to 26.00	1.34
Turtleford S.E. branch, mile 23.30 to 65.53	42.23
Acadia Valley branch, mile 0.8 to 12	11.92
ALBERTA:	
Acadia Valley branch, mile 12 to 24.62	12.62
St. Paul de Metis S.E., mile 120.91 to 140.42	19.51
CANADIAN PACIFIC RY.:	
Bromhead to Lake Alma, Sask	26.30
Assiniboia to Coronach, Sask.	59.10
Melfort, Sask., northerly	6.50
Unwin to Clandonald, Sask	71.50
Cardston to Glenwoodie, Alta.	28.20
HUDSON BAY RY.:	
Kettle Rapids to Limestone River	
LACOMBE AND NORTHWESTERN RY.:	
Hoadley to Breton, Alta.	
MALAGASH SALT PRODUCTS, LTD.:	
Canadian National Ry. station at Malagash, N.S., to the mine	
NATIONAL TRANSCONTINENTAL BRANCH LINES CO.:	
Taschereau to Noranda, Que.	
ROBERVAL AND SAGUENAY RY.:	
Ha Ha Bay Jct. to Shipshaw, Que.	
SPRUCE FALLS POWER AND PAPER CO.:	
Sturgeon, mile 2.9 from Kapuskasing, Ont., to Smoky Falls, mile 50	

Self-Propelled Cars on Steam Railways.

interior is finished in mahogany. The power plant consists of a gasoline engine, with cylinders 7¼ in. bore by 8 in. stroke, developing 250 h.p. at 1,100 r.p.m., direct connected to a Westinghouse type 176 160 k.w. self-ventilated generator with normal rating 500 volts. This supplies current to 2 Westinghouse 557-A-8 140 h.p. railway motors mounted on the leading truck. An auxiliary generator mounted on brackets is used to excite the field winding and supply auxiliary power to other circuits. Control is by manual operation of throttle lever, at each end of car. There are 16 windows on each side of car, having double sash. Seats are upholstered in Pantasote, and are reversible. On one side of the aisle, the seats hold 3 passengers each, and on the other side 2 each. All side windows are fitted with curtains. Interior lighting is provided by 39 lights with standard glass shades. A plow is attached at each end of car. The car exterior is finished in Pullman green, with gold

Gasoline-electric Self-Propelled Car, Timiskaming and Northern Ontario Railway.

Region, where it is operating on the schedules of trains 131 and 136, between St. John and Hampton, and also, during the winter, as trains 49 and 50, between St. John and Moncton, on Sundays only, as follows:—lv. St. John 9.30 a.m., arr. Moncton 1 p.m.; lv. Moncton 4.45 p.m., arr. St. John 8 p.m.

A Montreal dispatch quotes Canadian National passenger department officials as stating that the railway is operating 30 self-propelled car services, with approximate annual mileage of 1,540,084, that placing in operation of additional cars now being built will increase this to about 1,935,220 miles a year, and that by the use of self-propelled cars, loss of short haul passenger traffic to buses and automobiles has been curbed considerably.

Premier Coates, of New Zealand, while in Montreal, on Jan. 12, displayed considerable interest in one of the Canadian National oil-electric cars which he saw at the Bonaventure station. Construction and operation details were explained to him by R. G. Gage, Electrical Engineer, and he made a trip with Mr. Gage to the railway's shops at Point St. Charles, where other oil-electric cars are being built.

Timiskaming and Northern Ontario Ry. has received from Ottawa Car Manufacturing Co. the gas-electric self-propelled car mentioned in Canadian Railway and Marine World for Aug. 1926, pg. 423, as having been ordered. It weighs about 120,000 lb., is 73 ft. long, 9 ft. 10 in. wide over posts, and is divided into main room seating 57 passengers, smoking compartment seating 20, baggage compartment and engine compartment. It is equipped

1926

Canadian Pacific Railway

The following table, showing monthly gross ings, working expenses and net profits in , compared with those of 1936, has been com- ued in Canadian Transportation's office from tatements supplied by the C.P.R. management. The figures cover the operation of the C.P.R. self and also the Algoma Eastern Ry., Dominion tlantic Ry., Esquimalt and Nanaimo Ry., Fredericton and Grand Lake Coal and Ry. Co., Montreal and Atlantic Ry., New Brunswick Coal and Ry. Co., and Quebec Central Ry. The difference between revenue and expense figures and those issued by the Dominion Bureau of Statistics is due to the segregation of certain income items by the Bureau, the net results remaining the same.

	Gross Earnings		Working Expenses		Net Earnings		
	1937	1936	1937	1936	1937	1936	Increase
January	$10,194,064	$9,323,822	$ 9,280,554	$ 8,711,249	$ 913,510	$ 612,573	$300,937
February	9,724,629	9,280,594	8,733,889	8,413,196	990,740	867,398	123,342
March	11,748,389	10,679,577	10,010,225	9,331,843	1,738,164	1,347,734	390,430
April	11,370,019	10,580,236	10,021,609	9,242,778	1,348,410	1,337,457	510,952
May	11,334,197	11,222,507	10,259,978	9,772,218	1,574,219	1,450,289	123,930
June	11,418,963	10,957,610	10,223,352	9,732,060	1,195,111	1,175,549	19,562
July	12,041,527	11,577,430	10,946,067	10,598,330	1,095,460	979,100	116,360
	$78,831,788	$73,621,776	$69,476,174	$65,851,676	$9,355,614	$7,770,100	$1,585,514

C.P.R. approximate gross earnings in August were $11,915,000, a decrease of $84,000 from those of Aug., 1936.

Minneapolis, St. Paul and Sault Ste. Marie Ry., C.P.R. subsidiary, had a net deficit, after all charges, of $425,744.90 in July, compared with ne of $447,438.53 in July, 1936. In the first even months of 1937, there was a net deficit, fter all charges, of $3,622,710.79, compared with ne of $3,658,892.17 in the corresponding period 1936.

Wisconsin Central Ry., which is in receivership with E. A. Whitman, Vice President and General Manager, M., St. P. and S.S.M.R., as receiver, and which is operated by the M., St. P. and S.S.M.R. as agent for the receiver, had a net income, after all charges, of $122,548.96 in July, compared with one of $30,287.95 in July, 1936. In the first seven months of 1937, there was a net deficit, after all charges, of $265,550.93, compared with one of $723,256.44 in the corresponding period in 1936.

New Locomotives for "The Northland"

The Temiskaming and Northern Ontario Ry. management has received two more Northern type locomotives, with 69 in. drivers, from Canadian Locomotive Co., these being additional to two of this type received in 1936.

The accompanying illustration is of of two Northern (4-8-4) locomotives this year by Canadian Locomotive o., Kingston, for T. and N.O. Ry., brief eference to their delivery having been ade in Canadian Transportation for eptember, pg. 431. These locomotives e being used, upon occasion, in hauling e first class passenger train "The orthland", which is operated over C.N. ys. lines from Toronto to North Bay, id over T. and N.O. Ry. lines from orth Bay to Timmins and Noranda; is train was described fully in Cana- an Transportation for July. When gaged in hauling these trains, these orthern type locomotives display name- ates at each side, mounted on the run- ng board, as shown in the illustration; ien the locomotives are engaged in her service the nameplates are re- oved.

The locomotives' chief dimensions are follows:—

ge	4 ft. 8½ in.
ler pressure	275 lb.
ler diam., first course	76⅛ in.
ler diam., largest course	86 in.
m. leading truck wheels	33 in.
m. driving wheels	69 in.
m. trailing truck front wheels	36 in.
m. trailing truck rear wheels	48 in.
inders, diam. and stroke	22½ x 30 in.
box length and width	120¼ x 84¼ in.
Tubes and flues:	
2¼ in. diam.	45
3½ in. diam.	149
Tube length	21 ft. 0 in.
Driving wheelbase	18 ft. 6 in.
Loco. wheelbase	42 ft. 10 in.
Loco. and tender wheelbase	82 ft. 3 in.
Height, rail to top of stack	15 ft. 2 in.
Tube heating surface	3,407 sq. ft.
Arch tube and syphon heating surface	91 sq. ft.
Firebox heating surface	279 sq. ft.
Superheating surface	1,665 sq. ft.
Grate area	70.3 sq. ft.
Weight in working order, leading truck	62,650 lb.
Weight in working order, on drivers	218,210 lb.
Weight in working order, trailing truck	90,460 lb.
Weight in working order, total loco.	371,320 lb.
Weight in working order, tender	281,500 lb.
Weight in working order, loco. and tender	652,820 lb.
Maximum tractive effort excl. booster	54,500 lb.
Maximum tractive effort incl. booster	64,950 lb.
Factor of adhesion without booster	4.0
Factor of adhesion with booster	5.2

As the tractive effort and adhesion factor figures show, the locomotives are equipped with boosters. The T. and N.O. Ry. was among the first users of the Franklin Railway Supply Co. locomotive booster in Canada. These locomotives utilize SKF roller bearings in all truck boxes. The equipment includes Standard Stoker Co.'s type BK stoker, Westinghouse no. 8 E.T. air brake equipment, Superheater Co.'s type E superheater, Superheater Co.'s C-F feedwater pump (located on the trailing truck), World In addition to that in grate, these

Hancock L.N.L. 6,500 gall. inspirator, Westinghouse air horn, Pyle National Co.'s turbo generator, Wakefield mechanical lubricator, World Huron arch tubes, cut-off control gauge, McAvity flange lubricator, Nicholson thermic syphons, Dunlopillo cushioning material for cab seats and arm rests, General Steel Castings Corp. 4-wheel trailing truck with Alco lateral motion device, Barco flexible joints, Wilson sander, Miner draft gear, Franklin adjustable wedges and radial buffer, King piston rod packing, Barco type M-1 reverse gear, Laird crossheads, Security brick arch and front end throttle and Viloco bell ringer.

The tender, with cast steel water bottom frame, is carried on General Steel Castings Corp., Ltd., 6-wheel cast steel trucks, with 36 in. diam. wheels. Water capacity is 11,000 Imp. gall. and coal capacity is 20 tons. A track sprinkler is included in the equipment.

Railway Accidents Report

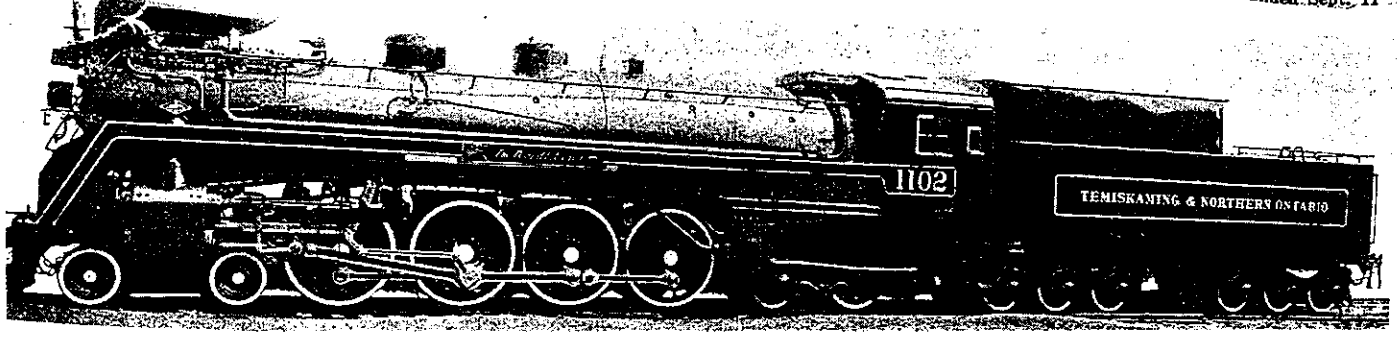
The Board of Railway Commissioners for Canada reports that there were 209 accidents on Canadian railways, 35 persons being killed and 200 injured, and 14 accidents at highway crossings, 9 persons being killed and 19 injured, a total of 223 accidents, 44 persons being killed and 219 injured, in July.

Of those killed, one was a passenger, five were employees and 38 others, and of those injured, 46 were passengers, 119 employees and 54 others.

The highway crossing accidents by provinces were:—Nova Scotia, one, an automobile, through driver's carelessness in running into front of standing locomotive.—New Brunswick, one, a truck, through driver's carelessness in failing to take precaution when approaching crossing.—Quebec, two, an automobile and a truck, through drivers' carelessness in failing to stop for crossing and in failing to stop for crossing and running into side of train, respectively.—Ontario, eight, automobiles in six and trucks in two, all through drivers' carelessness in three driving on to crossings in front of trains and being struck, in one stalling on crossing, in one being struck by track motor and in one having no headlights and running into side of train in the automobile cases, and in one travelling at excessive speed and in one running into side of train in the truck cases.—Manitoba, one, an automobile, driving against rays of sun had view of train obscured.—Saskatchewan, one, an automobile, through driver's carelessness in driving on to crossing in front of approaching train and being struck.

All the highway accidents occurred at unprotected crossings, nine taking place during the day and five at night.

ended Sept. 11

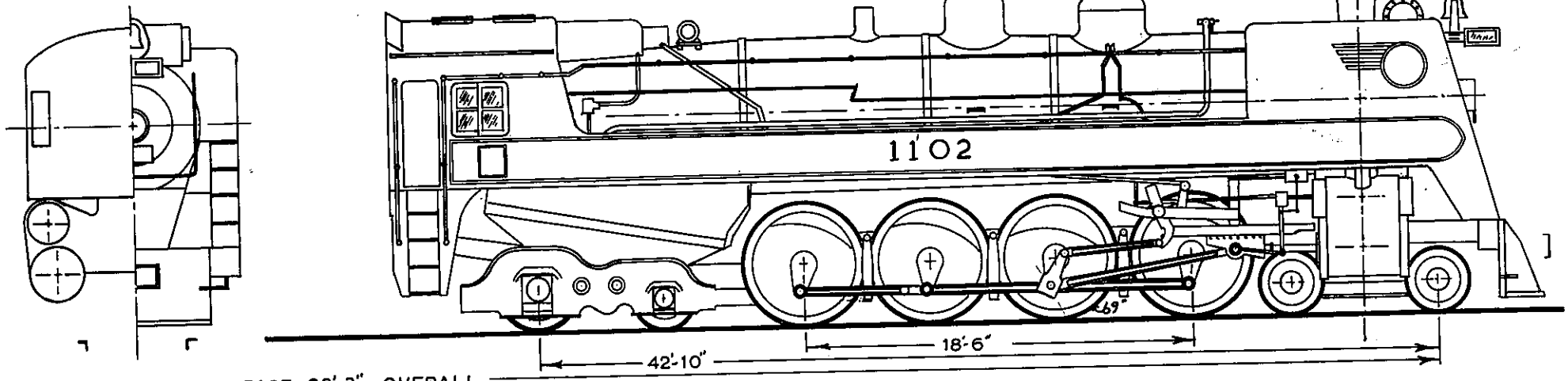


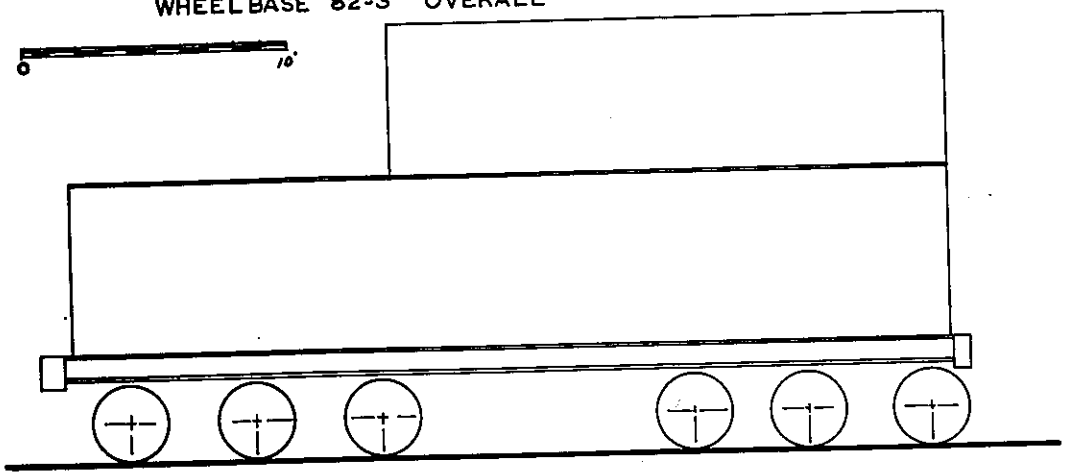
NUMBER 55 IN A SERIES PUBLISHED BY O-SHO-ME

ONTARIO NORTHLAND

● 4-8-4 NORTHERN TYPE ● ROAD NUMBERS 1100 TO 1103

● 1100 & 1101 BUILT 1936, 1102 & 1103 IN 1937, BY CANADIAN LOCOMOTIVE COMPANY (SERIAL NOS. 1919 to 1922) ● 54,500 lbs. TRACTIVE EFFORT ● 22½" x 30" CYLINDERS ● 69" SPOKED DRIVERS ● ENGINE WEIGHT 371,320 lbs. ● HAULAGE RATING 55% (65% WITH BOOSTER) ● TENDER CAPACITY 1100 gals. WATER, 20 tons SOFT COAL (281,500 lbs. wt.)





- ONLY KNOWN DIMENSIONS ARE SHOWN
- THESE ENGINES DIFFERED SLIGHTLY IN APPEARANCE BETWEEN "THEMSELVES"
- PHOTOS: "TRAINS" MAGAZINE—"THE LAST OF STEAM" by JOE G. COLLIAS—BULLETIN 29 of the UPPER CANADA RAILWAY SOCIETY
- BLACK WITH GREEN CABS & PANELS
- 6-WHEEL COMMONWEALTH TENDER TRUCKS SIMILAR TO THOSE ON PLAN 5-A

● DRAWN BY ROD RODDICK FROM SPECIFICATIONS KINDLY FURNISHED BY J. W. MILLAR & HENRY BARR OF THE O.N.R. ● FULL SIZE HO SCALE

Locomotive Booster Tests on Timiskaming & Northern Ontario Railway.

Locomotive booster tests on the T. & N.O. Ry. were described in a general way in Canadian Railway and Marine World for June. Since then, the results of the tests have been checked over and charts prepared, and the most important tests can now be dealt with more fully and the results shown graphically. A complete illustrated description of the booster's mechanical features was published in Canadian Railway and Marine World for Dec. 1920, pg. 661. As stated previously, boosters have been applied on one mikado and four Pacific type locomotives on the T. & N.O. Ry. The mikado to which the booster is applied was described and illustrated in Canadian Railway and Marine World for May, pg. 252. This locomotive has a tractive power of 45,500 lb, without booster, weight on drivers 197,000 lb., cylinders 25 x 30 in., and is thoroughly modern in design. Details and an illustration of the Pacific type locomotives equipped with the booster were given in Canadian Railway and Marine World for June, pg. 309. The tractive power of these Pacific is 36,600 lb. without booster; weight on drivers 155,000 lbs., cylinders 28 x 28 in. They are thoroughly modern in all details of design and construction, and are notable as embodying practically all the latest specialties and refinements applied to locomotives.

The tests were conducted with Canadian National Rys. dynamometer car 84, the use of which was extended to the T. & N.O.R. for the occasion. The first test was made on May 9, with mikado locomotive 150, which was given a train out of North Bay consisting of 21 loaded freight cars, the dynamometer car, T. & N.O.R. official cars Temagami and Whitney, and a caboose. The actual tonnage of this train was 1,401 tons, 756 contents and 645 tare, the adjusted tonnage with the T. & N.O.R. allowance being 1,501. Fig. 1, given herewith, shows the performance of the locomotive with this train between miles 9.2 and 11.1, north from North Bay. It was decided to see first what the locomotive could do with this train on the 1.25% grade at mile 11 without the booster cut in. The tonnage for this grade, with this power, is ordinarily 1,200 adjusted tons, so that the excess loading was 301 adjusted tons. The speed of the train when it reached the foot of the 0.75% grade was 26 miles an hour. The full lines in the left hand chart show the variations in speed and drawbar pull until the train finally stalled on the 1.25% grade, 528 ft. south of mile 11. The locomotive stalled without slipping, the drawbar pull showing as 45,000 lb. The train was then backed down the hill, and on the second test the speed was 9 miles an hour when the booster was cut in 660 ft. south of mile 11. The drawbar pull increased rapidly from 33,000 lb., at which figure it was when the booster was cut in, to 50,000 lb., but 528 ft. north of mile 11, after the speed had fallen to 3 miles an hour and then picked up to 4 miles an hour, the locomotive slipped and stalled. On back down and setting off one load, leaving a train of 1,424 adjusted tons, an excess of 224 tons over normal rating, the grade was got over without difficulty.

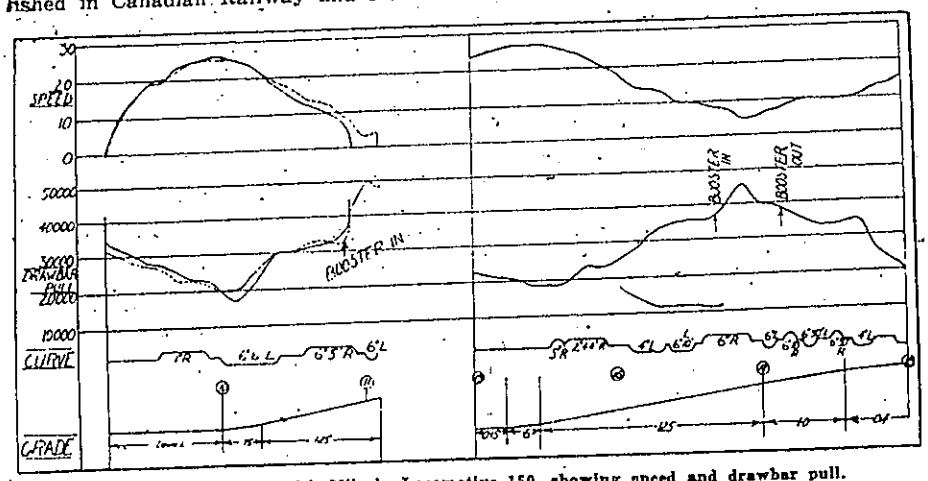


Fig. 1. Booster Test, with Mikado Locomotive 150, showing speed and drawbar pull. Left side, from mile 9.2 to mile 11.1, on 1.25% grade. Dotted line, with booster cut in; full line, without booster cut in. Right side, between miles 15 and 18, showing effect of cutting in booster.

The train then proceeded to the grade between miles 15 and 18, the result of the booster being cut in on the 1.25% portion of the grade being shown in fig. 1 (right). The speed of the train, when the booster was cut in on the hard pull on a 6 degree curve, was about 9 miles an hour, and drawbar pull showed 38,000 lb. As the speed decreased to 5 miles an hour, the drawbar pull went up to 47,000 lb. When the train had gained the 1% portion of the grade, and speed had been picked up to 8 miles an hour, the booster was cut out. In order to get this excess tonnage over these grades, aggregating three miles in length, it was necessary to operate the booster for less than half a mile. The train was then taken through to Englehart, 138 miles north of North Bay, the booster beirg used on the stiff pulls, with a degree of success equal to that displayed in its performance in the test between miles 15 and 18.

On May 10, the same locomotive was started from Englehart south with a train of 32 loaded cars, 4 empties, the dynamometer car, T. & N.O. Ry. official car Temagami, and caboose. The actual tonnage was 1,800, contents 957, tare 843, and the adjusted tonnage, T. & N.O. R. rating, 1,995. Fig. 2 shows the results of the tests with this train on the grades from New Liskeard, mile 112.8, to Cobalt, mile 102.7. These grades vary from 0.13% to 1%, and the normal rating for a locomotive of this class is 1,660 adjusted tons, so that the excess loading was 335 adjusted tons. The booster was first cut in 100 ft. south of mile 106, when the speed was slightly under 10

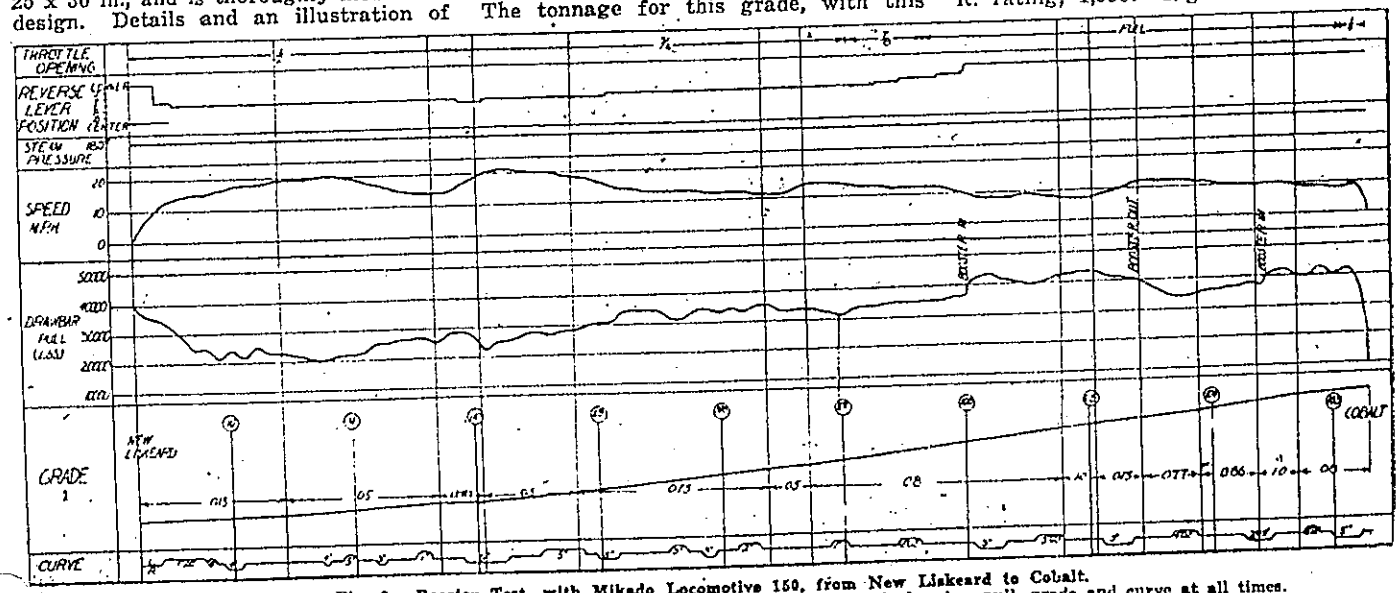


Fig. 2. Booster Test, with Mikado Locomotive 150, from New Liskeard to Cobalt. Showing conditions of throttle opening, reverse lever position, steam pressure, speed, drawbar pull, grade and curve at all times.

Canadian Transportation

JANUARY 1937

New Passenger Train Cars for Temiskaming and Northern Ontario Railway

Six first-class cars, each seating 58 passengers, and four combination baggage-passenger cars, each having generous baggage space and seating accommodation for 38 passengers, delivered to the T. & N.O. Ry. recently by the builder, National Steel Car Corporation, Hamilton, Ont., are representative of latest developments in steel passenger car construction, incorporate all the modern improvements designed to promote passenger safety and comfort, and provide large savings in gross weight, compared with many preceding designs.

The ordering by the T. & N.O. Ry. from National Steel Car Corporation, Hamilton, Ont., of passenger train cars, was mentioned in the July, 1936, issue; at the time of writing, Dec. 10, some of the cars ordered have been delivered, and the expectation is that the order will be completed by Dec. 17. The order consisted of six first-class passenger cars, and four cars arranged for baggage and passengers, the baggage space in the latter taking up a little more than half of the car interior, with seats for 38 passengers in the passenger compartment. The writer was privileged to inspect a car of each type in Hamilton, in company with the National Steel Car Corporation Chief Engineer, O. H. Anderson, and the high standards adhered to throughout as regards detail of design, materials of construction, workmanship, interior finish and equipment, and accessories, make the cars a very notable addition to the passenger rolling stock on Canadian railways. The first-class cars are air-conditioned, fitted with luxurious seats of the revolving and reclining type, have a comfortable room reserved for occupancy by women, and have a men's smoking room, providing accommodation much greater and more comfortable than has been the rule heretofore in first-class car design. The combination baggage-passenger cars have passenger accommodation of a high standard and the baggage space is fitted with all safety features. Both classes of cars are of the turtle back roof type; some 3,000 lb. of the total weight reduction was effected in the roof design alone. Both classes of cars are carried on 4-wheel trucks fitted with Timken roller bearings.

The First-Class Cars

The specifications for the six first class cars cover a steel frame, steel sheathed car with steel interior partitions and end finish. The leading dimensions are as follows:—

Length over diaphragm face plates	79 ft. 10½ in.
Length over vestibule I beams	77 ft. 11 in.
Length over body and posts	71 ft.
Truck centers	55 ft. 2 in.
Width over girder plates	9 ft. 10-1/16 in.
Width inside at wainscote	9 ft. 0⅜ in.
Height, rail to platform	4 ft. 3 in.
Height, rail to top of roof	13 ft. 1⅝ in.

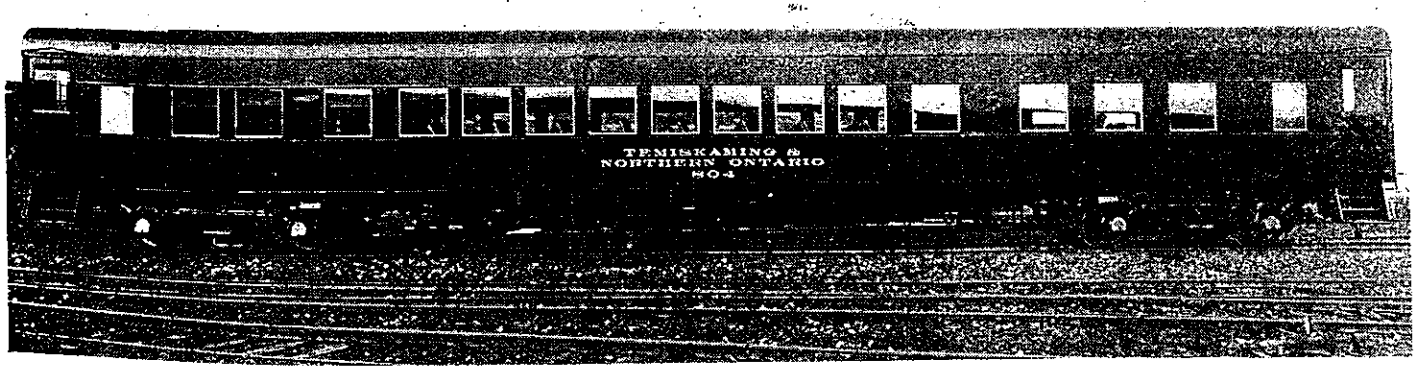
The underframe is of the fish belly type with built-up bolsters with cast steel center filler arranged for Security locking device and cast steel buffer and platform. The center sills are built up of two web plates 25½ x 5/16 in.; two top angles, 6 x 3½ x ⅜ in.; four bottom angles, 3 x 3 x 5/16 in., and a 30 x 5/16 in. top cover plate.

The side sills are 5 in. 11.6 lb. structural Z bar, continuous between the end sills and riveted to the cross members. The end sills are built up with ¼ in. pressed steel diaphragm and 18 x ¼ in. bottom and 22 x ¼ in. top cover plates. The single body bolsters are built up with 5/16 in. pressed steel diaphragms, with 21 x 7/16 in. top and 21 x 9/16 in. bottom cover plates and with center plate and center filler of cast steel, all being securely riveted together and to the center and end sills. Four cast steel jacking plates are provided, one on each bottom cover, at the side sill. The cross-bearers, of which there are two per car, are built up of ¼ in. pressed steel diaphragms, with ¼ in. center sill separators, 10¼ x ¼ in. top and 6 x ½ in. bottom cover plates. Diaphragm stiffeners of 3 x 2½ x ¼ in. structural angles and ¼ in. plate gussets connect the diaphragms to the side sill bottom flanges. The floor supports are ⅛ in. pressed steel diaphragms, riveted to the center and side sills, and the floor stiffeners are 2 x 2 x 3/16 in. structural angles running from the center to side sills and riveted to the steel floor plates.

In the floor construction, 18 U.S. gauge copper-bearing steel sheets were placed immediately on top of the underframe and riveted thereto, with the upper surfaces painted and tar paper applied while the paint was wet. B.C. fir floor stringers for the double wooden floor were placed on top of the tar paper and bolted to the underframe members and floor sheets. The lower floor, of 13/16 in. B.C. fir, was laid diagonally, and the top floor, of the same material, was laid longitudinally. Both courses of the floor were laid in wet paint, with a layer of tar paper between.

In the side and end construction, the side plates consist of two 4 in. 5.4 lb. structural channels, back to back, continuous between face plate angles, and the belt rail, Carnegie belt rail section M-1038, extends the full length of the body, being riveted to the posts and side sheets with double rows of rivets. The bottom chords, of 3 x 2½ x 3/16 in. angle, full length of the body, rest on and are riveted to the lower flanges of the side sill Z bars. The side posts (72 per car) are ⅛ in. O.H.S. pressings, U shape, riveted to side plate, belt rail and bottom chord. The body corner posts are 4 in. 8.2 lb. Z bar and 4 x 3 x ¼ in. angle riveted together, and covered with no. 11 Ga. O.H.S. pressed steel, with recess for vestibule side door. All out-

(Continued on page 4)



One of the Six First-class Cars Built Recently for Temiskaming and Northern Ontario Railway by National Steel Car Corporation.

New Passenger Train Cars for T. and N. O. Railway

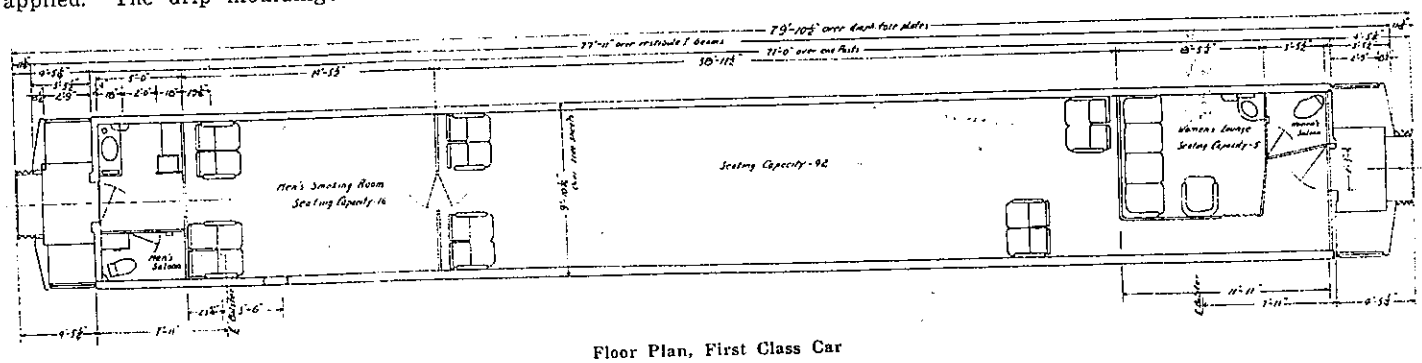
(*Continued from page 1*)

side sheathing is of copper-bearing, roller-levelled steel, the girder plates below the belt rail being 9 U.S. gauge and the pier plates and letter plates being 11 U.S. gauge. Joints between sheets and splice plates have tar paper applied. The drip mouldings over the windows are of copper-bearing steel. The body end posts are 4 in. 8.2 lb. Z bars; the body end door posts are 6 in. 23.9 lb. I beams, and the body end sheets are of 9 gauge copper-bearing steel, riveted to the end and door posts. The vestibules are of the wide type, without windows. The end platform and buffer casting is of cast steel, securely riveted to the center sills and recessed for the buffing and draft gear. The 7 in. 9.8 lb. platform channels extend from the body end sills to the buffer wings, and form the support for the platform floor and vestibule steps. The platform floor is of ⅛ in. steel plate, covered with pebble dot rubber, cemented down. The platform steps are of the 4-tread type, the step treads being of steel, covered with rubber. The diaphragm posts are 6 in. 23.9 lb. I beams, secured to the platform casting by gibbed key connections. The vestibule corner posts are 11 gauge copper-bearing steel, pressed to shape and forming a recess for the vestibule door. The vestibule end sheets and ceiling are of 11 gauge copper-bearing steel.

The roof is of the turtle back type, with the carlines (39 per car) of ⅛ in. O.H.S. pressed U shape, riveted to the side plates. The roof covering is copper-bearing steel sheet, 11 gauge at the sides and 14 gauge at the center.

Insulation—In the floor insulation, the space between the steel floor sheets and the lower course of the wooden floor is filled with 3-ply Salamander, cut to fit between the floor stringers. In the side and end insulation, one layer of 3-ply Salamander and one of ½ in. Hairinsul is used at the ends, side pier plates, letter plates and below the side windows, extending to the side sill and folded up to a height level with the top of floor. The insulating material is held in place by galvanized clips. In the roof, one course of 3-ply Salamander and one of ½ in. Hairinsul are placed against the inside of the center roof sheets, and one course of 3-ply Salamander against the inside of the side roof sheets, all held in place by galvanized clips. Between the 14 gauge roof sheets and the Salamander insulation is a course of J.-M. no. 65 deadening felt.

Windows—There are 17 windows at one side of the car and 15 at the other, the main windows being 33½ in. wide and those in lavatory and saloon 24 in. wide. The window sash is the Robert Mitchell Co. Thermosash, with two panels of 3/16 in. plate glass enclosed in an extruded aluminum frame and dehydrated by the Mitchell process. Window guard rail is fitted at the passageway windows, adjacent to the women's lounge. Curtains are silk faced Pantasote, mounted on Rex 1 in. diam. metal rollers, and all exposed metal parts are in statuary bronze finish.



Floor Plan, First Class Car

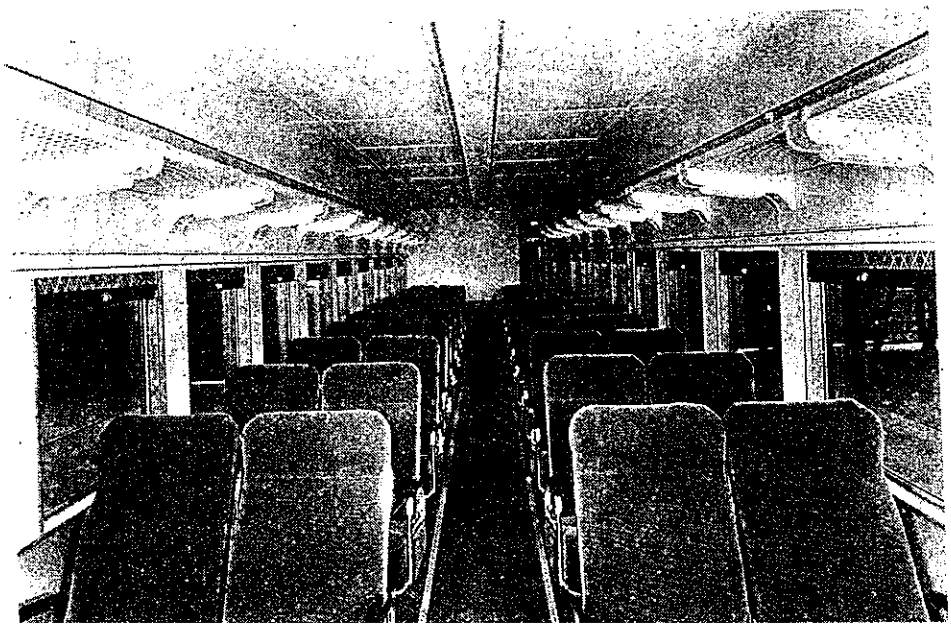
The interior arrangement of the car is as shown in the accompanying floor plan drawing, with the women's lounge and saloon at the A end, followed by the main room, with seating capacity of 42, the men's smoking room, with seating capacity of 16, and the men's saloon and lavatory at the B end.

In the interior finish, there is ¼ in. Masonite from window sills to heater guards, with 16 gauge copper-bearing steel sheets back of the heaters. The frieze panel and ceiling are in ¼ in. Masonite de luxe, except that the curved portions of the ceiling, at the sides, are of ¼ in. Sundeala. Three contrasting fawn shades make up the color scheme, giving the interior a very handsome appearance, heightened by the blue Marboleum floor covering, with light blue stripes in the aisles, and by the blue mohair seat upholstery. The partitions throughout are of steel, securely riveted and machine screwed to the car framing.

The seats in the main room are the Heywood-Wakefield model 176-P-6-SS, two-passenger, rotating, reclining type, with aluminum base and black Bakelite arm rests, mohair covered. These seats are locked in position when facing forward, but are free to revolve when in any other position. The cushions and backs are in Dunlopillo cushioning material. In the men's smoking room the seats are upholstered in blue leather. The chair and 4-place sofa in the women's lounge are finished in red leather. One seat is provided in the men's lavatory and is upholstered in blue leather.

The car heating is by the Vapor Car Heating Co. steam heat equipment with fin tubing, the 2 in. extra heavy train-line being covered with J.-M. sectional pipe covering. There are pressed steel heater guards over the pipes between seats and in the saloons, lavatories and women's lounge.

Electrical Equipment—The lighting equipment for these cars, supplied by Stone Franklin of Canada, Ltd., consists of Stone's patented Tonum generators, type XR.29/27; Stone's patented dynamo regulating panels, type XRD. V.D. 75-100 amperes; Stone's patented lamp regulating panels, type CLP. 3/250-75 amperes, and 4 circuit main light panels. The cars are equipped also with Stone's



main lighting switch on panel board. Four of the cars are fitted with Edison storage batteries, 25-cell, type A14-H, 595 amp. hr. capacity at 8 hr. rate, and the other two cars have Exide 16-cell storage batteries, 39 M.B.M.H. 1-C. The battery box is of steel, wood lined. The electric lamps throughout the cars are arranged very tastefully. The fixtures throughout are of Safety Car Heating and Lighting Co. make. In the main room and men's smoking room the fixtures, individually controlled at each seat, are mounted in the underside of the parcel racks. There are three ceiling lights in the passageway and one in the women's lounge, a bracket lamp with shade in each saloon and three bracket lamps with shades in the women's lounge, and four vestibule lamps.

The air-conditioning equipment, of ice activated type, forms a S.C. H. & L. Co. carrier system. The air conditioning units, with motor, fan and heating and cooling coils, are mounted in the roof, over the women's lounge. The double door ice box, under the car body, has capacity of 3,150 lb. The air inlet, in the vestibule ceiling, is grilled and fitted with filters. The exhaust fans, of Sturtevant make, are located in the toilets. The ice water sump is of Robert Mitchell Co. manufacture, and the pump and motor, of Darling make, are connected with the cooling coils by copper pipe. Vapor Car Heating Co. control equipment is fitted.

The trucks are Commonwealth Steel Co. cast steel four-wheel type, with integral pedestals and straight equalizers. Truck wheelbase is 9 ft. The equalizer springs, of helical double coil type, are of chrome-vanadium steel, made by B. J. Coghlin Co., and the quadruple elliptic bolster springs, also of Coghlin manufacture, are of chrome-vanadium steel and treated with Noxide. The center plate, bolted to the bolsters, is of cast steel, and the equalizers are of mild steel. The side bearings are the Stucki A-5010 type. The Peech and Tozer solid rolled steel wheels, with heat-treated toughened rims, are 36¼ in. diam., and the axles are special 5½ x 10 in. annealed. The trucks are fitted with Timken roller bearings for 5½ x 10 in. journals.

The air brakes are the Westinghouse U.C.-4 schedule, 10 x 10 in., employing Universal passenger car brake equipment, and the brake cylinders are mounted on the trucks, which are fitted with Simplex unit cylinder clasp brakes, with Dominion Brake Shoe Co. C-50-X shoes.

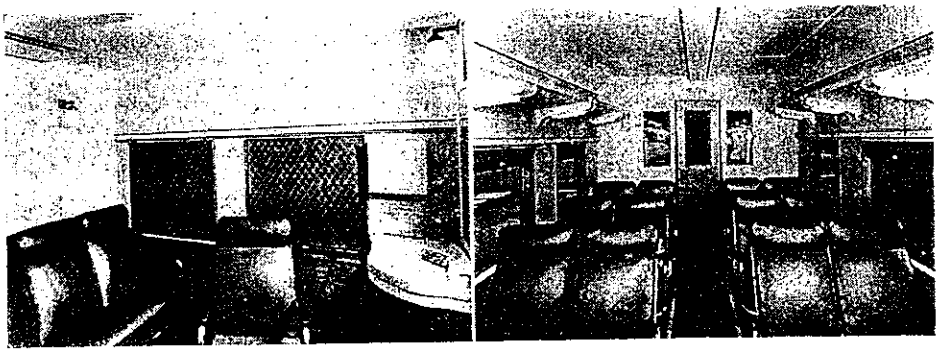
Safety appliances throughout, including steps, handholds and grabirons, meet fully the requirements of the Board of Railway Commissioners for Canada and the United States Interstate Commerce Commission.

Finish—The cars are finished in T. and N.O. Ry. standard colors, with final finish of three coats of outside finishing varnish, and with all lettering in gold leaf.

Equipment not specifically mentioned in the foregoing includes the following:—Holco standard PC-311 6-ply diaphragms; Miner B-10-X buffing device; Fowler upper buffer springs; Pantasote vestibule curtains with Rex roller and hinged shields and release handle; Railway standard tail gate; National steel trap doors; Miner A-5-XB draft gear; A.A.R. type E bottom-operated couplers arranged for 2½ in. tail pin; National centering device; steel doors with stationary glass (½ in. polished plate) in upper panels, except in body end door, where the glass, of 3/16 in. polished plate, is arranged to drop; rubber weatherstrip on bottom of vestibule side doors and body end doors and Best metallic strip on top and sides of body end doors; Duner lip type saloon hoppers, foot operated, with Whalebonite seat; saloon disinfecting equipment; Robert Mitchell Co. white metal water coolers, with copper coils in the ice compartment directly connected to the water pressure system; Ajax cabinet type drinking cup holders; Robert Mitchell Co. wash basins; T. and N.O. Ry. standard liquid soap containers; Onliwon paper towel holders in men's lavatory and women's lounge; ½ in. plate glass mirrors in men's lavatory and women's lounge; air pressure water supply system, with 22 x 96 in. tank in metal casing; set of wrecking tools; Pyrene fire extinguisher in cabinet; malleable iron signal lamp brackets on vestibule corner posts; door holders at body end door and double swinging doors, and Pantasote finger protection on hinge side of double swinging doors; trimmings with statuary bronze finish; all locks to fit railway standard key; Robert Mitchell Co. basket racks in main room and men's smoking room, with lighting fixtures integral; Loeffelholz no. 220 trainline connectors; no. 3-G Gibbs two-pole trainline receptacles; Anderson type CC 2728 charging receptacles; Safety Car Heating and Lighting Co. no. 551 pilot lamp receptacle; Westinghouse schedule K signal equipment; Peacock no. 210-C (15:1 ratio) hand brake, applied at outside of vestibule end sheet with inside 18 in. hand wheel.

Combination Baggage and Passenger Cars

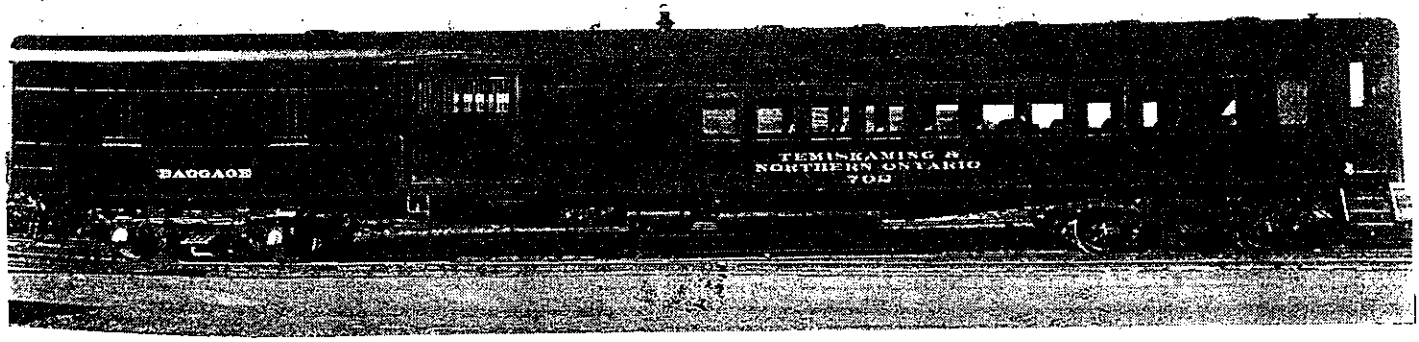
As stated in the introductory paragraphs, the four combination baggage and passenger cars built have somewhat more than half the car taken up by the baggage space, while the passenger end has seating accommodation for 38 passengers. The interior arrangement and dimensions are exhibited by the accompanying floor plan. The specification covers a steel frame, steel sheathed car with steel interior partitions and steel interior end finish. The leading dimensions are as follows:—



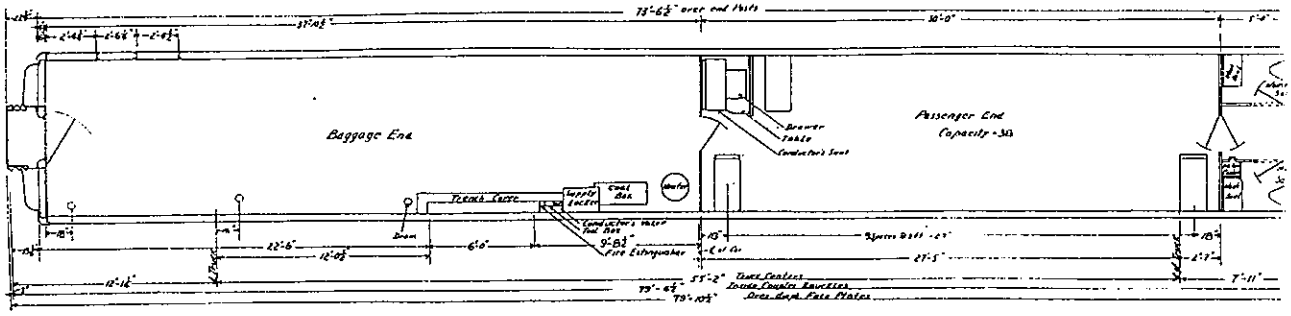
Left, the Women's Lounge, and, Right, the Men's Smoking Room, in the First-class Car.

Length over diaphragm face plates	79 ft. 10½ in.
Length over body end posts	73 ft. 6½ in.
Truck centers	55 ft. 2 in.
Width over girder plates	9 ft. 10-1/16 in.
Width inside of wainscote	9 ft. 0½ in.
Height rail to platform	4 ft. 3 in.
Rail to top of roof	13 ft. 1-5/8 in.

The underframe is of the fish belly type, with built-up bolsters, with cast steel center filler arranged for Security locking device and cast steel buffer and platform, and the underframe details are the same throughout as those of the first class cars, described above, with the exception, of course, that the baggage end of the car underframe structure is blind. The vestibule end is built up with ¼ in. pressed steel diaphragms and 17⅞ x ¼ in. bottom and 22 x ¼ in. top cover plates. The baggage end is cast integral with the steel buffer castings. The lower floor in the cars is exactly the same as in the first class cars, but, in



Combination Baggage and Passenger Car, Temiskaming and Northern Ontario Railway.



Floor Plan, Combination Baggage and Passenger Car

the baggage compartment, an additional floor of 1¼ in. B.C. fir is laid crosswise on top of the 13/16 in. flooring laid longitudinally, at the doorway and center section. Also, a trunk slide and permanent floor racks are applied in the baggage end from side doors to end of car, with floor drains. The aisle in the passenger room is covered with ⅛ in. plain A quality linoleum.

The car superstructure is similar to that of the first class cars, but there are only 66 side posts per car, compared with 72 per car in the first class cars. As concerns the body corner posts, the vestibule end is arranged with 4 in. 8.2 lb. Z and 4 x 3 x ¼ in. angle sections riveted together, and covered with 11 gauge O.H.S. pressed steel with a recess for the vestibule side door. At the baggage end there are 6 in. 15.7 lb. Z and 3½ x 3 x ¼ in. angle sections riveted together, covered with 11 gauge copper bearing pressed steel. The outside sheathing is the same in both classes of cars, but the sash rests in the combination baggage and passenger cars are of 9 gauge copper bearing steel, while those in the first class cars are of 11 gauge material. The body end door posts in the combination baggage and passenger cars are 6 in. 23.9 lb. I beams at the vestibule end, and 12 in. 31.8 lb. I beams at the baggage end. At the vestibule end there is a platform and buffer casting of cast steel, with buffer wings of ¼ in. pressed steel forming the connection between the buffer casting and vestibule corner post, with the platform channels 7 in. 9.8 lb. sections extending from the body end sill to the buffer wing, and forming the support for the platform and vestibule steps. At the baggage end there is a cast steel buffer and end sill casting, securely riveted to the center sills. At the vestibule end, there are 4-tread steel platform steps, without flare, the treads being of steel covered with rubber.

The roof, as in the first class cars, is of the turtle back type; there are 40 carlines per car, one more than in the first-class cars. The carline material and roof covering are the same as in the first-class cars.

Interior finish in the passenger room includes ¼ in. Masonite from window sills to heater guards, with 16 gauge copper-bearing steel sheets back of the heaters. The frieze panel is of ¼ in. Masonite de luxe. The curved portion of the ceiling, at the sides, is in ¼ in. Sundeala, and at the center is in ¼ in. Masonite, the latter material being used also at the pier panels. The body end finish and partitions are built up of steel, securely riveted and machine screwed to the car framing. In the baggage end, the side walls are of corrugated steel lining, 0.037 in. thick, except at back of door and heater guards, where the car is lined with 16 gauge flat sheets. The ceiling is in 20 gauge steel sheets.

The insulation scheme is similar to that in the first class cars.

The windows total 26, there being 13 on each side, with the main windows 28½ in. wide and the saloon and lavatory windows 24 in. wide. The window sash is in mahogany. there being two sashes per window, of the single type, arranged to raise. No storm sash has been provided, but provision is made for future application. The sash fixtures are of Robert Mitchell Co. manufacture, and the glazing is in double diamond glass. There are window guards of ⅝ in. diameter steel bars in the baggage compartment. The curtains are of double faced Pantasote, mounted on Rex metal rollers.

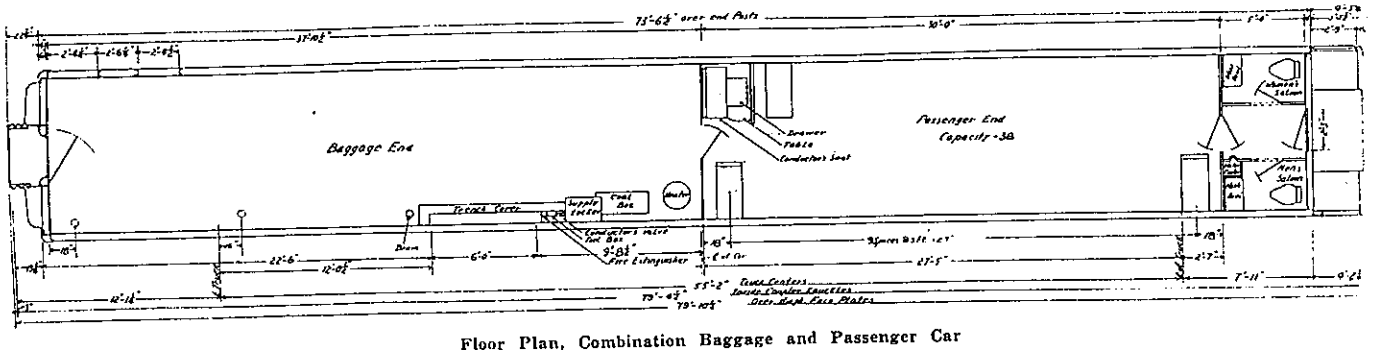
Doors—The end door at the passenger end is of steel, with sash in upper panel arranged to drop. The end door at the baggage end is of wood, steel sheathed on the exterior. It is fitted with a railway standard lock and 2 x ⅝ in. bar lock. The baggage side do wood, with ⅛ in. steel sheet terior. The hangers are the Moore no. 315 type; the eq cludes brass hook and keeper lock, with hasp and staple side. There are 4 lights, 13 door, fitted with double diar protected by round bar steel door starter lever is applied. an automatic stop to prevei from closing accidentally. is applied on the inside of t the side door opening. Th doors are all of steel. That passageway and passenger c has stationary ¼ in. plate g upper panel, while that betwe gage and passenger comp without glass in the upper vestibule side doors are of stationary ¼ in. plate glass i panel.

Ventilation is by means of Utility" center roof type vent in the baggage compartment, passenger compartment, and passageway, with ducts to the These cars, unlike the first are not air-conditioned.

Heating is by the Vapor C Co. hot water system, wit tubing, the system including duplex heater. The 2 in. e trainline is covered with Joh sectional pipe covering. pressed steel heater guards pipes between seats and in t and all steel heater guards gage compartment. In the c this heating system, steam locomotive is employed wh but when the car is set out or is being handled in a fr the duplex heater, which is is employed for heating.

Lighting is by Pintsch Safety Car Heating and Light

Left, Baggage End, and Right, Passenger End, Combination Baggage and Passenger Car.



Floor Plan, Combination Baggage and Passenger Car

the baggage compartment, an additional floor of 1¼ in. B.C. fir is laid crosswise on top of the 13/16 in. flooring laid longitudinally, at the doorway and center section. Also, a trunk slide and permanent floor racks are applied in the baggage end from side doors to end of car, with floor drains. The aisle in the passenger room is covered with ⅛ in. plain A quality linoleum.

The car superstructure is similar to that of the first class cars, but there are only 66 side posts per car, compared with 72 per car in the first class cars. As concerns the body corner posts, the vestibule end is arranged with 4 in. 8.2 lb. Z and 4 x 3 x ¼ in. angle sections riveted together, and covered with 11 gauge O.H.S. pressed steel with a recess for the vestibule side door. At the baggage end there are 6 in. 15.7 lb. Z and 3½ x 3 x ¼ in. angle sections riveted together, covered with 11 gauge copper bearing pressed steel. The outside sheathing is the same in both classes of cars, but the sash rests in the combination baggage and passenger cars are of 9 gauge copper bearing steel, while those in the first class cars are of 11 gauge material. The body end door posts in the combination baggage and passenger cars are 6 in. 23.9 lb. I beams at the vestibule end, and 12 in. 31.8 lb. I beams at the baggage end. At the vestibule end there is a platform and buffer casting of cast steel, with buffer wings of ¼ in. pressed steel forming the connection between the buffer casting and vestibule corner post, with the platform channels 7 in. 9.8 lb. sections extending from the body end sill to the buffer wing, and forming the support for the platform and vestibule steps. At the baggage end there is a cast steel buffer and end sill casting, securely riveted to the center sills. At the vestibule end, there are 4-tread steel platform steps, without flare, the treads being of steel covered with rubber.

The roof, as in the first class cars, is of the turtle back type; there are 40 carlines per car, one more than in the first-class cars. The carline material and roof covering are the same as in the first-class cars.

Interior finish in the passenger room includes ¼ in. Masonite from window sills to heater guards, with 16 gauge copper-bearing steel sheets back of the heaters. The frieze panel is of ¼ in. Masonite de luxe. The curved portion of the ceiling, at the sides, is in ¼ in. Sundeala, and at the center is in ¼ in. Masonite, the latter material being used also at the pier panels. The body end finish and partitions are built up of steel, securely riveted and machine screwed to the car framing. In the baggage end, the side walls are of corrugated steel lining, 0.037 in. thick, except at back of door and heater guards, where the car is lined with 16 gauge flat sheets. The ceiling is in 20 gauge steel sheets.

The insulation scheme is similar to that in the first class cars.

The windows total 26, there being 13 on each side, with the main windows 28¼ in. wide and the saloon and lavatory windows 24 in. wide. The window sash is in mahogany. there being two sashes per window, of the single type, arranged to raise. No storm sash has been provided, but provision is made for future application. The sash fixtures are of Robert Mitchell Co. manufacture, and the glazing is in double diamond glass. There are window guards of ⅝ in. diameter steel bars in the baggage compartment. The curtains are of double faced Pantasote, mounted on Rex metal rollers.

Doors—The end door at the passenger end is of steel, with sash in upper panel arranged to drop. The end door at the baggage end is of wood, steel sheathed on the exterior. It is fitted with a railway standard lock and 2 x ⅜ in. bar lock. The baggage side doors ar wood, with ⅛ in. steel sheet on th terior. The hangers are the Chish Moore no. 315 type; the equipmen cludes brass hook and keeper with lock, with hasp and staple on the side. There are 4 lights, 13 x 22 in. door, fitted with double diamond g protected by round bar steel guards door starter lever is applied, as is an automatic stop to prevent the from closing accidentally. A han is applied on the inside of the car, the side door opening. The par doors are all of steel. That betwee passageway and passenger compart has stationary ¼ in. plate glass i upper panel, while that between the gage and passenger compartmen without glass in the upper panel. vestibule side doors are of steel, stationary ¼ in. plate glass in the panel.

Ventilation is by means of "Imp Utility" center roof type ventilators in the baggage compartment, four i passenger compartment, and one i passageway, with ducts to the lavat These cars, unlike the first-class are not air-conditioned.

Heating is by the Vapor Car He Co. hot water system, with Hea tubing, the system including a n duplex heater. The 2 in. extra trainline is covered with Johns-Ma sectional pipe covering. There pressed steel heater guards ove pipes between seats and in the sa and all steel heater guards in the gage compartment. In the operati this heating system, steam from locomotive is employed when de but when the car is set out of a or is being handled in a freight the duplex heater, which is coal is employed for heating.

Lighting is by Pintsch gas, Safety Car Heating and Lighting

New Passenger Train Cars for T. and N. O. Railway

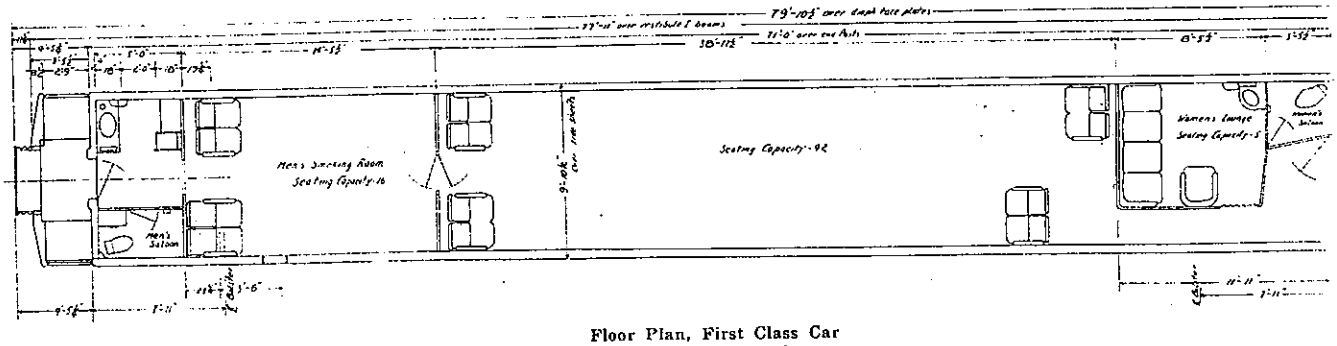
(Continued from page 1)

side sheathing is of copper-bearing, roller-levelled steel, the girder plates below the belt rail being 9 U.S. gauge and the pier plates and letter plates being 11 U.S. gauge. Joints between sheets and splice plates have tar paper applied. The drip mouldings over the windows are of copper-bearing steel. The body end posts are 4 in. 8.2 lb. Z bars; the body end door posts are 6 in. 23.9 lb. I beams, and the body end sheets are of 9 gauge copper-bearing steel, riveted to the end and door posts. The vestibules are of the wide type, without windows. The end platform and buffer casting is of cast steel, securely riveted to the center sills and recessed for the buffing and draft gear. The 7 in. 9.8 lb. platform channels extend from the body end sills to the buffer wings, and form the support for the platform floor and vestibule steps. The platform floor is of ⅛ in. steel plate, covered with pebble dot rubber, cemented down. The platform steps are of the 4-tread type, the step treads being of steel, covered with rubber. The diaphragm posts are 6 in. 23.9 lb. I beams, secured to the platform casting by gibbed key connections. The vestibule corner posts are 11 gauge copper-bearing steel, pressed to shape and forming a recess for the vestibule door. The vestibule end sheets and ceiling are of 11 gauge copper-bearing steel.

The roof is of the turtle back type, with the carlines (39 per car) of ⅛ in. O.H.S. pressed U shape, riveted to the side plates. The roof covering is copper-bearing steel sheet, 11 gauge at the sides and 14 gauge at the center.

Insulation—In the floor insulation, the space between the steel floor sheets and the lower course of the wooden floor is filled with 3-ply Salamander, cut to fit between the floor stringers. In the side and end insulation, one layer of 3-ply Salamander and one of ½ in. Hairinsul is used at the ends, side pier plates, letter plates and below the side windows, extending to the side sill and folded up to a height level with the top of floor. The insulating material is held in place by galvanized clips. In the roof, one course of 3-ply Salamander and one of ½ in. Hairinsul are placed against the inside of the center roof sheets, and one course of 3-ply Salamander against the inside of the side roof sheets, all held in place by galvanized clips. Between the 14 gauge roof sheets and the Salamander insulation is a course of J.-M. no. 65 deadening felt.

Windows—There are 17 windows at one side of the car and 15 at the other, the main windows being 33½ in. wide and those in lavatory and saloon 24 in. wide. The window sash is the Robert Mitchell Co. Thermosash, with two panels of 3/16 in. plate glass enclosed in an extruded aluminum frame and drated by the Mitchell process. guard rail is fitted at the pass windows, adjacent to the women's Curtains are silk faced Pa mounted on Rex 1 in. diam. metal and all exposed metal parts statuary bronze finish.



Floor Plan, First Class Car

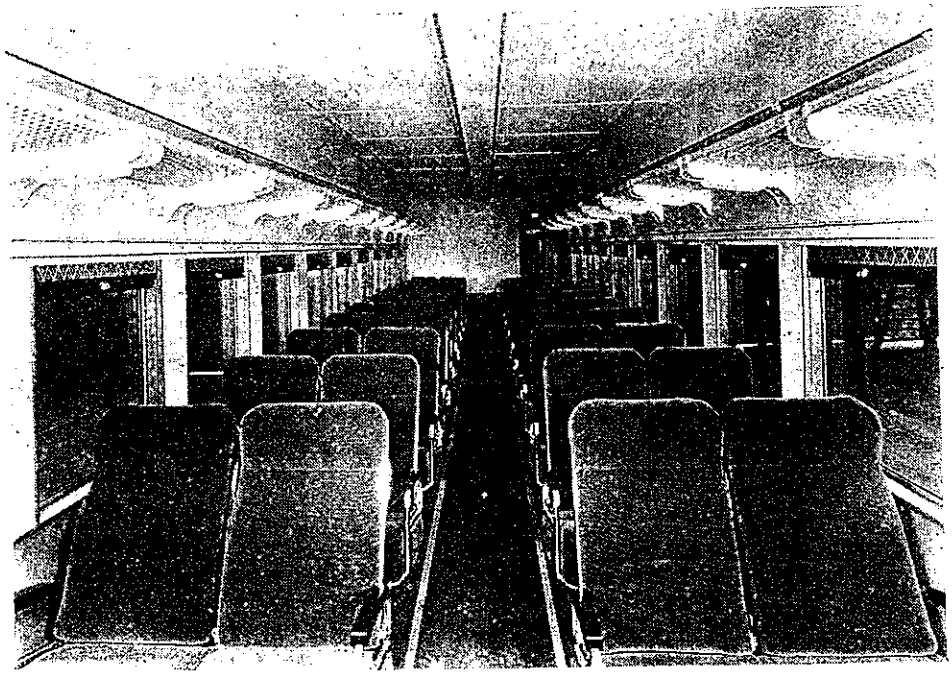
The interior arrangement of is as shown in the accompanyi plan drawing, with the women's and saloon at the A end, followe main room, with seating capacit the men's smoking room, with capacity of 16, and the men's sal lavatory at the B end.

In the interior finish, there Masonite from window sills t guards, with 16 gauge copper steel sheets back of the heate frieze panel and ceiling are Masonite de luxe, except that th portions of the ceiling, at the s of ¼ in. Sundeala. Three co fawn shades make up the color giving the interior a very h appearance, heightened by the b boleum floor covering, with li stripes in the aisles, and by mohair seat upholstery. The throughout are of steel, securel and machine screwed to the car

The seats in the main room Heywood-Wakefield model 17 two-passenger, rotating, reclini with aluminum base and black arm rests, mohair covered. Th are locked in position when fa ward, but are free to revolve any other position. The cush backs are in Dunlopillo cushio terial. In the men's smoking seats are upholstered in blue The chair and 4-place sofa in the lounge are finished in red leath seat is provided in the men's and is upholstered in blue leath

The car heating is by the V Heating Co. steam heat equipn fin tubing, the 2 in. extra hea line being covered with J.-M. pipe covering. There are pre heater guards over the pipes seats and in the saloons, lavat women's lounge.

Electrical Equipment—The equipment for these cars, su Stone Franklin of Canada, Ltd. of Stone's patented Tonum g type XR.29/27; Stone's patente regulating panels, type XRD. V. amperes; Stone's patented la lating panels, type CLP. 3/2 peres, and 4 circuit main ligh The cars are equipped also wi patented Cush Drive, type S. does away with the driving regulating apparatus is adjust liver a constant pressure of 4



This car, to which the name "Goldland" has been applied, was rebuilt completely in the railway's shops with interior appointments designed to provide maximum attractiveness and comfort for passengers.

The illustrations herewith are of a car in Temiskaming and Northern Ontario Ry. service, formerly named the "Wasaksima", which was rebuilt completely in the railway's North Bay shops, renamed the "Goldland" and placed back in service recently. In keeping with modern trains, several distinctive features were introduced, and decorative effects of a high order were utilized.

So far as the exterior is concerned, the finish is in the T. and N.O.R. standard color, Pullman green. The lettering is in gold leaf on a red panel, this being the recently adopted T. and N.O.R. standard for passenger car lettering. The car is 79 ft. 11¼ in. over diaphragm face plates, 79 ft. 5¼ in. long between pulling faces of couplers, 70 ft. 3½ in. long over the end sills, and has distance of 51 ft. 10 in. between truck centers and 33 ft. 1 in. between cantilever centers. Outside width is 11 ft. 6 in. and inside width 8 ft. 11½ in. In the interior, there is a parlor compartment, 24 ft. long, and a dining compartment, 20 ft. 1½ in. long, while the balance is utilized for toilets, lockers and the kitchen and pantry space, the latter being concentrated at one end of the car, adjoining the dining compartment. The parlor and dining sections do not directly adjoin, but are divided by two partitions, spaced 2 ft. 9 in. apart. Between these partitions, on each side of the car, lockers are provided, and, between the locker faces and the door openings in the partitions, small windows have been applied, permitting a clear view throughout the length of the car. No doors are attached to these two center partitions.

The floor covering is M/44 A-gauge Marboleum, striped with blue linoleum. At the partitions, a semi-circular strip of blue linoleum, 4 in. wide, and at 2 ft. 6 in. radius, is inlaid, and, from these, two 4 in. strips of blue linoleum, spaced 20 in. apart, extend to the next semi-circular inlay at the partition. In the parlor compartment, the blue strips are the aisle and the narrower tables on the located equidistant from the longitudinal center line of the car, but in the dining compartment they are offset to run between the wide tables on one side of other side. Careful scrutiny of the car interior views presented herewith illustrate the arrangement. This unique disposition of the inlaid linoleum affords pleasing contrast with the wall decorative colorings. Walls and partitions are in two shades of grey, and the window sills are in black, forming an appropriate division between the two grey shades. The mouldings are striped in gold and red, and complete the color scheme of the whole in most harmonious manner. with tapes and cords in the same shade, are applied. Above each window, curtain boxes are provided, and upon these a polished chrome curtain rod is fitted, one at each window; it supports the window drapes, which are of red and gold in striped pattern.

Interior of Parlor Compartment.

Interior of Dining Compartment.

The ceilings are finished to resemble maple.

At all windows in the parlor and dining compartments, Venetian blinds, in cream,

On the main partitions, on each side of the doorway, a beveled frameless plate glass mirror, 30 in. wide, is applied; the effect of this arrangement is to produce an impression of extreme length in the car interior. In the parlor section, adjoining the partitions, are two 4-seat sections, with the upholstery in one section in rose-colored corded plush, and in the other in blue corded plush. For each of these two sections there is a removable table, covered in red morocco leather, which may be utilized for playing bridge or for the serving of afternoon tea or light lunch. The balance of the seating accommodation in the parlor compartment is provided by 12 chairs in modernistic style. The frames are of polished chrome, while the upholstery for six is in rose-colored corded plush and for the other six in blue corded plush. In the dining compartment, the 18 chairs have wood frames, finished in black, with the upholstering in red morocco leather.

Lighting current for the car is furnished by a direct-drive generator. The car body is carried on 6-wheel trucks, with cast steel frames, and journals are 5 x 9 in. Light weight of car is 144,500 lb. Combined seating capacity in the parlor and dining compartments is 38.

(*Another illustration appears on the next page*)

U.S.A. Railways' Earnings—Preliminary figures for 91 U.S.A. Class 1 railways show January gross of $231,665,613, a decrease of 16.4% from Jan., 1937, and of 36.7% from Jan., 1930.

MARCH 1937

fixtures, of which there are three in the baggage room, five in the passenger compartment, one in the vestibule, and three bracket fixtures.

Brakes—As in the first-class cars, the air brakes are the Westinghouse U.C.-4 schedule, with truck-mounted 10 x 10 in. brake cylinders. At the vestibule end there is a Peacock 210-C handbrake, with 15:1 ratio, applied on the outside of the vestibule end sheet, with 18 in. inside handwheel, and at the baggage end there is a similar brake applied on the outside of the end sheet, with both inside and outside wheels. Westinghouse schedule K signal equipment is installed.

The trucks are the same throughout as those of the first-class cars, being fitted with Timken roller bearings for 5½ x 10 in. journals.

Safety appliances throughout are in accordance with the requirements of the Board of Railway Commissioners for Canada and the United States Interstate Commerce Commission. In the baggage compartment there are safety rails of 1 in. standard pipe, with malleable iron brackets. These run longitudinally, a short distance below the ceiling, and their presence enables a man to swing himself up out of harm's way in the event of trunks or other baggage shifting violently about the car. There are also vertical rails to prevent a man from being crushed against the car end.

The seats in the passenger room, of which there are 19, are the Heywood-Wakefield 332 LF walkover type, finished in leather. There are basket racks in the passenger room only.

Other Equipment—The fittings in the passenger compartment are of the same high order as in the first-class cars, there being an air pressure system water supply with 22 x 93 in. tank, adequate door weatherstripping, foot-operated Duner saloon hoppers, a white metal water cooler in the passageway with copper coils connected to the water pressure system, Ajax drinking cup holder, one white metal wash basin in the men's lavatory and one in the women's lavatory, liquid soap container, paper towel holder and mirror in each lavatory, a complete set of wrecking tools and two Pyrene fire extinguishers. All trimmings are in statuary bronze finish. The operating equipment includes Holco diaphragms, Miner B-10-X buffing device, Fowler upper buffer springs, Pantasote vestibule curtains, railway standard tailgate, National steel trap doors, Miner A-5-XB draft gear, A.A.R. type E bottom-operated couplers and National centering device.

When this description appears in print, all ten cars will no doubt be in operation in the Northern Ontario territory served by the T. & N.O. Ry., and the residents of the northern mining country will be well enabled to claim that they have railway passenger equipment the equal of any on the whole continent.

U.S.A. Railway Freight Car Situation—The Association of American Railroads, Car Service Division, reports that on Nov. 1, 1936, there were 1,742,498 freight cars on U.S.A. class I lines, of which 226,095, or 13% of total, were awaiting or undergoing repairs, compared with 13.9% on Oct. 1, 1936. On Oct. 31 last there were 112,369 surplus freight cars on U.S.A. class 1 lines, included in which were 64,778 box cars, 11,428 gondola cars and 6,055 hopper cars. On Oct. 14, 1936, surplus freight cars totalled 113,526, and on Oct. 31,

Railway Accidents Report

September Figures

The Board of Railway Commissioners for Canada reports that in September, 1936, there were 239 accidents on Canadian railways, 23 persons having been killed and 273 injured, and 30 accidents at highway crossings, 13 persons having been killed and 44 injured, a total of 269 accidents, 36 persons having been killed and 317 injured.

Of those killed, 10 were employees and 26 others, and of those injured, 47 were passengers, 196 employees and 74 others.

The highway crossing accidents by provinces were:—Nova Scotia, one, an automobile, through driver's carelessness in running into side of a train.—New Brunswick, one, a truck, through driver's carelessness in running on to crossing in front of train and being struck.—Quebec, seven, automobiles in five and trucks in two; six accidents were caused through drivers' carelessness in three automobiles and two trucks failing to stop for crossings and one automobile stalling on crossing.—Ontario, 12, automobiles in 11 and a truck in the other, all through drivers' carelessness in five automobiles and the truck driving on to crossings in front of trains, three automobiles running into sides of trains, one automobile stalling on crossing in front of train, one automobile's driver failing to see or hear train and one automobile's driver being in an unfit physical condition.—Manitoba, two, an automobile and a truck, both through drivers' carelessness, the truck being driven on to crossing in front of train.—Saskatchewan, four, all automobiles, three through drivers' carelessness, one failing to observe approaching train and being struck.—Alberta, an automobile through reckless driving on part of driver in the only accident.—British Columbia, two, an automobile through driver's carelessness in driving on to crossing in front of train and being struck, and a pedestrian, who walked into path of oncoming train.

Of the 30 accidents at highway crossings, 27 took place at unprotected and three at protected crossings, 21 having occurred during the day and nine at night.

October Figures

In October, the Board reports, there were 194 accidents on Canadian railways, 17 persons being killed and 190 injured, and 26 accidents at highway crossings, nine persons being killed and 50 injured, a total of 220 accidents, 26 persons being killed and 240 injured.

Of those killed, six were employees and 20 others, and of those injured, 21 were passengers, 149 employees and 70 others.

The highway crossing accidents by provinces were:—Nova Scotia, three, an automobile, a truck and a horsedrawn vehicle, all through drivers' carelessness in disregarding crossing bell, failing to see or hear train and in attempting to beat train, respectively.—New Brunswick, one, an automobile through driver's carelessness in travelling at excessive speed and running into side of train.—Quebec, four, automobiles in two and trucks in two, all through drivers' carelessness in failing to stop for crossings.—Ontario, 12, automobiles in eight, seven through drivers' carelessness in three running into sides of trains, three driving on to crossings in front of trains, and one through disregard of bell and wigwag signals; the other automobile, after stopping clear of crossing, was volved in three accidents, all through drivers' carelessness in one stalling on crossing, in one through reckless driving and in one through defective brakes; a horsedrawn vehicle, the horse being unmanageable and running on to crossing in front of train, was concerned in the remaining accident.—Manitoba, an automobile, through drivers' carelessness, in failing to take precaution and driving on crossing in front of train, was involved in the only accident.—Saskatchewan, three, automobiles in two, through drivers' carelessness in one running on to crossing and being struck by train and in the other through reckless driving and running into side of train; a pedestrian, a boy who stood too close to train and endeavoured to touch it, was concerned in the other.—Alberta, two, an automobile, through driver's carelessness in failing to see or hear train and driving on to crossing and being struck, and a horsedrawn vehicle, the section crew failing to comply with instruction to stop before passing over crossing, being involved.

Of the 26 accidents at highway crossings, 22 took place at unprotected and four at protected crossings, 14 occurring during the day and 12 during the night.

Railway Freight Traffic

The Dominion Bureau of Statistics, Transportation and Public Utilities Branch, reports freight loaded on Canadian railways and received from foreign connections, in tons, as follows:—

	Aug., 1936	Aug., 1935	Aug., 1934
Prince Edward Island	8,699	19,564	4,841
Nova Scotia	628,186	540,564	591,246
New Brunswick	162,547	137,098	123,817
Quebec	999,123	x937,985	856,145
Ontario	2,589,967	2,122,646	2,141,216
Manitoba	551,345	269,588	359,031
Saskatchewan	607,570	407,580	363,777
Alberta	356,909	484,550	530,888
British Columbia	402,563	389,650	383,216
Total	6,307,409	x5,309,225	5,354,177

	Sept., 1936	Sept., 1935	Sept., 1934
Prince Edward Island	15,124	22,209	10,627
Nova Scotia	649,217	504,710	596,535
New Brunswick	219,757	135,140	133,827
Quebec	1,184,323	995,700	867,474
Ontario	2,600,518	2,333,756	2,062,381
Manitoba	607,635	499,008	653,120
Saskatchewan	1,446,495	903,102	860,542
Alberta	683,225	752,691	856,565
British Columbia	423,827	366,890	369,867
Total	7,830,121	6,563,206	6,410,938

The products, in tons, were:—

	Aug., 1936	Aug., 1935	Aug., 1934
Agricultural	1,574,122	1,104,644	1,164,818
Animal	180,688	170,605	195,107
Mine	2,171,229	x1,885,134	1,954,528
Forest	621,155	594,776	553,054
Manufactures and miscellaneous	1,760,215	1,554,066	1,486,670
Grand Total	6,307,409	x5,309,225	5,354,177

	Sept., 1936	Sept., 1935	Sept., 1934
Agricultural	2,525,814	2,008,694	2,154,412
Animal	204,369	179,389	190,168
Mine	2,655,303	2,247,273	2,203,168
Forest	671,596	x591,988	508,907
Manufactures and miscellaneous	1,773,039	x1,535,862	1,354,283
Grand Total	7,830,121	6,563,206	6,410,938

xRevised.

Grain Car Loading—In the handling of the Western Canadian grain crop in October, 1936 and 1935, E. A. Ursell, Statistician, Board of Grain Commissioners, reports, average net bushels per car were as follows, the Oct., 1936, figures being stated first in respect of each variety:—Wheat, 1,499.96; 1,408.1; oats, 2,000.04; 1,903.93; barley, 1,606.03;

Canadian
Transportation
Dec 1939

New Hart-Otis Ballast Cars for T. and N.O. Ry.

The Temiskaming and Northern Ontario Ry. had built by National Steel Car Corporation, Hamilton, Ont., recently, fifty 70-ton, improved type, all steel Hart-Otis ballast cars, arranged for side dumping. The center sills are of riveted construction, and electric welding was employed in fabrication of the superstructures.

We present, herewith, illustrations of one of the fifty Hart-Otis side-dump ballast cars delivered to T. and N.O. Ry., recently, by the builder, National Steel Car Corporation. Also shown is an illustration of one of the Symington-Gould spring plankless trucks on which the car bodies are carried.

An interesting feature of these cars is that the superstructure is electrically welded. The center sills, of the fish belly type, are of riveted construction. In order to strengthen the bolster and center sill connections, the center sill filler and back draft stop were specially designed to withstand the heavy shocks which cars of this type usually experience in service. In preparing the design for these cars, a careful check was made to secure precise knowledge of the defects which have developed in the past in other cars employed in ballast distribution and similar work, and the design employed in these cars is such that the defects which developed in preceding cars of the type have been guarded against. Where cast steel filler castings were used, the bearing surfaces were machined to secure a proper fit prior to riveting. In construction, all rivet holes in the cars were punched smaller in size and then reamed to the proper size; in this manner, a more perfect rivet application was obtained. Each car is equipped with two end doors and one apron plate.

The chief dimensions of the cars are as follows:—

Length over pulling face of couplers	43 ft. 2 in.
Length over striking castings	45 ft. 8 in.
Truck centers	34 ft. 8 in.
Wheel centers	5 ft. 8 in.
Journals	6 in. x 11 in.
Wheels—cast iron	33 in. diam.
Extreme height of car	8 ft. 7⅜ in.
Height of floor from rail	4 ft. 3⅛ in.
Inside length	43 ft. 6 in.
Inside width	8 ft. 9 in.
Light weight	54,000 lb.
Capacity	156,000 lb.

Left, the Ballast Car Interior; Right, the Car End.

The cars are numbered from 140,001 to 140,099, only the odd numbers being employed.

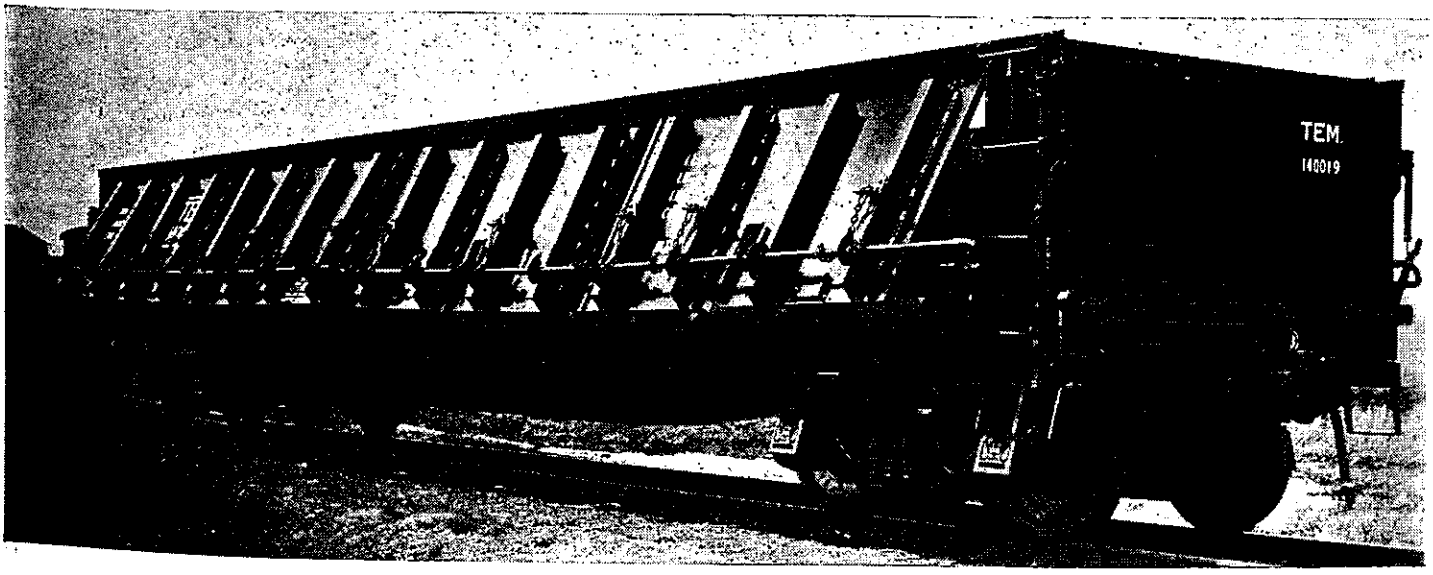
The trucks are the Symington-Gould double truss spring plankless type, with 6 x 11 in. journals, and with a 7-nest spring arrangement. The journal boxes are cast integral with the Symington-Gould cast steel side frames. Truck equipment includes Asco journal box lids and Mobile brake hanger fittings.

The couplers are 6 x 8 in. A.A.R. type E, top-operated. Two makes of draft gear are employed. Cars 140,001 to 140,069 are equipped with the Peerless H 1 draft gear, and cars 140,071 to 140,099 are equipped with Cardwell-Westinghouse draft gear.

Equipment includes Holden Co. defect card holders, Westinghouse type AB air brakes and journal bearings provided by Rahn Metals of North Bay, Ont. The paint in which the cars are finished was supplied by Canadian Industries, Ltd.

(See additional illustration on next page.)

U.S.A. Exports of Railway Equipment —The Transportation Division, Bureau of Foreign and Domestic Commerce, U.S.A. Department of Commerce, reports that exports from the United States of railway equipment (including locomotives and parts, rolling stock and parts, railway signals, car heating equipment, air brake equipment, etc.) totalled $5,272,452 in the first eight months of 1939, or less than half the exports in the first eight months of 1938, which were valued at $10,706,598. Exports of railway equipment in August this year were valued at $710,930, compared with $751,778 in July, and with $1,488,918 in August last year.



Feb 1940

Three-Car Diesel-Electric Train on Temiskaming & Northern Ontario

The Temiskaming and Northern Ontario Ry. has recently placed in service, between Cochrane and Porquis, a Diesel-electric passenger train consisting of combination baggage car and power unit, one second class car with small baggage compartment, and one first class car. Details of general dimensions, etc., will be found elsewhere in this article.

The combination baggage car and power unit was converted from a Brill gas-electric, 73-ft. combination power, baggage and passenger car, originally built in 1926. This unit had been in service almost continuously since that time, and the gasoline engine had become more or less obsolete and unsatisfactory for service. In view of this, it was decided to replace the engine with a modern compression-ignition engine. To this end a Cummins six-cylinder, model "L" engine, rated at 250 brake horsepower at 1,000 r.p.m., adaptable to meeting the existing electrical equipment in the car, was selected. The new engine, connected directly with a flexible coupling to the original generator, is mounted on a common steel bed plate 1 in. thick. This bed plate was then welded to the car center sills. The bed frames of the engine and generator were secured to the bed plate by means of fitted bolts, and the whole has formed an exceedingly rigid and vibration-free mounting. In addition to the above, and to prevent the vibration existent in the original car, a $\frac{3}{8}$ in. cover plate was rivetted from bolster to bolster on the bottom of the center sills.

The starting equipment for the engine is of the compressed air type, manufactured by the Briggs and Stratton Corporation and known as their Type no. 302064, Model "K". This equipment, supplied by the Cummins Diesel Engine Corporation, consists of a small gas engine driven compressor, charging a reservoir with a working pressure of 350 lb. per sq. in. As the reservoir can be charged up to full pressure in 15 minutes, by adopting this method of starting the engine, a set of batteries was eliminated, as it would take about eight hours to charge the batteries as against the 15 minutes of charging the reservoir with air. The compressed air distributor on the engine is also very reliable and of comparatively simple construction.

All the electrical equipment was given a thorough overhauling and no major replacements were required, as it was found to be in first class condition. Since being placed in service the Westinghouse electrical equipment has proved to be

lead plate cells being carried underneath the power car and charged by the exciter.

In rebuilding the power car, all the passenger seats were removed, and the entire space, except the power compartment, was made into a baggage and express car. To speed up the handling of baggage and express, two additional baggage doors were provided in the body of the car. A number of windows, in the part formerly used as a passenger compartment, was blocked up.

The car roof and sides were insulated with two inch thick Salamander, then finished with $\frac{3}{8}$ in. sheathing. The ceiling of the car is painted cream, the sides, grey and the slatted floor, red. In the power compartment, the ceilings and side walls down to the window sills are painted grey, the window sills, black; from the window sills to floor, slate blue. The floor of the power compartment is covered with "A" gauge M/54 Marboleum. The engine and component parts are painted slate blue in color.

On the original car there was no diaphragm arrangement or spring type couplers, and, in rebuilding, standard coach diaphragm and spring type draft gear were applied at the rear end.

The Trailer Cars

The two trailer cars were originally two separate storage battery cars, built in 1924. After many years of service, owing to greatly increased traffic demands, these cars were removed from service and placed in storage. In the spring of 1939, their use was considered as trailer cars, and, after considerable rebuilding, they have proven most satisfactory. Originally these cars were built in order that they could be operated from either end; this therefore meant that, in the rebuilding programme, new vestibules, complete with standard buffing gear and diaphragms, were required. It was further necessary to raise the car body $5\frac{5}{8}$ in. in order to bring the platforms to the standard height.

In the case of the first class car, the entire end had to be rebuilt, as the end was a blind end baggage compartment. Both cars were equipped with water raising systems and other modern toilet facilities. Heating of each of the two cars is accomplished by means of a hot water heater supplying heat through fin type tubing. All ceilings, walls, and floors were thoroughly insulated with Salamander.

Finish of Trailer Cars—The exterior of the trailer cars were finished in the T. & N.O. standard colors, viz., Pullman green, the center name panel in Castillian red, with gold leaf striping and

The inside finish is to T. & N.O. ard, consisting of cream ceilings; walls, light grey; window sills, walls below window sills, slate blu floor in the second class main co ment is painted terra cotta, exc a 24 in. aisle strip of M 54, "A" Marboleum. The toilets and pa way floors are completely covere Marboleum of the same color. Th are upholstered in black Pantosot striping in both cars is in blue an

The seats in the main compartm the first class car are upholstered plush, and those in the smoking partment in black Pantasote. The floor of this car is covered with Marboleum, "A" gauge. The lighting of both cars provides an a ance of light.

The Temiskaming and Northern Ontario Ry. 3-Car Diesel-electric Train.

Chief Dimensions of Cars

The total length of the 3-car tr 186 ft. 10 in., and its total wei 229,100 lb. The chief dimensions of the cars are as follows.

Power Car (no. 1000)

Length over coupling faces	75 ft.
Length over body	73 ft.
Width over posts	9 ft.
Height from rail to roof	12 ft.
Truck wheel base (front)	7 ft.
Truck wheel base (rear)	7 ft.
Truck centers	54 ft.
Truck (front)	Brill 27 M
Truck (rear)	Brill 27 M
Light weight of car (front)	69
Light weight of car (rear)	16
Total weight	115
Baggage space	55 ft.

Trailer Cars (nos. 1001 and 1002)

Length over coupling faces	55 ft.
Length over body	34 ft.
Width over posts	8 ft.
Height from rail to roof	12 ft. 9 in.
Truck wheel base	5 ft.
Truck centers	35 ft.
Total weight of car no. 1001	55
Total weight of car no. 1002	57
Baggage space, car no. 1001	13 ft.
Seating capacity, car no. 1001	
Seating capacity, car no. 1002 (main compartment)	
Seating capacity, car no. 1002 (smoking compartment)	

Route and Schedules

This 3-car, Diesel-electric train ates on the Devonshire Subdivisio tween Cochrane, the point at whic T. and N.O.R. line crosses the C National Transcontinental Railway and Porquis, the junction with Iroquois Falls and Ramore Subdivi The mileage of this route is 28.2. S bound, operating as no. 148, the leaves Cochrane 6.40 a.m., daily Sunday, and arrives Porquis 7.40 Northbound, as no. 149, it leaves P 8.20 a.m., daily except Sunday, arrives Cochrane 9.15 a.m. Southb as no. 146, it leaves Cochrane 1.40

Record of Train over 30-day Period

Lubrication and Fuel	
1740 Gallons of Fuel Oil at 14c	$243.60
36 Gallons of Lubricating Oil at 68c	24.48
13.14 Gallons of Gasoline for Air Starting Motor at 18½c	2.43
Total Fuel and Lubrication cost for 30 days	$270.51
Average cost per mile for fuel	5.16c
Average cost per mile for lubrication	.5c
Average cost per mile for gas	.05c
Average cost per mile for fuel, gas and lubrication	5.7349c
Cost per 1,000 lb. hauled per mile	.025c
Average cost per day	$ 9.02
Average train mileage per day	157.28

3.25 p.m. daily, and arrives Cochrane 4.25 p.m. Southbound, as no. 150, it leaves Cochrane 5.40 p.m. daily except Saturday, and arrives Porquis 6.35 p.m. Northbound, as no. 151, it leaves Porquis 7.05 p.m. daily except Saturday, and arrives Cochrane 8.05 p.m.

Record of Operation over a 30-day Period

During a recent 30-day period, operating as above described, this train accumulated operating costs as exhibited in the accompanying panel. The figures show that a remarkably low-cost service has been secured, the fuel cost per train mile, 5.16c, being about equivalent to that for some large buses. The total cost for fuel oil, gasoline and lubricating oil, less than 6c per train mile, is a remarkable figure.

Power Car Has Plenty of Capacity

During the recent Christmas season, it was found necessary to handle, in addition to the two trailers, a fully loaded standard steel R.P.O. car of about 167,340 lb. total weight, the car being equipped with 6-wheel trucks. The Diesel-electric power car was able to handle the extra tonnage in a most satisfactory manner.

Rail Weight and Tie Life

A recent report, based on studies of the life of cross ties conducted on 39 railways in the United States and Canada with total mileage of 226,000, makes evident that the heavier the rail, the less are ties subjected to abuse in service, with consequent lengthening of tie life.

The American Railway Engineering Association received, at its recent meeting, a report from a sub-committee of the committee on economics of railway labor, of which E. T. Howson, Western Editor, Railway Age, and Editor, Railway Engineering and Maintenance, was chairman. This report, based on very thorough studies of the subject, demonstrates that the service life of railway ties depends in large measure upon the weight of the rails which they carry. While, of course, tie life is influenced in very great measure by many other things, such as the species and soundness of the timber, the seasoning, the storage and piling methods, the preservative treatment applied, the ballast and the efficiency of track maintenance, it is made evident that the weight of rail in itself has much to do with the manner in which the ties stand up, the report stating as in the following.

"By reason of its greater girder strength, the larger rail distributes the traffic load over a greater number of ties, thus reducing the load on the individual ties. Although they are entirely independent of, but usually incidental to, heavy rail, large tie plates also contribute to decreasing the intensity of pressure on the ties by spreading the reduced load over a greater area of the surface of the ties. Ties fail in large numbers as a result of abrasion induced by relative movement between the tie plate and the tie, and this mechanical action is greatly increased by the wave motion in the rail. Since the heavy rail is stiffer, it has less wave motion and thus prolongs the life of those ties that fail from plate cutting. Spike cutting is another fertile source of tie failure, and because rail renewals are less frequent and less gauging is required with the heavier rail and larger tie plates, the life of ties subject to this type of failure is prolonged. Because of wood, the type of treatment, the practice of pre-adzing and pre-boring, the character and condition of the ballast, and others that are in no wise related to the weight of the rail, it is not possible to state in concrete terms the effect of increased weight of rail on the labor involved in tie renewals, although it is clearly apparent that the heavy rail will result in an increase in the life of ties, and thus reduce the labor required for tie renewals.

"Owing to the greater girder strength of the rail itself and to the opportunities the higher fishing affords for better joint design, it is the general experience that an increase in the weight of rail tends to decrease the amount of labor required for picking up joints. There is also a reduction in the labor required for reconditioning the joints and replacing joint bars where heavy rail is used. The effect on labor of this item varies almost directly with the volume of traffic, axle loading and speed.

"Lack of stiffness accentuates wave motion in rail under the rolling wheel loads, thus causing increased vertical movement in the ties. Investigation has shown that the intensity of the blow delivered by the tie to the ballast bed under fast moving trains varies approximately as the square of the amplitude of the wave motion, that is, as the vertical distance the tie moves. These repeated blows tend to drive dirt up from the subgrade through the ballast and foul it. Then, with favorable conditions of moisture, churning results. While churning may, and frequently does, occur at any tie, it is more frequent and generally more aggravated around the joints.

"Since the greater stiffness of the heavy rail reduces the amplitude of the wave motion and, therefore, the vertical movement of the ties, churning is reduced and the amount of labor involved in surface or reduced. The committee obtained information as to the magnitude of the excess labor requirement over ordinary maintenance, but referred to a previous report by the committee on ballast, in which it was stated that the cost of maintaining churning track (joints) from 2½ to 4 times that for track on which there are no pumping joints."

The committee's conclusions are:—

1. The use of heavy rail in heavy traffic, high-speed lines reduces the amount of labor necessary to maintain a given standard of track excellence.

2. This reduction is both direct and indirect. The items affected directly include line, surface, gauge, joint maintenance and laying rail. The items affected indirectly include tie renewals, cleaning ballast and ballast renewals.

3. Since the labor required for practically every item of track maintenance is affected also by factors that have a relation to the weight of the rail, it impossible to segregate those factors such a way that the effect of the heavy rail alone can be evaluated.

4. The magnitude of the economy that can be realized from increasing the weight of rail depends on the relative stiffness of the heavy rail and of the lighter rail that it displaces, the volume of traffic, the axle loads and the speed of trains.

5. For lines of high traffic density, the saving in track labor following the installation of 112- and 131-lb. sections in place of sections weighing 100 lb. and lighter may reach 40 per cent. of the total expenditure for this item. As the volume of traffic decreases, this saving also decreases until a point is reached where considerations other than savings in labor must justify the increase in weight of rail.

Meritorious Service Recognized—Canadian Pacific Ry. Saskatchewan District Educational Bulletin no. 354, of Jan. issued over the signature of H. J. Main General Superintendent, records the awarding of merit marks to a number of employees for meritorious service. Six agents and an operator were each awarded three merit marks for handling important commercial messages when off duty. An agent was awarded three merit marks for detecting a broken brake rod and another agent received the same recognition for detecting incorrect stencilling on a car. A section foreman was awarded three merit marks for detecting grain leakage from a car. Three other section foremen were each awarded five merit marks for rendering valuable assistance in protecting company property from fire. Two trainmen were each awarded three merit marks for detecting a broken arch bar.

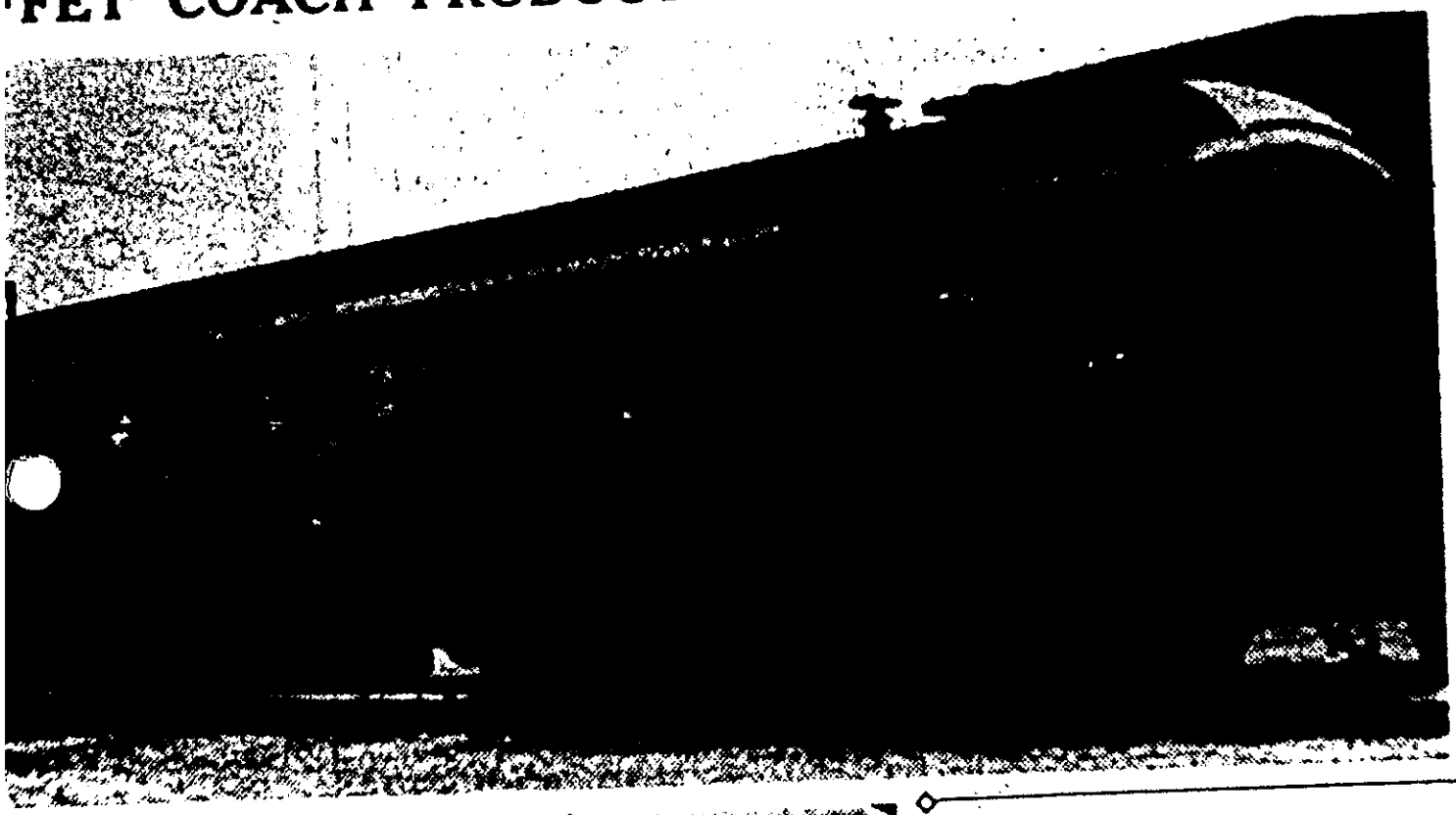
Jasper Park Lodge enjoyed the best season of its history in 1939, according to Fred Brewster, famous outfitter and camp operator of the Northern Rockies who visited Montreal recently. Mr. Brewster added that, with travel to Europe drastically curtailed, the expectations are that the summer of 1940 will be even a busier one than that of 1939 and preparations are being made for an unprecedented influx of visitors. Last year, Mr. Brewster's company increased its horses by 20 to a total of 130, and the herd is being brought up to 150 for the coming season. Jasper Park Lodge will be open this year from June 15 to Sept. 15, and rates for the coming season

rth Bay Nugget

Bay, Ont., Monday, June 12, 1939

D IN BIG LIQU

FET COACH PRODUCT OF T. & N. O. SHOPS



Four Bands To Parade in Appreciation

Great Program Arranged to Lend Helping Hand to Mort Fellman

Four bands will pace the parade from Amelia Park ball field Fri-

2/1941

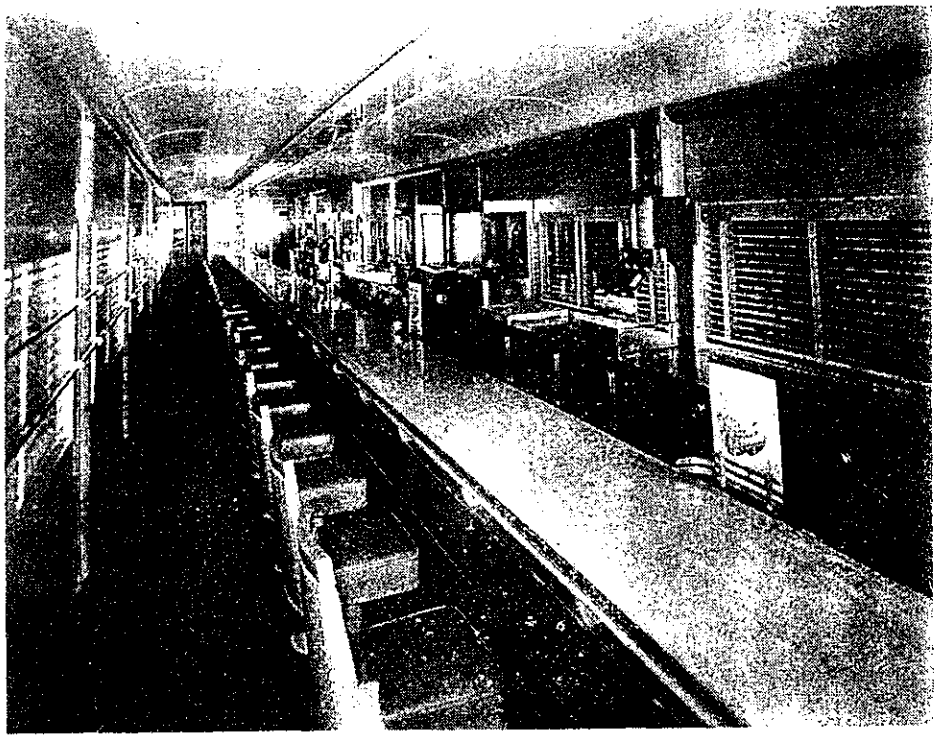
Canadian Transportation

T. & N.O.R. Restaurant Car "Agumik"

This car, of unusual design, was converted from a cafe-parlor car in the North Bay shops, and has met with gratifying reception from travellers on the North Bay-Porquis run.

IN September last the Temiskaming and Northern Ontario Ry. placed in service, on trains 46 and 47 between North Bay and Porquis, a restaurant car which is named the "Agumik", and which, presenting a design which is new and unique among cars in which full course meals, light lunches, ice cream sodas and sundaes, etc., are served the travelling public, was converted from a cafe-parlor car, the work having been done at the T. & N.O.R. shops at North Bay. The acceptance accorded the car has justified the careful planning of the interior arrangement, and the travelling public's patronage indicates complete approval of the facilities offered and their arrangement, differing radically in many ways from the conventional.

In its original form, the car, of steel and wood construction, had a dining room, seating 18 persons, separated from the parlor portion by a smoking room, the parlor having been fitted with seats for 12 persons. The kitchen and pantry were located at one end of the car, while at the other were toilet facilities and a locker for the crew. The car was converted from designs prepared by the T. & N.O.R. Mechanical Department staff, the work having been carried out by the regular staff at the North Bay shops.

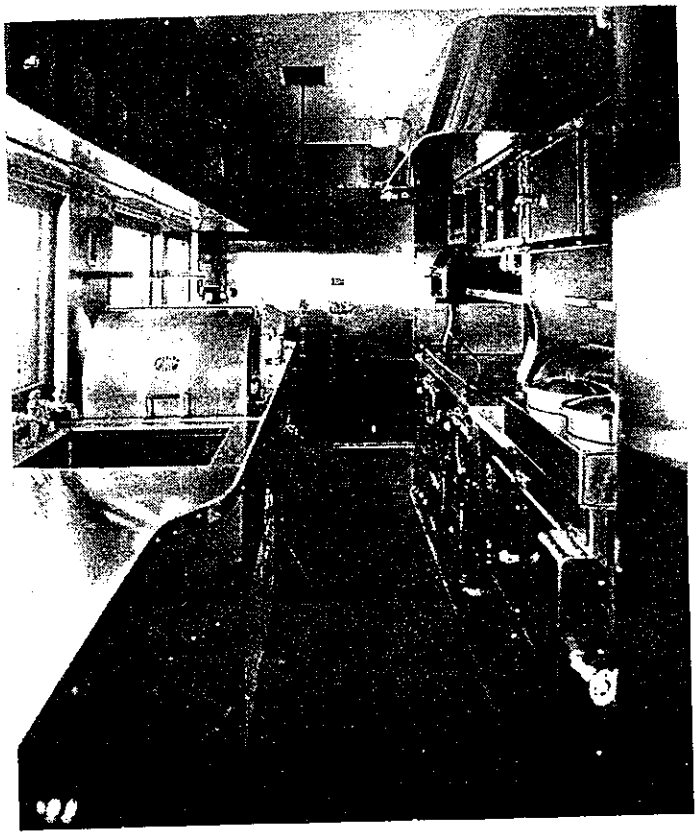


The Main Portion of the Temiskaming and Northern Ontario Ry. Restaurant Car "Agumik". This view is taken from the passengers' passageway, at the kitchen.

The Commonwealth 6-wheel trucks under the car were of the bent equalizer type, and as a matter of fact were of the earliest types manufactured by the company. Unit brake cylinders were applied in connection with the application of clasp brakes. Two years ago, a similar car set of trucks was remodelled along the same lines, and in that time a mileage of 290,000 has been travelled, with no expense other than regular service maintenance. The remodelling of these trucks provided more space for equipment under the car.

No changes were made to the original steel underframe, which consisted of the center sill section, of the box type, with 18 in. channels spaced 16 in. back to back, with ½ in. thick cover plates top and bottom. Side sill construction consists of a 5 x 3½ x 9/16 in. angle with a 5/16 in. thick x 2 ft. 11 in. wide steel girder running continuous. Two exceptionally strong fabricated cantilevers, spaced at 33 ft. 1 in., together with end construction of angles, channels and plates, form a sturdy framework.

The entire body was completely rebuilt. Window sill height was raised through-



Kitchen of Restaurant Car "Agumik".

out the entire car to 36⅞ in., to accommodate the luncheonette. At one end of the car, facilities were provided for the car staff, the entrance passageway being revamped in the rearrangement. At the kitchen end of the car, the natural ice refrigerator was rebuilt to provide icing from vestibule instead of roof, and access to refrigerator from inside the kitchen proper. The kitchen throughout is of stainless steel. In order to provide an adequate water supply, a 30 in. diameter x 6 ft. long tank was installed vertically at the end of the steam table, the galvanized tank being housed behind a stainless steel housing.

The kitchen arrangement and equipment has been improved and new drop ceilings applied in the kitchen to conceal the overhead tanks and pipes. Trap doors, suitably located, provide easy access to the tanks and piping.

The interior of the main part of the car has been completely modernized in a somewhat unique manner, one instance being the window treatment. This window treatment projects into the car about 1½ in. beyond the usual inside face, the treatment being finished in Prima Vera Realwood Formica mounted on a plywood backing, each individual window treatment being secured to the side posts with suitable fastenings. The recessed space so occasioned by the special window treatment is faced with turquois blue Formica. Small individual show cases are also applied to several of the recesses.

The end partitions are faced with Formica of a special shade of rust red.

[illegible] main section at the point where the lower deck adjoins the car sides, trough lighting is installed.

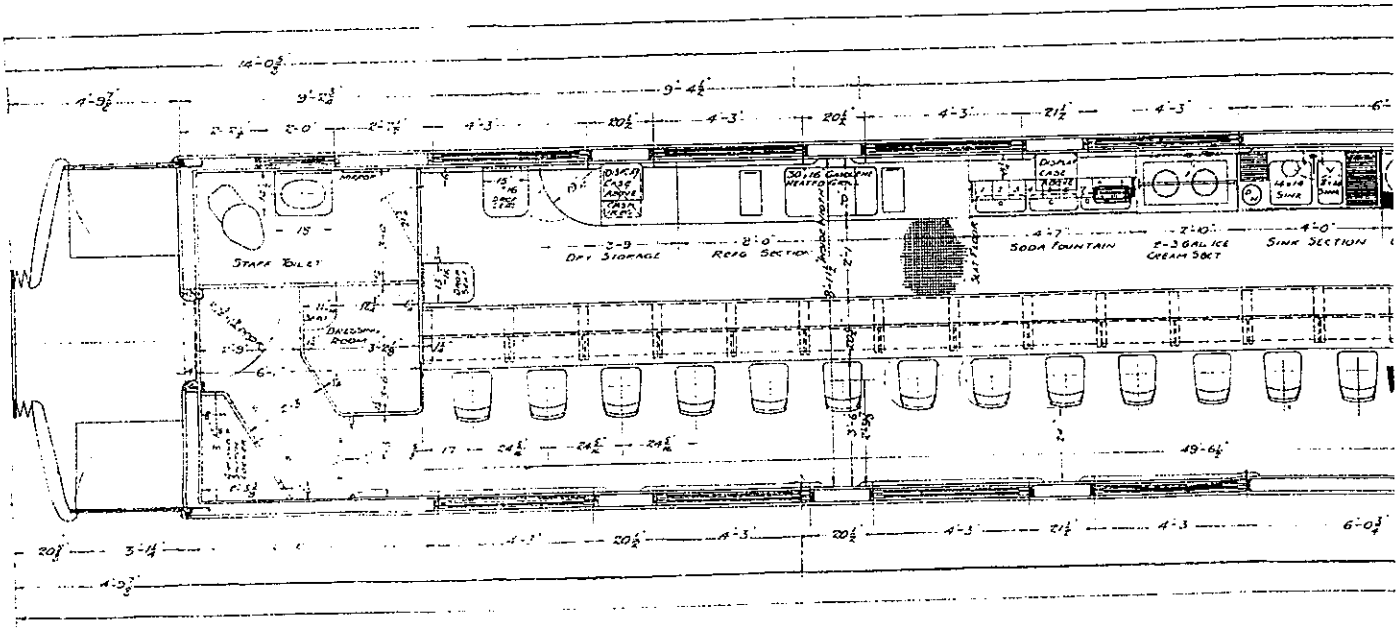
On the end partitions, and directly over the counter, are two panels hand carved from white rubber, the recesses in the panels being tinted with a rec shade. The upper deck being used as an air duct, the car ceiling is formed in a continuous curve from the lower deck curve. The center ceiling portion carries the Multivent Draftless air distribution system. The Multivent ceiling was so designed to permit a continuous system of lighting arrangement running along the center of the car; thus, each side of this ceiling is hinged to permit easy access for cleaning. The ceiling is painted a special shade of light grey.

All windows are equipped with Venetian blinds, slats and head boxes being finished in Prima Vera effect to match the window treatment.

The counter chairs, 24 in number, pleasingly harmonize with the interior treatment; the pedestals being finished in light grey enamel and the Dunlopillo seats and seat backs being covered with turquois blue leather. A chromium plated hat hook is conveniently located on each seat pedestal.

The design of the counter was prepared after much study, in order to have every inch of available space provide every facility for immediate access to dishes, cutlery and glassware, and other stored materials. Two automatic drinking water stations, of stainless steel, are also conveniently located under the counter. The face of the counter on the passenger side is Formica of a special rust red shade. At each counter chair a compartment is provided for storing of passengers' small articles and purses whilst dining. The counter top is covered with a non-skid rubber covering, grey color, in marble effect. Heating coils for one side of the car are located in a recess, running full length of the counter. The floor covering on the passenger side of the car is non-skid rubber of dark red in marble effect.

The service passageway between the counter and luncheonette is slatted; the



Floor Plan, T. and N.O.R. Restaurant Car, "Agumik".

removable slat floor rests on a water-tight galvanized iron covered floor, the arrangement of which has proved most sanitary from a cleaning standpoint.

Running along on one side of the car is a 46 ft. 0½ in. long stainless steel luncheonette. This luncheonette is composed of 10 individual sections, each located to provide ease of service. The soda fountain section is of unusual design, its width being only 20 in. and overall height 36 in., thus fitting in nicely below the window sills. Standing on top of the luncheonette at suitable locations are two short order grills, each 30 in. long x 16 in. wide, with a canopy on top, and a coffee urn arrangement of generous size. All short order cooking as well as toasted sandwiches are prepared on these grills, whilst heavy cooking is done in the kitchen on the regular dining car range.

Cooking odors from the grills are removed from the car by being piped to the regular exhaust system of the car's air conditioning equipment, this exhaust being taken care of by the fan located in the staff quarters.

The refrigeration for the luncheonette is natural ice stored in separate containers. The luncheonette rests on metal supports 8 in. in height. This space under the luncheonette provides space for all drain piping, water piping and carbonic gas piping to the soda fountain. A stainless steel baseboard or kick plate, secured to the face of the supports, closes in all the piping. An electric glass washer is also part of the soda fountain equipment.

Other labor saving equipment installed in the car includes an electric meat slicer, electric drink mixers and juice extractor, and in the kitchen is to be found an electric dish washer.

Carbonic gas for the soda fountain is obtained from two standard size tanks located in a locker adjacent to the partition adjoining the kitchen. Above this compartment is the main storage compartment for cigarettes, cigars and confections.

To provide an ample supply of water storage for the luncheonette and drinking water stations, a 30 in. diam. x 8 ft. long galvanized pressure supply tank is located under the car.

Throughout the car, liberal use has been made of chrome metal mouldings.

The car is equipped with the Sturtevant spray system of air conditioning, complete with air sterilizing unit. The overhead unit is located over the staff quarters, the fresh air inlet in the vestibule and the recirculating grille in the passageway, just below the unit. One exhaust fan is located in the staff quarters and another in the kitchen.

The exterior of the car is painted standard green in Dulux. The Railway Company's standard lettering and name of car, lettered in gold leaf on a panel of Castillian red, are located at the center of the car, whilst on the body, about center line of trucks, are the words "Restaurant Car" and "Air Conditioned" lettered in gold leaf on the green background. The rounded roof is painted black, as are the trucks and underframe equipment.

Electric energy is provided by a 10 kw. generator suspended from the underframe at the staff quarters end of car, and operated by a mechanical drive.

The weight of car in working order is approximately 173,000 lb.

The chief dimensions of the car are:—

Length over diaphragm face plates	79 ft. 11¼ in.
Length over end frame	70 ft. 3½ in.
Truck centers	51 ft. 10 in.
Cantilever Centers	33 ft. 1 in.
Extreme width	9 ft. 11 in.
Inside width	8 ft. 11½ in.
Height from rail to top of roof	14 ft. 1 in.

Specialties

Following is a list of the car's special equipment and suppliers:—

Air Brake Equipment	Westinghouse
Clasp Brakes	American Steel Fdys.
Generator	Safety Co.'s
Storage Batteries	Edison
Generator Mechanical Drive	Mechanical Appliance & Transmission Co.
Sump Pump	Darling Bros.
Air Cond. Ice Boxes	Can. Car & Fdy. Co.
Air Conditioning Equipment	B. F. Sturtevant Co.
Formica Interior Sheets	Robt. Simpson Co.
Chromedge Mouldings	Robt. Simpson Co.
Venetian Blinds	Robt. Simpson Co.
Lighting Fixtures	Robt. Simpson Co.
Carved Panels	Robt. Simpson Co.
Rubber Floor Coverings	Robt. Simpson Co.
Coffee Urns	Robt. Simpson Co.
Short Order Grills	Robt. Simpson Co.
Luncheonette	Liquid Carbonic Corp.
Paint (Dulux)	Can. Industries, Ltd.
Multivent Ceiling	Burgess-Holden Co.
Drinking Water Stations	Robt. Simpson Co.
Electric Glass Washer	Liquid Carbonic Corp.
Carbonic Gas Tanks	Liquid Carbonic Corp.
Kitchen Range	G. F. Prouse Co.
Water Tanks	Crane Co.
Electric Meat Slicer	Hobart
Steam Table	G. F. Prouse Co.
Car Heat Equipment	Vapor Co.
Insulation	Johns-Manville
Cash Registers	Burroughs
Electric Juice Extractor	California Fruit Growers Exchange (Sunkist)
Electric Dish Washer	Hobart
Electric Drink Mixer	Hamilton Beach
Counter Seats	Robt. Simpson Co.

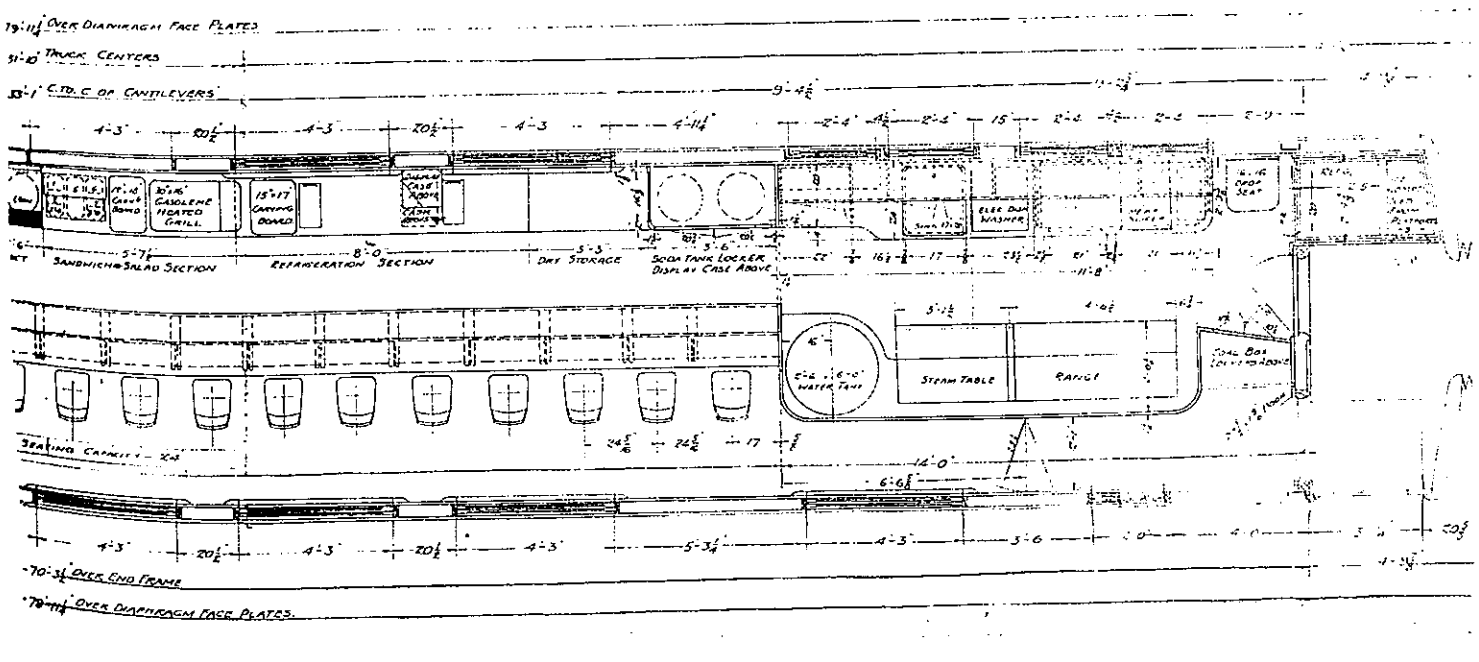
Crossing Protective Appliance Costs

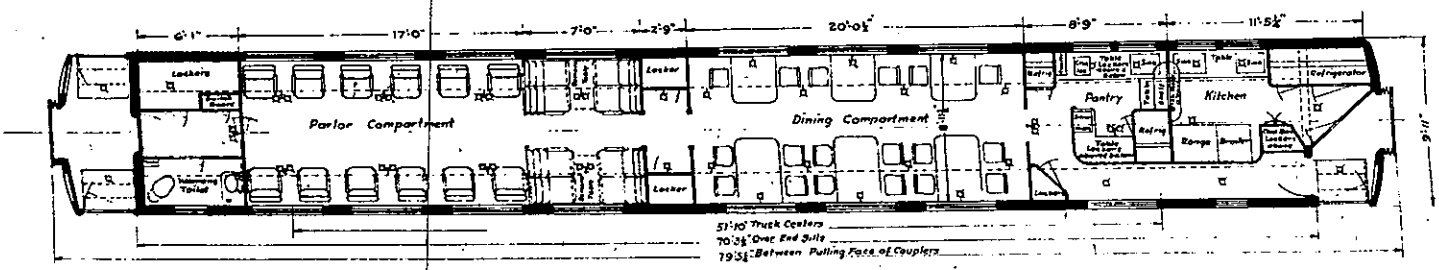
Circular no. 247-R, issued by the Board of Transport Commissioners for Canada, Oct. 23, stated:—

"The attention of the Board has been directed to a protest registered against a major expenditure on grade crossing protective appliances repaired and replaced without notice to a Municipality subsequently billed for its share of the repair and replacement.

"Under direction I am instructed to advise that in cases of grade crossing protective devices where the costs of maintenance or construction are shared with other parties by reason of Board's Orders, and it is found by railway maintenance forces that major repairs to the value of $250.00 or over are anticipated, the Railway concerned should, before undertaking the work, inform the Board and the other parties interested in the maintenance charges. Such information should advise of the reasons bringing about the necessity of the work and be accompanied by an estimate of the cost of such repairs or replacements.

"This requirement is not to apply in emergency cases brought about by accidents or other conditions where immediate action is necessary."





Interior Arrangement of Cafe-Parlor Car "Goldland", on T. and N.O.R.

Birthdays of Transportation Men

March 16 to April 15.

Many happy returns of the day to:—

F. G. Adams, Assistant General Freight Agent, Western Region, Canadian National Rys., including Duluth, Winnipeg & Pacific Ry., Winnipeg, born at St. John's, Nfld., April 6, 1878.

J. H. Anderson, Division Freight Agent, Pere Marquette Ry., Chatham, Ont., born at Woodstock, Ont., April 6, 1875.

F. G. Bannister, Assistant General Storekeeper, Canadian Pacific Ry., Winnipeg, born at Plumpton, Sussex, England, March 20, 1885.

F. R. Blair, Cartage Agent, C.P. Express Co., Cartage Department, born at Watford, Ont., March 16, 1887.

R. F. P. Bowman, Roadmaster, C.P.R., Lethbridge, Alta., born there, March 17, 1904.

E. A. Brand, Agent, C.N.R. Express Department, Hamilton, Ont., born at Palmerston, Ont., March 29, 1876.

G. D. Brophy, District Passenger Agent, C.P.R., Toronto, born at Winnipeg, March 19, 1893.

J. S. Buchanan, General Agent, Freight Department, Wabash Ry., Toronto, born at Moberly, Mo., March 22, 1888.

A. B. D. Campbell, Travelling Passenger Agent, C.P.R., Calgary, Alta., born at Macleod, Alta., March 24, 1899.

A. R. Carson, Superintendent of Shops, C.N.R., Moncton, N.B., born there, March 28, 1889.

J. R. Caswell, Division Engineer, C.P.R., Smiths Falls, Ont., born at Coldwater, Ont., April 13, 1892.

E. C. Champ, District Freight Agent, C.N.R., Montreal, born at Branchton, Ont., March 19, 1894.

P. W. Clarkin, Division Freight Agent, Island Division, and District Passenger Agent, C.N.R., Charlottetown, P.E.I., born at North Wiltshire, P.E.I., March 22, 1876.

J. E. Coulter, General Manager, C.P. Express Co., Toronto, born there, March 18, 1890.

Edmund Crawford, Superintendent, C.N.R., Saskatoon, Sask., born at Fernhill, Ont., March 30, 1884.

L. A. W. Doherty, General Freight Traffic Manager, Canada Steamship Lines, Ltd., Montreal, born at Toronto, April 10, 1878.

W. J. Edwards, acting Car Foreman, C.N.R., Moose Jaw, Sask., born at Framfield, Sussex, England, April 4, 1889.

W. R. Fitzmaurice, formerly Superintendent, C.N.R., Halifax, N.S., born at Bedford, N.S., March 19, 1870.

J. E. Ganong, Chairman, Toronto Harbour Commission, and President, Association of Canadian Ports, born at Boston, Mass., March 29, 1866.

Superintendent of Construction and Maintenance, Montreal Tramways Co., born at Montreal, April 15, 1896.

J. Murray Gibbon, General Publicity Agent, C.P.R., Montreal, born at Udewells, Ceylon, April 12, 1875.

H. K. Goodwin, Regional Treasurer, Atlantic Region, C.N.R., Moncton, N.B., born there, April 2, 1880.

T. J. Gracey, Regional Auditor, Western Region, C.N.R., Winnipeg, born at Kingston, Ont., March 21, 1889.

J. B. Hayes, B.Sc., A.M.E.I.C., Manager, Nova Scotia Light & Power Co., Ltd., Halifax, born at Springhill, N.S., March 31, 1892.

N. C. Hooper, Superintendent of Car Shops, C.N.R., Transcona, Man., born at Bristol, England, March 16, 1883.

J. M. Horn, Assistant Freight Traffic Manager, Western Region, C.N.R., including Duluth, Winnipeg and Pacific Ry., Winnipeg, born at Shotts, Lanarkshire, Scotland, April 12, 1880.

L. S. Irvine, Freight Traffic Representative, C.N.R., Calgary, Alta., born at Glengarnock, Scotland, April 14, 1873.

J. A. Kilpatrick, President, Dominion Wheel & Foundries, Ltd., Toronto, born April 4, 1868.

John Kyle, General Superintendent, Motive Power and Car Equipment, Western Region, C.N.R., Winnipeg, born at Toronto, April 11, 1877.

W. J. Langton, of W. J. Langton and Son, Ltd., Montreal, formerly General Manager, Dominion Transport Co., Montreal, born at Toronto, March 19, 1870.

J. F. Leech, Locomotive Foreman, C.N.R., Cochrane, Ont., born at Dublin, Ireland, March 19, 1904.

R. W. Long, General Freight Traffic Manager, C.N.R., Montreal, born at Appin, Ont., March 20, 1873.

James McCaig, Solicitor, Alberta District, C.P.R., Calgary, born at Dumfries, Scotland, April 15, 1882.

Major G. P. MacLaren, General Tie and Timber Agent, C.N.R., Montreal, born at London, Ont., April 4, 1878.

R. H. Matheson, Transportation Manager, Transportation Commission, Maritime Board of Trade, at Moncton, N.B., born at Sydney, N.S., March 20, 1907.

Harvey Morton, Assistant to Vice President and General Manager, Atlantic Region, C.N.R., Moncton, N.B., born at Berry's Mills, N.B., March 31, 1876.

J. A. Murphy, Superintendent of Transportation, Southern Ontario District, C.N.R., Toronto, born in Bathurst Tp., Lanark County, Ont., April 15, 1887.

M. J. Nottingham, Superintendent, St. Clair Tunnel, C.N.R., Sarnia, Ont., born at Lindsay, Ont., March 16, 1889.

A. H. F. Parkes, Locomotive Fore-

N. A. Peters, Regional Supervisor of Car Service, Central Region, C.N.R., Toronto, born there, April 9, 1893.

John Pollock, Superintendent of Marine Engineers, Newfoundland Ry., St. John's, Nfld., born there, April 7, 1888.

R. A. Pyne, Superintendent, Motive Power and Car Department, Western Lines, C.P.R., Winnipeg, born at Toronto, April 10, 1874.

H. J. Rahlves, Manager, Marine Department, Imperial Oil, Ltd., Toronto, born at San Francisco, Calif., April 3, 1880.

Frank M. Ross, President, St. John Dry Dock and Shipbuilding Co., Ltd., and other companies, born at Glasgow, Scotland, April 14, 1892.

A. M. Shields, District Freight Agent, C.P.R., Moose Jaw, Sask., born at Glasgow, Scotland, March 25, 1903.

H. N. Simpson, Superintendent, C.P. Express Co., Winnipeg, born at Thornton, Ont., March 19, 1880.

J. A. Stanley, Assistant Superintendent, C.P.R., Montreal, born there, April 5, 1889.

J. M. Thompson, Terminal Superintendent, C.N.R., Saint John, N.B., born at Sackville, N.B., March 30, 1887.

G. W. Vaux, formerly General Agent, Union Pacific System, Toronto, now in charge of domestic travel department of University Tours Association, born at Montreal, March 21, 1866.

W. H. Winterrowd, Vice President, Franklin Railway Supply Co., Chicago, Ill., born at Hope, Ind., April 2, 1884.

D. O. Wood, formerly General Freight Traffic Manager, C.N.R., Montreal, born at Kleinburg, Ont., March 16, 1864.

Railroading Healthy Business—Outstanding examples of longevity among railway employees are mentioned in a recent statement by the Pennsylvania Rd. Thomas Duffin, previously locomotive man on the Cleveland Division, was 98 years old on Feb. 6; his birthday was celebrated at a gathering of railway veterans, included among whom were his brother, William Duffin, aged 92, a retired locomotive man on the New York Central, and a son, John Duffin, who has been a locomotive man on the P.R.R. Cleveland Division for 36 years. Thomas Duffin began with the P.R.R. in 1870 as a fireman at Cleveland. Many locomotives were burning wood at the time. He retired in 1910. He confidently expects to live to be 100, and, if so, will be the fourth centenarian among P.R.R. employees, previous ones having been Thomas Gallagher, a Long Island Line

Canadian Transportation

JAN 1941

New All-steel Wood-lined Cabooses, T. and N.O.R.

There were placed in service, recently, on the Temiskaming and Northern Ontario Ry., eight caboose cars of unusual design, built by National Steel Car Corp. These cars, with riveted superstructure of copper-bearing steel, are believed to be the first of the type operated on Canadian railways.

THE ordering of eight caboose cars by Temiskaming and Northern Ontario Ry. from National Steel Car Corp., Ltd., was noted in Canadian Transportation for June last, pg. 295. Official advice of Dec. 5 was that these cabooses had been received and placed in service a short time previously. These cars are of all-steel construction and wood lined, and, as the following description indicates, are of unusual design, the belief being that they are the first of their type to be employed in Canada. The cars, with riveted copper-bearing steel superstructure, were built to specifications and general designs furnished by the T. and N.O.R. Mechanical Department. The length of car over the pulling faces of couplers is 38 ft., and the light weight is 50,000 lb.

The underframe is fabricated from steel sections, the center sill section consisting of two 12 in. wide x ⅜ in. thick web plates, two top outer angles 3½ in. x 3½ in. x ⅜ in., four bottom angles (two inner and two outer) 3½ in. x 3½ in. x ⅜ in. and a top cover plate 21 in. wide x ⅜ in. thick, the whole being riveted together. The depth of the box-like structure is 12⅞ in. The remainder of the underframe is a departure from the more conventional types of caboose car underframes. The floor is supported on 5 in. I beams at 10 lb., spaced about 37 in. centers and running transversely.

These supports rest on top of the center sills, to which they are welded. Each side sill consists of a 7 in. at 9.8 lb. channel to which is riveted, by one flange, a 3 in. at 5.1 lb. Zee, the other flange of the Zee forming the face for the riveting of the ⅛ in. thick steel side sheathing. By the use of the transverse I beams, crossbearers are eliminated. The entire underframing is covered with 1/16 in. thick steel sheets supported on and welded to the I beams. Cemented to this floor sheet is a layer of No. 20 J. M. Waterproof Felt bedded in plastic. Six wooden floor nailing strips, 1⅝ in. thick x 3 in. wide, and bolted to the I beams, run full length of car. Between these strips two ¾ in. thick layers of J. M. Hairinsul are laid. A 1 in. thick wood floor is then laid diagonally. A layer of No. 20 J. M. Waterproof Felt, laid in plastic, is applied prior to the laying of the top ¾ in. thick floor, which is applied longitudinally.

consist of bottom cover plate ⅜ in. thick, measuring 24 in. wide at center sills and 18 in. wide at side sills, with top ⅜ in. thick cover plate, being 18 in. wide throughout. Bolster diaphragms of ¼ in. plate are spaced 12 in. back to back. The bolster center sill separator is of cast steel, with extended side arms front and back, the tops of which are flanged inwards to form an additional support at top cover plate. As this is a vital point in car construction, extreme care has been taken in the design of this casting, all bearing surfaces being accurately machined to insure correct and proper fitting at bearing surfaces.

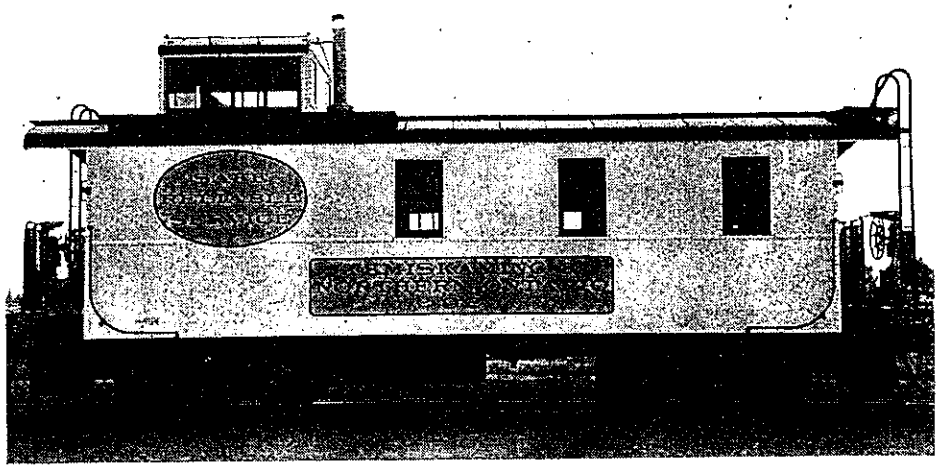
The center plates are A.A.R. Standard design. The back draft stop is cast steel of liberal proportions, and bearing surfaces are machined. Fillets are of generous size, conductive of good foundry practice. The front draft stop and striking casting combined have been designed with an eye to greatest strength possible, the bearing surfaces are also accurately machined to insure proper fitting.

The body end sill consists of a 7 in. channel at 16.4 lb., with a top cover plate 5/16 in. thick x 10½ in. wide, extending full width of car.

The platform end sill consists of a 7 in. channel at 16.4 lb., the back forming the outer face, with top, bottom and back of ¼ in. plate, the whole forming a box-like structure. Two pressed steel

The platform side sills are 6 in. channels at 8.2 lb., spaced 5 ft. 3 in. over backs.

Other center sill separators are made of 3/16 in. plate pressings carefully fitted.



One of the New Cabooses on the T. and N.O.R.

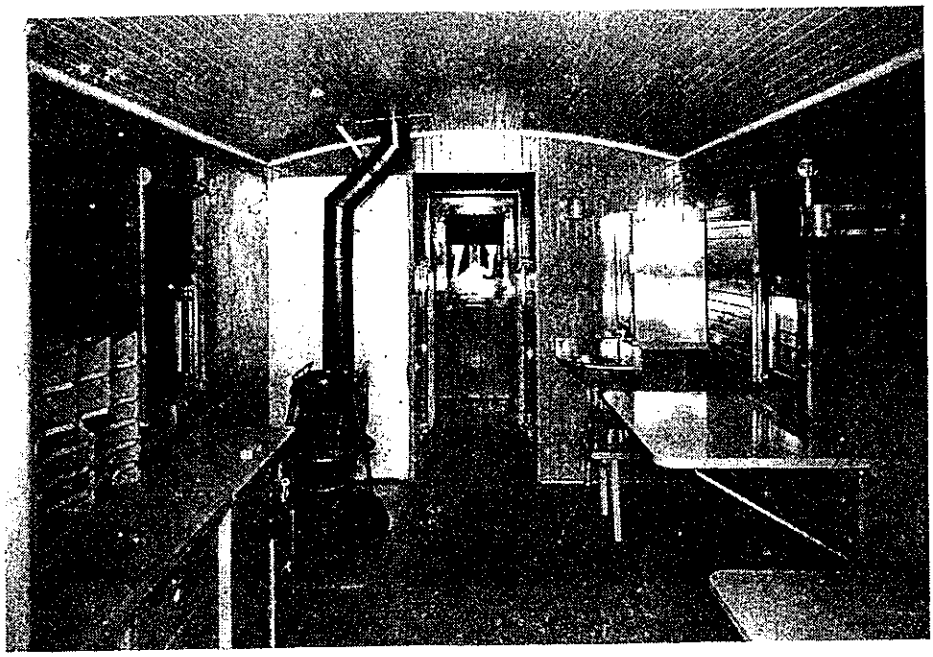
The side posts are 3 in. Zee's at 5.1 lb., 11 each side and spaced according to location. The four corner posts each consist of 4 in. Zee's at 8.2 lb. (to which is riveted a 2½ in. x 2½ x ¼ in. angle to take side sheet rivets). Between these corner posts there are 4 end posts of 4 in. Zee's at 8.2 lb., suitably spaced; two of these Zee's form the door framework.

The roof carlines of the body, 16 in number including platform roof, are 2½ in. x 2½ in. x ¼ in. angles formed on a 14 ft. 5 in. radius. The cupola carlines, 4 in number, are of 2 in. x 2 in. x ¼ in. angles formed on a 12 ft. 8½ in. radius. Cupola corner posts are 2½ in. x 2½ in. x ¼ in. angles with two 2 in. x 2 in. x ¼ in. angles forming side posts.

All outside sheathing of body and cupola is ⅛ in. thick copper bearing steel.

All roof sheets are of No. 14 gauge steel riveted to carlines, with lap and tar paper joints.

Inside wood sheathing 13/16 in. thick x 2¼ in. face T. & G., with small V, is blind nailed to wood nailing strips which are bolted to side posts and end posts.



Interior View Taken from Berth Section, Looking toward Cupola.

The cupola inside finish, including ceiling, follows the same treatment.

There is no metal contact from the exterior to the interior; thus, frost from the outside cannot be transferred to inside of caboose.

Before the inside nailing strips and wood lining are applied, the entire interior metal surfaces are coated with plastic, and whilst wet a complete layer or covering of J. M. Waterproof Felt is applied; thus, no bare metal is visible from interior of caboose. The space between posts and carlines is filled with a layer of 1 in. thick J. M. Salamander. The insulation at the side sill recesses has been kept 2 in. from the bottom of the side sill, thus forming a gutter for catching moisture. Two ⅝ in. holes, drilled in the bottom of each side sill and end sill, in the space between each side post and each end post, drain off any accumulation of moisture. Further, these holes afford circulation of air which assists in keeping insulation dry.

End doors are of wood 1½ in. thick, 2 ft. 5 in. wide, 6 ft. 4 in. in height, with glass in upper portion.

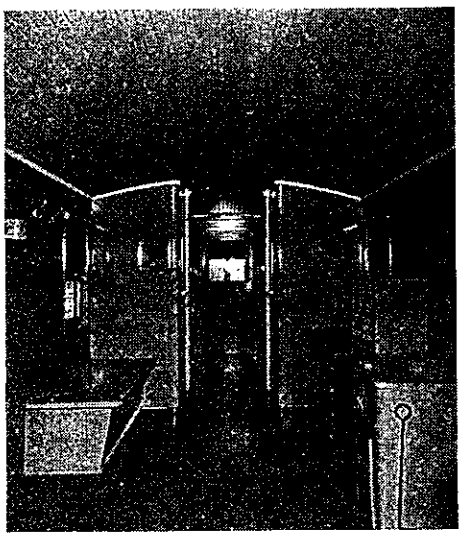
Six windows are located in the body of the caboose. At the upper and lower berth section only, both upper and lower sash are movable; the remainder has only the lower sash movable.

The seats and seat backs, of wood construction, forming the lower berth, slide forward, forming a support for the mattress. When in normal closed position the space under the seat provides a locker for bed linen, the seat forming the hinged cover. The upper berths of metal are raised and lowered according to requirements. All mattresses are 4 in. thick, 30 in. wide and 6 ft. long. A step ladder affords access to each upper berth. Adjoining each berth section is a spacious metal locker for use of the conductor and trainmen respectively.

Adjoining the conductor's locker, a desk arrangement is located, with ample drawer space below and compartment space above. Next in line is the metal coal box holding about 550 lb. of coal, the inside being arranged to feed coal to door.

The latest type of caboose stove, thoroughly insulated walls, ceiling and floor provide a safe and convenient place for cooking. Under the cupola floor, on this side of the caboose, are storage facilities for either storm or screen sash (according to season) and miscellaneous storage. Next the adjoining locker at end of caboose is the metal lined dope, oil and service supply locker. At the opposite side is the clothes locker for use of the crew.

Under the cupola floor is a 26½ x 19 in. white enamelled metal refrigerator with chromium plated catches and hinges. This refrigerator is not of the built-in type, but one of the existing commercial refrigerators now in use, and is secured in opening provided. Next comes the large cupboard space for food and dish storage. Adjoining the cupola partition is a stainless steel corner type wash basin, above which is a water cooler of generous size, made of stainless steel. A mirror is also located on the face of the cooler. The whole unit is supported from the cupola partition and side of car, thus forming a clear and sanitary space on the floor.



View of Interior of Caboose Taken at Stove and Looking toward Berth Section.

Note the facilities for the conductor's use.

A lift-up seat, a drop type table and adjoining seat locker complete the pleasant, bright and comfortable surroundings.

The sliding side windows of the cupola are large, eliminating dead vision spots. Each half of the cupola contains the railway company's standard reversible seat. The inner sash of the end cupola windows are sealed, the outer sash being hinged to afford easy access for cleaning.

A Westinghouse air gauge and the latest design of Westinghouse brake application valve are also located in cupola.

As a safety measure, the platform railing has been increased to 3 ft. 8 in. from top of platform floor, with a light weight folding tail gate and additional self-locking safety bar adding further safety for the crew.

Welded platform steps, of the passenger car type, with 1 in. thick oak treads secured to the metal step treads, provide safe footing. The height from rail to top of bottom tread is only 14½ in. instead of the usual 18 in. A vertical handwheel-operated power brake is located at the platform railing at each end of the car, the handwheel being flush with the inner face of platform railing.

Running boards are of wood, 1⅛ in. thick x 7½ in. face, mounted on metal saddles riveted to roof.

A self-contained all-metal equipment box, 20 in. high x 36 in. wide x 69 in. long, located underneath the caboose, provides plenty of space for the heavier service equipment.

The trucks are composed of Symington 5 x 9 in. cast steel truck sides with lateral motion roller type bolster; Symington resilient type side bearings; double elliptic springs with 3 x ⅜ in. leaves, 6 leaves being in each section. The cast iron wheels are 33 in. diameter.

The cabooses are equipped with Westinghouse A. B. Brakes.

The exterior sides of the cabooses are finished in Dulux Aluminum, upon which, in a golden yellow panel, with black border, appear the name of the road and caboose number in black. Similar treatment is afforded the worded slogan which appears in an oval shaped design about the center of the cupola. The platform railing ends and ends of cupola are painted with the usual signal red. The underframe and trucks are black in color.

The interior side walls, end walls, doors, and other equipment are painted a light blue grey, with ceilings painted cream and floors painted in terra cotta red.

Chief Dimensions

The chief dimensions of the new cabooses are as follows:—

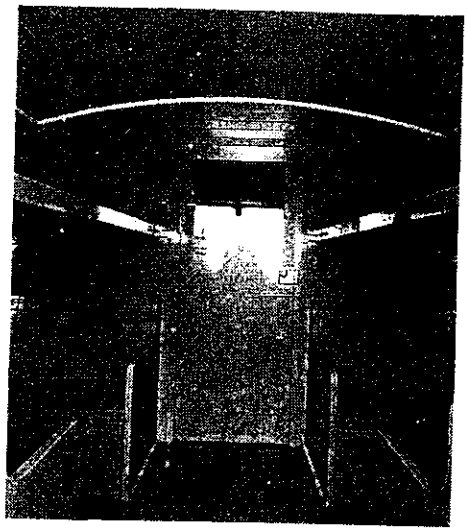
Length over pulling faces of couplers	38 ft. 0 in.
Length over striking castings	35 ft. 5 in.
Length over platform end sills	34 ft. 8½ in.
Length over end posts	29 ft. 2 in.
Length inside (body)	28 ft. 4⅝ in.
Length over cupola end posts	6 ft. 6 in.
Length inside cupola	5 ft. 5⅞ in.
Width over eaves (body)	9 ft. 8⅝ in.
Width over side posts	9 ft. 6 in.

Width inside	8 ft. 10 in.
Width over cupola eaves	8 ft. 10⅝ in.
Width over cupola side posts	8 ft. 8 in.
Width inside cupola	8 ft. 2½ in.
Height—Rail to center of coupler knuckle	2 ft. 10½ in.
Height—Rail to top of platform	4 ft. 0⅝ in.
Height—Rail to top of floor (body)	4 ft. 1⅝ in.
Height—Rail to top of roof (body)	11 ft. 9¾ in.
Height—Rail to running boards (body)	12 ft. 0¾ in.
Height—Rail to top of cupola	15 ft. 3 in.
Height—Floor to ceiling (body)	7 ft. 4½ in.
Height—Floor to upper berth (open)	4 ft. 4 in.
Height—Floor to cupola floor	4 ft. 7 in.
Truck centers	19 ft. 10 in.
Wheel base	5 ft. 6 in.
Wheel diameter	33 in.
Type of wheel	Cast Iron
Journal size	5 x 9 in.
Light weight	50,000 lb.

List of Equipment

The equipment and specialties for these caboose cars, and the name of the supplier of each, are listed in the following:—

Equipment Item	Supplier
Truck Side Frames, Truck Bolsters	Symington Gould Corp.
Spring Plank	N.S. Car Corpn.
Resilient Side Bearing	Symington.
Journal Box Lids	N.S. Car Corpn.
Journal Bearing	Rahn Metals.
Dust Guards	International Equip. Co.
Elliptic Springs	B. J. Coghlin.
Couplers	Dom. Foundries & Steel.
Coupler Yokes	Dom. Foundries & Steel.
Coupler Centering Device	Union Metal Products.
Uncoupling Arrangement	A.A.R. Standard.
Draft Gear	Holden Co.
Brake Beams	N.S.C. Corpn.



Upper and Lower Berth Section in One of the New Cabooses.

Hand Brake	Can. Cardwell Co.
Insulation	Can. Johns-Manville.
Stove	General Steel Wares.
Refrigerator	Sanderson-Harold.
Wash Basin and Water Cooler	Robt. Mitchell.
Air Brake Equipment	Westinghouse.
Oil Lamps	T. & N.O. Ry. Standard.
Paint (Dulux)	Can. Industries Ltd.
Window Blinds	Holden Co.

Railway Liability re Snow Fences

A judgment written by Chief Commissioner J. A. Cross, of the Board of Transport Commissioners for Canada, upon which that body's order 59,874 was based, is of interest as indicating the liability of railways as concerns damage done or claimed to be done by their snow fences to farmers' lands. This judgment dealt with a complaint by J. E. Smith, of Portage la Prairie, Man., against refusal of Canadian National Rys. to entertain his claim for damages to property and inconvenience suffered by reason of C.N.R. snow fences. Mr. Smith, spoken of in the judgment as a widely experienced and capable farmer, operates a farm through which the C.N.R. lines passes, in the Portage la Prairie district. The railway snow fences caused snow to pile up in large drifts in the nearby area during the winter of 1938-39; this was in a sixty-one acre field. The snow near the fences took longer to disappear in the spring than did that elsewhere in the field, in addition to which excess moisture was left, which was slow in draining away and drying up. Mr. Smith had summer-fallowed this field in 1938, intending to seed it to wheat in the spring of 1939. He had two other fields, each of 60 acres, on his farm, which he seeded to wheat, one on April 18, and the other on April 22 and 23, 1939. But, he claimed, the sixty-one acre field was not ready to seed to wheat in time, and, fearing that if rain came it might be too late to seed the land to wheat, he seeded it to barley. Most of this seeding was done on April 28, but the five or six acres in the snow fence vicinity was not seeded until around May 7 and 8. Chief Commissioner Cross quoted Sec. 164 of the Railway Act, which requires that a railway, in exercising assigned powers, shall do as little damage as possible and shall make full compensation to all persons interested for all damage sustained. He noted further that the Board was satisfied that the area seeded to barley on or about April 28 could have been seeded to wheat, and he mentioned that some of the evidence given at the hearing tended to show that wheat may be sown up to May 10 or 15 in the district. However, on this point, he noted that so much depends upon the nature of the season, following seeding, that he did not consider it necessary to attempt a determination of the matter. The barley crop on the sixty-one acre tract was not satisfactory; it grew too rank, and all lodged when it was green and went down flat, and the heads ripened while the straw was still green. Mr. Smith claimed that quite one-half of the grain was lost on the ground. The barley harvested was 1,891 bush., for which 38c per bush. was received. Mr. Smith claimed that this was the first time in very many years of farming in which he had seeded barley on summer-fallowed land. He stated that his wheat grain in the adjacent fields in 1939 averaged 40 bush. to the acre or better, and he received 55c per bush. He alleged that had he been able to seed the sixty-one acre field to wheat, as he had intended, he would have received $640 more revenue than he received from the barley. His claim was that this loss was occasioned solely because of the presence of the C.N.R. snow fences.

In his judgment, Chief Commissioner Cross quoted Sec. 164 of the Railway Act, which requires that a railway, in exercising assigned powers, shall do as little damage as possible and shall make full compensation to all persons interested for all damage sustained. He noted further that the Board was

Dominion Statutes, amending the R way Act; this repealed subsection 1 Sec. 203 of the Act, and substitute subsection empowering the railway enter lands after Nov. 1 on each y to erect snow fences, and to maint such fences, subject to the payment land damages, if any actually suffe as are thereafter established by mut agreement; in the absence of agreeme the damages may be settled in man approved by law, or, in the alternati at the option of the claimant, by Board. Chief Commissioner Cross no that this is the first case heard by Board under the provisions of the n subsection. He added:—"It is advisa to state how damages, in my opini are to be measured thereunder. authorities have been submitted whi are of assistance on this point."

Chief Commissioner Cross conclud his judgment as in the following:—

In Rickett v. Metropolitan Ry. C L.R. 2, H.L. 175, the Lord Chancellor, discussing the interpretation of the pr viso in Section 16 of the Railway Claus Consolidation Act, 1845, which is pra tically the same as Section 164 abo quoted, says:—"The words are, 'shall as little damage as can be'; which, applying to a consequential injury, wou appear to limit the resulting damage an immediate consequence and not extend to a remote one."

Willes, J., in Beckett v. The Midlan Ry. Co., L.R. 3, C.P. 82, at p. 94, says:— "The damage complained of must be on which is sustained in respect of th ownership of the property—in respect o the property itself, and not in respect any particular use to which it may fron time to time be put."

Applying these principles to th present case, I think that damages i this case are to be measured by th decrease in the rental value of the land caused by the erection and maintenanc of the snow fence, and not by the differ ence between the value of the crops which were actually raised and the value of the crops which, but for the erection and maintenance of the snow fence, might have been raised. There was no evidence as to decrease in rental value, and it seems doubtful whether any such evidence could have been produced. At any rate, the onus is on the claimant to prove damages, and he has not done so.

In my opinion, the complaint should be dismissed.

At the hearing, Mr. Stimpson, on behalf of the claimant, asked that if the Board saw fit to rule adversely against the claimant, the Board issue an order refusing the railways the right to erect snow fences on the claimant's land. The erection and maintenance of snow fences is a statutory right conferred upon the railways by subsection (1) of Section 203 of the Railway Act, quoted above, and in my opinion the Board has no jurisdiction to make such an order.

Commissioner G. A. Stone concurred. Order 59,874 dismissed Mr. Smith's application, which was for either damages, or, in the alternative, an order

Ontario Northland Ry. New Rolling Stock

t was mentioned in an issue of few months ago that Ontario rthland Ry., formerly Temiskang and Northern Ontario Ry., d ordered 594 40-ton box cars and 70-ton hopper cars from National el Car Corp., Ltd., and three sel-electric switching locomotives m American Locomotive Co. At the e of writing, early in February, the ee Diesel-electric switching locomoes and the 75 hopper cars have been ivered; illustrations of a locomotive l hopper car appear herewith.

The 40-ton box cars will have the lowing chief dimensions:—

gth between coupler pulling ces	44 ft. 2½ in.
gth over striking castings	41 ft. 7½ in.
ance between truck centers	30 ft. 8½ in.
al wheelbase	36 ft. 2½ in.
ck wheelbase	5 ft. 6 in.
gth over running boards	42 ft. 2 in.
gth inside end linings	40 ft. 6 in.
th over door starters	10 ft. 8 in.
th over side plates	9 ft. 10½ in.
th over side sills	9 ft. 9¾ in.
th inside	9 ft. 2 in.
th c. to c. of side bearings	4 ft. 2 in.
th of door clear opening	6 ft. 0 in.
ght over all	14 ft. 6⅞ in.
ght, rail to top of side plates	13 ft. 4 15/16 in.
ght, rail to top of floor	3 ft. 7 11/16 in.
ght, floor to ceiling at side	10. ft. 0¼ in.
ght, rail to center line of coupler	2 ft. 10½ in.
r height, side door opening	9 ft. 5 3/16 in.
ght to bearing surface of center ate	2 ft. 1¾ in.

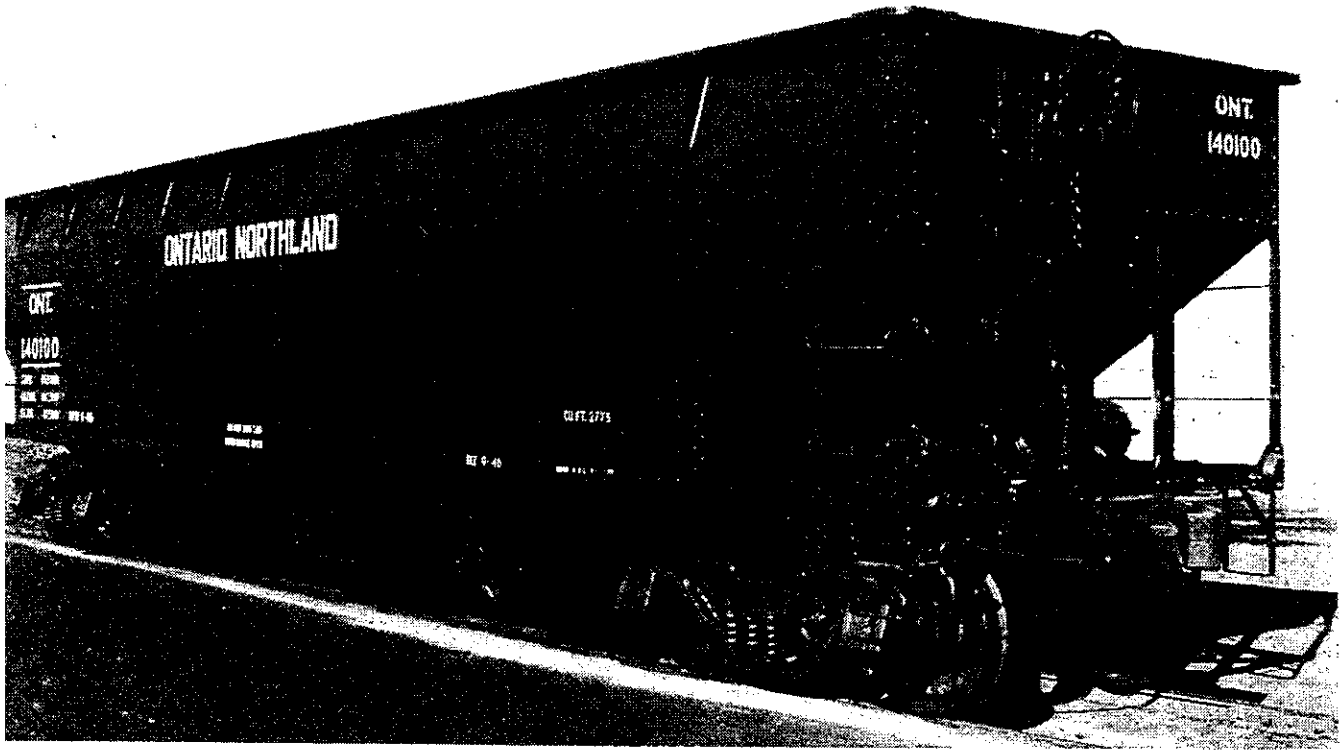
These cars will have cubic capacity 3,712 cu. ft., and the trucks will be ed with axles with 5 x 9 in. journals. These box cars will be equipped with stinghouse Schedule AB-10 air kes, while Holden Co. Ajax hand kes will be applied on 290 cars and adian Cardwell Universal hand kes on the others. Dorey brake ilizers, supplied by Continental Transport Appliances, will be applied, together with Consolidated Equipment Co. Apex brake steps. A.A.R. standard couplers and coupler yokes, supplied by the car builder, will be used. Union coupler centering devices and Union coupler uncoupling gear, supplied by Standard Railway Equipment Co., will be employed. National steel ends supplied by the car builder will be used. Other equipment to be applied will be as follows:—Apex defect card holders, supplied by Consolidated Equipment Co.; Youngstown doors and Camel door fixtures, supplied by the Holden Co.; Waugh draft gear, supplied by Adanac Supplies, Ltd.; A.A.R. standard dust guards, supplied by the car builder; Murphy steel roofs, supplied by Standard Railway Equipment Co., and Apex steel running boards, supplied by Consolidated Equipment Co. Paint will be supplied by Canadian Industries, Ltd.

The truck axles, to be supplied by the car builder, will be the A.A.R. standard type, with journal bearings supplied by Rahn Metals, and the Symington-Gould resilient type side bearings will be supplied by Adanac Supplies, Ltd., as will also the Symington-Gould truck bolsters. Brake beams, to be supplied by the car builder or Buffalo Brake Beam Co., will be A.A.R. standard type, with Economy heads. Other truck items will be supplied as follows:—The cast iron wheels, and the brake shoes, of A.A.R. standard type, by Dominion Wheel and Foundries, Ltd.; the brake beam supports, brake rods, dust guards and journal wedges, all A.A.R. standard, by the car builder; Mobile brake hanger retainers by Adanac Supplies, Ltd; Barber bolster stabilizers by Consolidated Equipment Co.; the Symington-Gould truck frames by Adanac Supplies, Ltd.; the Asco journal box lids by the Holden Co.; the journal box dope by Imperial Oil Limited; the springs, A.A.R. standard, by B. J. Coghlin Co., Ltd.; welding electrodes by Canadian General Electric Co., and paint by Canadian Industries, Ltd.

The 70-ton triple hopper cars have the following chief dimensions:—

Length between pulling faces of couplers	44 ft. 2 in.
Length over striking castings	41 ft. 8 in.
Distance between truck centers	31 ft. 8 in.
Total wheelbase	37 ft. 4 in.
Truck wheelbase	5 ft. 8 in.
Length inside end sheets	40 ft. 8 in.
Length between hoppers at lower lip	9 ft. 9 in. and 7 ft. 1⅜ in.
Width, extreme	10 ft. 5 in.
Width inside, maximum	10 ft. 4 in.
Width inside at side plates	9 ft. 6⅝ in.
Width c. to c. of side bearings	4 ft. 2 in.
Height, rail to top of side plate	10 ft. 8⅛ in.
Height, rail to bottom of side sills	3 ft. 3⅛ in.
Height, rail to bottom of center sills	2 ft 4½ in.
Height, rail to bearing surface of center plates	2 ft. 1¾ in.
Height, rail to center line of coupler	2 ft. 10½ in.
Height, rail to lip of hopper opening	11⅜ in.

These hopper cars have cubic capacity of 2,780 cu. ft. Their trucks have 6 x 11 in. journals. The air brakes are the Westinghouse Schedule AB-10, and Ajax hand brakes, supplied by the Holden Co., are employed. Equipment is applied as follows:—A.A.R. standard body center plates, couplers and coupler yokes, supplied by the car builder; Union coupler centering devices, supplied by Standard Railway Equipment Co.; Imperial Rotary coupler uncoupling gear, supplied by Standard Railway Equipment Co.; Apex defect card holders, supplied



One of the New 70-ton Triple Hopper Cars Built for Ontario Northland Ry. by National Steel Car Corporation, Ltd.

One of the New Diesel-electric Switching Locomotives in Ontario Northland Ry. Service.

by Consolidated Equipment Co.; doors supplied by the car builder; Wine door opening mechanism, supplied by the Holden Co., and Waugh draft gear, supplied by Adanac Supplies, Ltd.

The hopper car trucks, with Symington-Gould frames and cast steel bolsters supplied by Adanac Supplies, Ltd., have A.A.R. standard axles supplied by the car builder. Other equipment has been supplied as follows:—Journal bearings by Rahn Metals; Symington-Gould resilient type side bearings, by Adanac Supplies, Ltd.; A.A.R. Standard brake beams, with Economy heads, by the car builder or Buffalo Brake Beam Co.; Dorey brake stabilizers, by Continental Appliances, Ltd.; A.A.R. standard brake beam supports and brake rods, by the car builder; Mobile brake hanger retainers, by Adanac Supplies, Ltd.; A.A.R. standard brake shoes, by the Holden Co.; Apex brake mast platforms, by Consolidated Equipment Co.; Asco journal box lids, by the Holden Co.; A.A.R. standard springs, by B. J. Coghlin Co., Ltd.; A.A.R. standard wedges, by the car builder; Taylor Bros. A.A.R. standard one wear, wrought steel, 33 in. wheels, by the Holden Co.; welding electrodes by Canadian General Electric Co., and paint by Canadian Industries, Ltd.

The three Alco Diesel-electric switchers, of 0-4-0 type, are each powered by a six-cylinder, supercharged Diesel engine, developing 1,000 b.h.p., and current is supplied by four traction motors, capable of imparting speed up to 60 m.p.h. Driving wheel diameter is 40 inches and the weight on drivers is 230,000 lb. The wheelbase of each truck is 8 ft. and total locomotive wheelbase 30 ft. 6 in. Length of locomotive inside coupler knuckles is 45 ft. 5¾ in., while width over all is 10 ft. and height over all 14 ft. 6 in. Maximum starting tractive effort is 69,000 lb. Locomotives of this type are capable of negotiating curves with radius as short as 50 ft. They carry 635 gall. of fuel oil, 80 gall. of lubricating oil, 240 gall. of engine cooling water and 27 cu. ft. of sand.

Toronto Railway Club

(Continued from page 126)

functions of the C.N. Telegraphs and the part they play in domestic and international communications, and for five years, 1924 to 1929, he was assistant to D. E. Galloway, when the latter was in charge of the subsidiary companies of the C.N. System. He was made an Officer of the Order of the British Empire in the King's Birthday Honors List of 1946.

Fast Valve Action

It is pointed out in recent publicit matter of Franklin Railway Suppl Co., Inc., that the valves at each en of each cylinder of a locomotive wit 80 in. drivers, travelling at 75 miles p hour, must go through their comple cycle in less than one-fifth of a secon During this time, the cylinder must filled with steam, energy must be e tracted from the steam, and the spe steam must be exhausted.

Santa Fe 6,000 h.p. Diesel-electric Locomotive Now Hard at Work.

The photograph from which this illustration was prepared was taken at Cajon Pass, Calif., and shows the first of six 6,000 h.p. Diese locomotives built for the Atchison, Topeka and Santa Fe Ry. by American Locomotive Co. These locomotives were described in the ... The locomotive shown was the 75,000th built by American Locomotive Co. It was ... before entering service.

Canadian Transportation

Diesel Road Switchers Now Produced in Canada

Through the co-operation and joint efforts of Montreal Locomotive Works, Ltd., and Canadian General Electric Co., Ltd., versatile 1,500 h.p. Diesel-electric locomotives, designed for switching, transfer and passenger service, are now being built in Canada; substantial orders received for these from Canadian railways, combined with the experience of United States operators of the Alco-GE prototype, indicate a bright future for this type of locomotive in this country.

The plan of co-operation between Montreal Locomotive Works, Ltd., and Canadian General Electric Co., Ltd., for the building of Diesel-electric locomotives in Canada, was described fully in these columns at the time of its announcement, and on many occasions since we have noted orders for and deliveries of 1,000 h.p. Diesel-electric switching locomotives produced at the Montreal builder's plant. Also recorded in these columns was the agreement by which the Alco Diesel engines for Canadian-built Diesel-electric locomotives are to be built by Dominion Engineering Works, Ltd. The intention of the Montreal Locomotive Works, Ltd., management to embark upon the building of Diesel-electric locomotives for road service was noted in our February issue, where Sir Frederick Carson, Executive Vice President, was quoted as saying that the company would begin manufacture of two classes of main line Diesel-electric locomotives this year, viz., the 1,500 h.p. road switcher, and the 1,500 h.p. road freight locomotive, which can be fitted with varying gear ratios for different speed and power requirements; these 1,500 h.p. units may be operated singly or in combinations of two, three or four, to provide a maximum of 6,000 h.p.

One of the Versatile 1,500 h.p. Diesel-electric Locomotives for Switching, Transfer and Passenger Service
This locomotive, for the Ontario Northland, is of the type now being produced in Canada at Montreal Locomotive Works, Ltd., with all electrical equipment supplied by Canadian General Electric Co., Ltd.

The 1,500 h.p. Road Switcher

As in the case of the 1,000 h.p. Diesel-electric switcher, the generators, motors, control and other electrical components for the 1500 h.p. road switchers are being manufactured by Canadian General Electric Co., Ltd., at the Peterborough works.

Designed for switching, transfer or passenger operations, this 115-ton, four-axle unit is capable of hauling heavy loads at speeds up to 80 m.p.h.

The locomotive is equipped with a 1,500 h.p., turbo-supercharged V-12 Diesel engine and four electric traction motors, geared to each of the four driving axles. It has an overall length of 55 ft. 5¾ in., and delivers a starting tractive effort at 25% adhesion of 57,500 lb. With 65 m.p.h. gearing, it has a continuous tractive effort of 42,500 lb. It has capacity for 200 gall. of lubricating oil, 800 gall. of fuel oil, and 250 gall. of engine cooling water. For train heating, a steam generator can be installed in the rear hood, with capacity of 1,600 lb. of steam per hour at 200 lb. per sq. in. Water is carried in an 800 gall. welded steel tank attached to the underframe.

The engine is an Alco Series 244, V type, and has 12 cylinders with 9 in. bore and 10½ in. stroke. It is a four-cycle engine, and has two intake and two exhaust valves per cylinder. It employs a unit fuel injection system, water-cooled cylinder liners and heads, trunk-type oil-cooled pistons, forged steel connecting rods, seven-bearing crank-shaft and welded cylinder block and base.

Engine lubrication through a full pressure system is provided by a gear type pump integral with the engine. The system contains 250 gallons of lubricating oil. Filters are of the full flow type, and the lubricating oil is cooled by a single pass cooler. Failure of the engine lubricating oil system automatically stops the engine.

An electrically driven transfer pump, located in the engine compartment, supplies fuel from the supply tank to the injection pumps. The supply pipe to the transfer pump is fitted with a duplex waste-packed filter on the suction side and a felt filter on the discharge side.

1919

Canadian Transportation

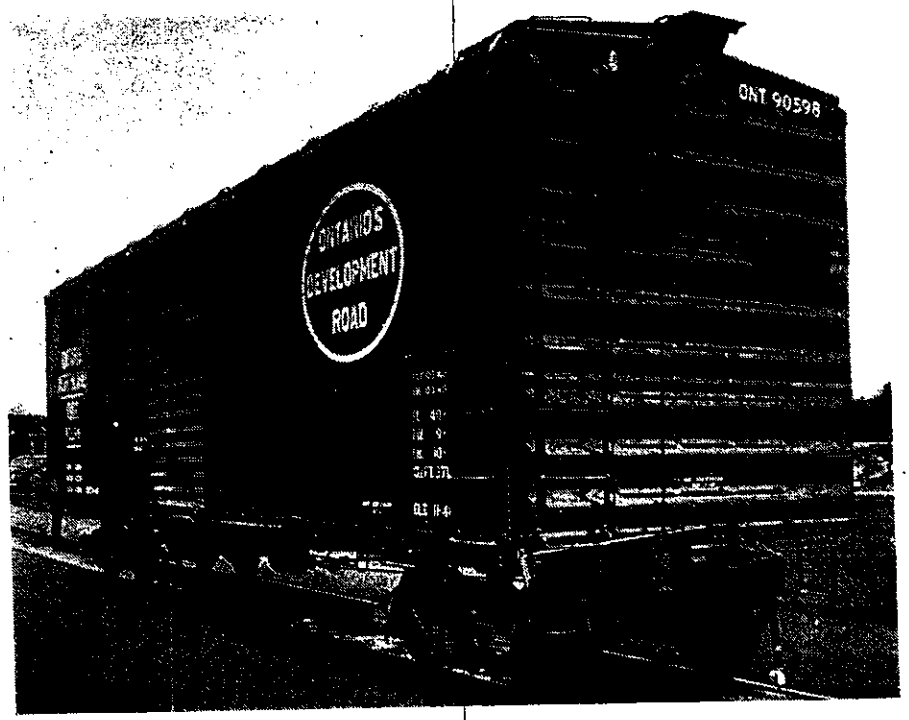
New 40-ton Box Cars for the Ontario Northland

Shipments have been completed by the builder, National Steel Car Corporation, Ltd., on an order from the Ontario Northland Transportation Commission for 430 cars of 3,712 cu. ft. capacity, modern in every detail.

IT was reported in our February issue, pg. 61, that in the period December 17-January 18 the Ontario Northland received 33 40-ton box cars from National Steel Car Corporation, Ltd., completing an order for 430 of these cars. Exterior and interior views of one of the cars are presented herewith. The cars are steel sheathed, wood lined units of 3,712 cu. ft. capacity, with the body mounted on four-wheel trucks fitted with 5 x 9 in. journals and having ample strength to carry a rail load of 136,000 lb.

The chief dimensions of the new cars are as follows:—

Lengths:-				
Between pulling faces of couplers	41 ft.	2	1/2	in.
Over striking castings	41 ft.	7	1/2	in.
Between truck centers	30 ft.	8	1/2	in.
Total wheelbase	36 ft.	2	1/2	in
Over running boards	42 ft.	2		in.
Truck wheelbase	5 ft.	6		in.
Inside end linings	40 ft.	6		in.
Widths:—				
Extreme, over door starters	10 ft.	8		in.
Over side plates	9 ft.	10	1/2	in
Over side sills	9 ft.	9	3/4	in.
Inside	9 ft.	2		in.
Center to center of side bearings	4 ft.	2		in.
Side door openings (clear)	6 ft.	0		in.
Heights:—				
Over all (top of running boards)	14 ft.	7	7/16	in.
From rail to top of side plates	13 ft.	5	7/8	in.
From rail to top of floor	3 ft.	7	11/16	in.
From floor to ceiling at side	10 ft.	0	1/4	in.
From rail to center line of coupler	2 ft.	10	1/2	in.
Door opening (clear)	9 ft.	5	3/16	in.
Bearing surface of center plate	2 ft.	1	3/4	in.



One of the 430 New 40-ton Box Cars Built for the Ontario Northland by National Steel Car Corporation, Ltd.

In the construction, great care was taken to ensure that an absolutely watertight car body was secured, and all vertical and horizontal seams and joints were caulked with compound. All steel plates in these cars under one-half inch thick, and pressed parts made therefrom, are of copper-bearing steel, with not less than 0.20% and not more than 0.30% copper content; this includes such specialties as steel ends, door sheets, etc., as well as structural parts.

In the underframe construction, the center sills are composed of two A.A.R. Z 26 sections, 12 13/16 in. at 31.3 lb. per ft., extending the full length of the car between striking castings, with the top flanges joined by continuous welding, and connected at the bottom by the bolster and crossbearer covers. Spacers, pressed from 3/16 in. plate, are applied between the sills at each crosstie. The side sills are 6 x 3½ x 5/16 in. angles, arranged with the 6 in. flange horizontal. They extend the full length of the car in one piece, and the horizontal flange is riveted on top of the horizontal flange of the end sill. Ship channel, 6 in. at 15.3 lb., in 2 ft. 6 in. lengths, is applied for reinforcement at the side sill for the body bolsters, this also providing a jacking plate. At the doorways, the vertical flange of the side sill angle is cut down to floor level, and where the angle is coped out, the corner is rounded to prevent the beginning of a fracture. Where it is cut away, the sill is reinforced under the lower flange with a 6 x 3½ in., 10.7 lb. bulb angle, 15 ft. 3¾ in. long. The end sills are of the same section as the side sills, with the horizontal flange passing under the lower flange of the side sills. The body bolsters are of double diaphragm type, with the diaphragms pressed from ¼ in. plate, arranged back to back and spaced 12 in. apart. The top cover plates, extending across the car from side sill to side sill, are 7/16 in. thick, with width of 21 in. at the center sills, tapering to 18 in. at the side sills. The bottom cover plates are ½ in. thick and 24 in. wide at the center sills, with the width tapering to 18 in. at the side sills. The center line of the bottom cover plate at the center sills is 12 in. on either side of the center line of the bolster. A forged or cast steel brace is fitted between the diaphragms, top and bottom cover plates, immediately over each side bearing. The body side bearings are secured to the bottom of the bolster at 50 in. centers, with ¾ in. countersunk rivets. The outer ends of the bolster are formed with a 6 in. x 2 ft. 6 in., 15.3 lb. ship channel riveted to the diaphragms, cover plates and lower flange of the side sill, to distribute the load and to form a jacking plate.

The crossbearers are of built-up type, with ¼ in. pressed plate diaphragms flanged continuous at the corners, with 8 x 5/16 in. top cover plate extending to the side sills and riveted thereto, and with ⅜ in. bottom cover plate ex-

tending across the car below the center sills, with ¼ in. pressed plate filler between the center sills. The eight sties are pressed plate diaphragms in. thick, flanged continuous at the corners and extending between the center sills and side sills and supporting floor stringers, with 3/16 in. pressed plate filler between the center sills. In addition, there are diagonal corner braces of 5/16 in. pressed steel extending from the junction of the side and end sills to a 5/16 in. gusset plate riveted to the bolster and center sill.

In the superstructure, the side plates are 3⅜ in. W section at 10.63 lb., the side posts 3 in. Z section at 5.1 lb., the doorposts 4 x 3 x ¼ in. angle, and the corner posts ¼ in. W section at 7.5 lb. The outside sheathing is of blue annealed, copper-bearing steel, 1/10 in. thick, roller levelled. The sheets are applied vertically, with one edge crimped to overlap the flat edge of the adjacent sheet. All laps and joints were painted during assembly, and, after sandblasting and priming, every joint was coated with Johns-Manville putty, applied with an air gun. Gusset plates are applied at the junction of side plates and steel ends, at junction of doorposts and side plates, and at junction of doorposts and side sills.

The cars have National Steel Car Corporation, Ltd., "National" corrugated steel ends and Standard Railway Equipment Co. "Murphy" steel roofs. In the roof construction, all parts of the roof sheets, flashings, etc., and metal doubled over and inaccessible after assembly, were thoroughly painted before application, and, following assembly, the whole roof, inside and outside, was given a thorough coat of primer for galvanized steel. All carlines were sandblasted and given a coat of red metal primer. Johns-Manplastic compound was applied be- on the inside of the roof caps and the roof sheets, between overlapping portions of the roof and contacting surfaces of the car, and to other roof parts where necessary to secure watertightness. Each car was water-tested, and all joints of the roof, sides, ends and doors were subjected to a water stream before roof, end and side lining

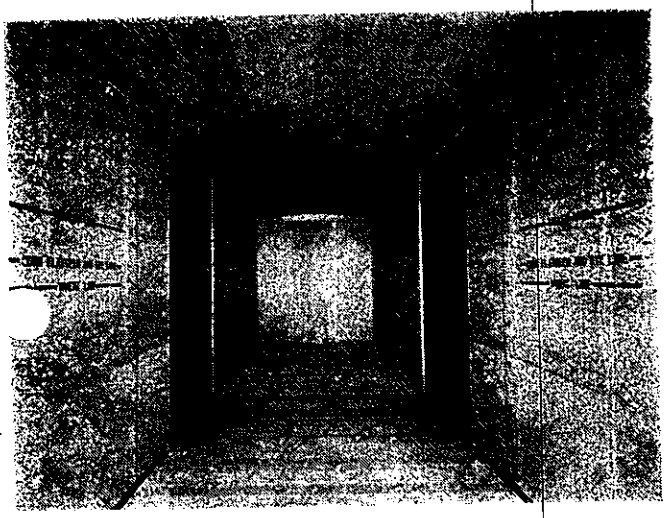
in., all of B.C. fir. The roof sheets are arranged to take Apex metal running boards; these running boards, of steel, were furnished by Consolidated Equipment Co.

The cars are lined with 5-ply plywood ⅝ in. thick, so treated as to give ample protection against slow decay and surface wood grain separation. In applying the plywood, panel stiffeners were employed where necessary. The waterproof sealer used on the lining protects the back face from decay and provides a tough finish. The plywood used for the side sheathing runs horizontally and is secured to post furrings 2½ in. wide. The vertical joints in the plywood panels are staggered, to provide added strength, and are made midway between the 2½ in. faced furring posts. The horizontal joints were made by ploughing out each sheet edge and forcing in a slip tongue for the full length. The plywood employed for end sheathing runs vertically, with a continuous length for each panel, and the joints are of the lap type, with ⅝ in. width of lap. All fasteners are set slightly below the surface and covered with clean wood primer. In addition, al bolts passing through side and enc plates, etc., have the exposed metal or the inside of the car covered with Johns-Manville putty, to prevent fros formation.

The ceiling is composed of ha pressed, resin bonded waterproof ply wood, ¼ in. thick, coated with Rezite and secured with one inch, no. 10, fla head wood screws.

All furring is secured with ½ in bolts, and, in application to the side posts, projects 1/16 in. above the flange of the Z section. All bolts securing the roof furring have a corrugated metal cleat, ⅜ in. wide, driven into the lumber across the edge of the counterbore, to prevent the nut from turning off.

Furrings, 3¾ x ¾ in., are applied over the center sill near the vertical webs, to support the flooring, and stringers run between the end sills and bolsters, between bolsters and crossbearers, and between crossbearers. Steel floor fillers are applied over the bolsters and crossbearers. The floor planking is 1¾ in. thick, tongued and grooved material, with individual planks not less than five in. and not more than seven in. wide. Each plank is secured with at least three MacLean-Fogg watertight ½ in. bolts. The flooring is of B.C. fir. The space between the ends of the planks and the steel sheathing is filled with a board 3⅛ in. wide and 3 in. high, against the outside sheet, and the top of the filler slopes down to a height of 2½ in. on the inside edge, which brings it ¾ in. above the top of the floor planks. This filler is applied longitudinally between the side posts, being bedded in Johns-Manville putty and secured through the



The Plywood-lined Interior of O.N.R. New Car.

Specialties Applied on New Box Cars for Ontario Northland.

Body		
Air brakes	Schedule "AB—10"	Westinghouse Air Brake Co.
Brakes (hand)	"Ajax"—215 car sets	The Holden Co.
	"Universal"—215 car sets	Canadian Cardwell Co.
Brake stabilizer	"Dorey"	Continental Transport Appliances
Brake step	"Apex"	Consolidated Equipment Co.
Couplers	A.A.R. standard	Car builder
Coupler yokes	A.A.R. standard	Car builder
Coupler centering device	"Union"	Standard Railway Equipment Co.
Coupler uncoupling gear	A.A.R. standard	Car builder
Defect card holder	"Apex"	The Holden Co.
Doors	"Youngstown"	The Holden Co.
Door fixtures	"Camel"	The Holden Co.
Draft gear	"Waugh"	Adanac Supplies Ltd.
Ends-steel	"National"	Car builder
Paint	C.I.L.	Canadian Industries Ltd.
Roofs-steel	"Murphy"	Standard Railway Equipment Co.
Running boards	"Apex"	Consolidated Equipment Co.
Trucks		
Axles	A.A.R. standard	Car builder
Bearings (journal)		Rahn Metals
Bearings (side)	Symington-Gould resilient type	Adanac Supplies Ltd.
Bolsters	Symington-Gould	Adanac Supplies Ltd.
Brake beams with "Economy" heads	A.A.R. standard	Car builder and Buffalo Brake Beam Co.
Brake shoes	A.A.R. standard	The Holden Co.
Brake beam supports	A.A.R. standard	Car builder
Brake hanger retainers	"Mobile"	Adanac Supplies Ltd.
Brake rods	A.A.R. standard	Car builder
Bolster stabilizer	"Barber"	Consolidated Equipment Co.
Dust guards	Thornburgh	International Equipment Co.
Frames (truck)	Symington-Gould	Adanac Supplies Ltd.
Journal box lids	"National"	Car builder
Oil (dope)	A.A.R. standard	Imperial Oil Limited
Paint	C.I.L.	Canadian Industries Ltd.
Springs	A.A.R. standard	B. J. Coghlin Co. Ltd.
Wedges (journal)	A.A.R. standard	Car builder
Wheels (cast iron)	A.A.R. standard	Canada Iron Foundries Ltd.

tures and miscellaneous products group furnished traffic 496,133 tons greater than in November, 1949. The tonnage of automobiles and trucks moved rose from 138,947 in the 1949 month to 199,803.

In the first 11 months of 1950, revenue freight loaded and received from foreign connections was 131,977,761 tons, an increase of 392,691 tons over the traffic in the first 11 months of 1949, but well under the total of 142,386,911 tons handled in the first 11 months of 1948.

In November, about three-quarters of the revenue freight handled by rail was unloaded at stations in Canada, with the balance going to foreign connections.

Particulars of the revenue freight loaded on Canadian railways and received from foreign connections, in tons, in November, 1950, 1949 and 1948, are:—

Provinces	Nov., 1950 Tons	Nov., 1949 Tons	Nov., 1948 Tons
Nfld.	62,905	45,354	.....
P. E. I.	28,237	49,212	48,315
N. S.	969,260	†879,796	907,617
N. B.	348,503	328,406	456,912
Quebec	2,489,157	2,049,923	2,489,285
Ontario	5,692,090	5,193,682	6,284,952
Manitoba	933,425	655,844	700,925
Sask.	1,163,997	1,260,167	1,212,337
Alberta	1,127,593	1,421,823	1,457,134
B. C.	982,167	†970,962	1,007,601
Total for Can.	13,797,334	†12,853,169	14,565,078

The products handled in November in the three years were as follows, in tons:—

Agricultural	2,923,449	†3,157,278	3,444,794
Animal	247,431	† 271,298	301,220
Mine	5,345,760	†4,820,331	5,260,658
Forest	1,264,984	†1,084,685	1,335,048
Mfrs. & misc.	4,015,710	†3,519,577	4,223,358
Grand Total	13,797,334	†12,853,169	14,565,078

†Revised.

O.N.R. Diesel Shop

The Diesel locomotive shop which the Ontario Northland Ry. is to build at North Bay, Ont., will have a one-story main service and repair shop building 260 x 122 ft., with a service section 260 x 50 ft. with 24 ft. clearance and two through tracks, and a two-track repair section, with a 30-ton crane runway having 38 ft. 6 in. clearance. At the north side there will be an office section 200 ft. long and 18 ft. wide, for supervisory personnel and electrical maintenance. There will be a lubricating and parts storage section 60 x 70 ft. at the east end of the main building, comprising full basement with two floors over. A separate building 120 x 75 ft. will house a wheel shop. The buildings will have reinforced concrete foundation supported on timber piles, structural steel frame superstructure with brick walls, precast concrete roof slabs and 20-year pitch and gravel insulated roof surface. Glass block will be used almost exclusively for window areas.

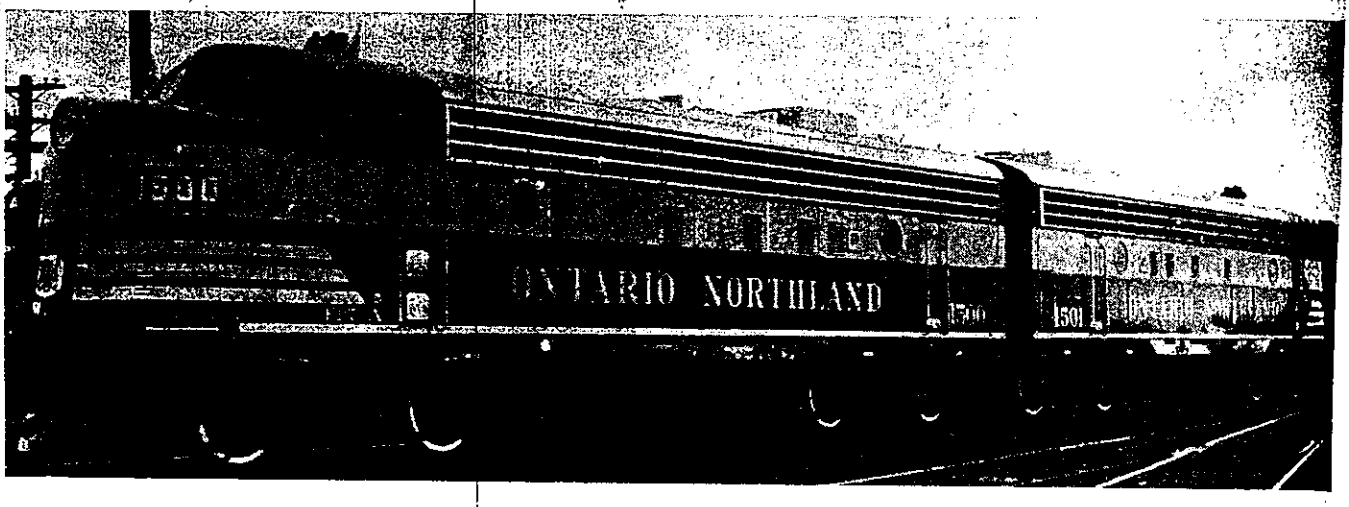
So far as known, this will be the first shop to be built in Canada as a self-contained unit specifically for Diesel power. It was reported from North Bay early in April that tenders for construction were being called. The O.N.R. now has several Diesel-electric locomotives, with more on order, and complete Dieselization by 1955 is expected. Some 40 steam locomotives remain in service.

Dieselization Programme. — Advice received since the foregoing was written is that the O.N.R. Dieselization programme is proceeding methodically. The latest Diesels to go into service are six General Motors Diesel, Ltd., 1500 h.p. road "A" units, weighing some 258,000 lb. and providing 40,000 lb. continuous tractive effort. These units are fitted with train heat boilers and are at present in freight service. It is expected that there will be 22 Diesel locomotives of various types in operation on the O.N.R. at the end of this year. There are three (road numbers 1200 to 1202) 1,000 h.p. switchers of Alco-G.E. manufacture, with 34,000 lb. continuous tractive effort; one (No. 1203) similar switcher of Montreal Locomotive Works-Canadian General Electric manufacture; two 1,500 h.p. road switchers (Nos. 1300 and 1301) developing 42,500 lb. continuous tractive effort, of Alco-G.E. manufacture, and two similar locomotives (1302 and 1303) of M.L.W.-C.G.E. manufacture; the six 1,500 h.p. road "A" units of General Motors Diesel, Ltd., manufacture (Nos. 1500 to 1505). All of the foregoing, except No. 1203, are equipped with multiple unit control. Locomotives 1500 to 1505 have train heat boilers. On order, with delivery expected this fall, are eight 1,600 h.p. road switchers of M.L.W.-C.G.E. manufacture, to develop 52,000 lb. continuous tractive effort and to be assigned road numbers 1304-11. Numbers 1304-07 will have train heat boilers, and locomotives Nos. 1300, 1301, 1302 and 1303 are similarly equipped.

After the new Diesel repair and servicing facilities are provided, the present steam locomotive shops at North Bay will continue in service at least until Dieselization is completed and the last steam locomotive is disposed of, probably not before 1955. Even after that, the roundhouse will not be abandoned but will be continued in service as long as either the C.N.R. or O.N.R. have steam locomotives in service in the area. The transition from steam to Diesel power is to result in little or no disruption of the labor forces, and employees in the new Diesel shop will be taken from the steam locomotive shop departments, instruction leading to this transfer already being given. Also, no effect on men in the running trade is expected, particularly if the present high volume of traffic is maintained.

Car Journal Lubrication

The A.A.R. Mechanical Division advises that the fifth progress report of laboratory studies of journal bearing lubricating materials (oils, waxes, etc.) dated October 5, 1950, is now ready for distribution, copies being available from the Division headquarters, 59 East Van Buren Street, Chicago 5, at 75c per copy to Division members and $1.50 per copy to non-members. These studies cover exploratory tests to establish the functional characteristics of new and renovated car oils for use with the conventional waste-pack for car journal lubrication, with a full size 5½ x 10 in. journal testing machine used in a controlled temperature room in the lubrication laboratory at Indianapolis. Copies of preceding progress reports are available at varying prices.



Two 1,500 H.P. Diesel-electric Locomotive "A" Units on the Ontario Northland
These are two out of six road units supplied recently by General Motors Diesel, Ltd. They are fitted with train heating equipment but are being used in freight service at the present time.

Canadian Transportation

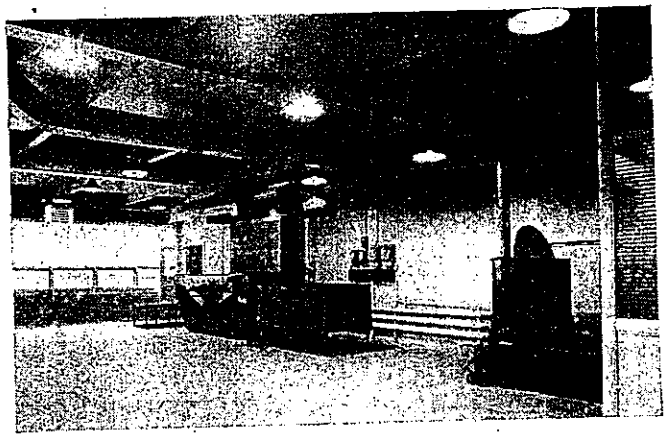
O.N.R. Diesel Locomotive Shop, North Bay, Ont.

The servicing and repair shop for Diesel-electric locomotives, provided by the Ontario Northland Ry. at North Bay, Ont., is a thoroughly modern and completely-equipped facility, as the description herein-under demonstrates. The O.N.R. now has 38 Diesel-electric locomotives in service, and the road is to be completely Dieselized before the end of 1955.

The Ontario Northland Railway has recently completed a new Diesel servicing and repair shop at North Bay, and the building was officially opened on October 27th, 1953, by the Hon. Leslie M. Frost, Prime Minister of Ontario.

The Main Shop is 104 ft. wide x 260 ft. long, divided into two approximately equal sections 52 ft. wide for service and repair respectively, each having two tracks. The service area has two through tracks, each with a capacity for four Diesel units, with elevated platforms on each side at the locomotive floor level and a depressed floor beneath for servicing of trucks. Two electrically-operated crossover bridges are provided at the entering, or east, end of each service track, which permits easy passage from one elevated platform to another, and these are lowered to rail level to permit locomotives to enter the building. The repair area has two stub tracks, one for truck repairs and one for locomotive overhaul.

One of the most important pieces of equipment in the shop is the drop table, which consists of an electrically-operated elevator used for changing Diesel locomotive trucks. This unit permits changing a complete truck in about two hours, compared with 1½ days by the old method at shop floor level of having to jack the locomotive up.

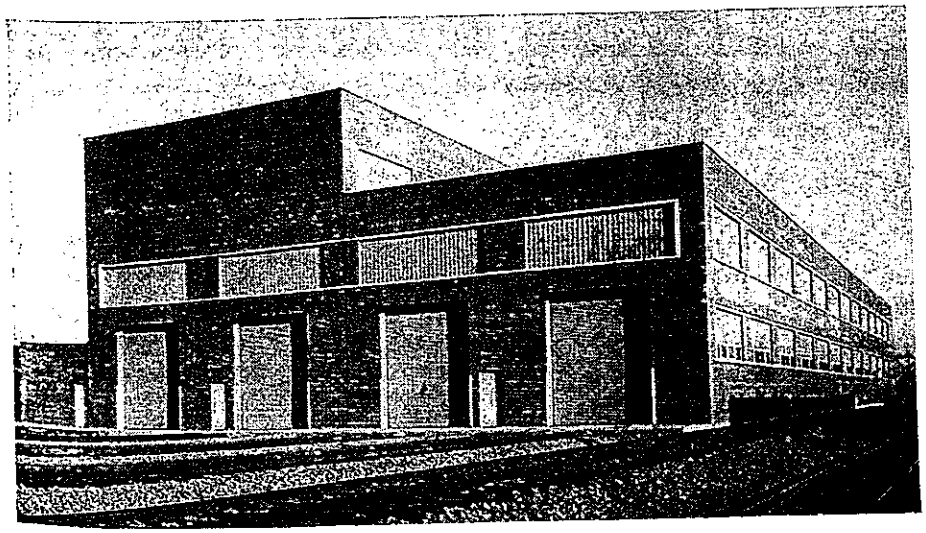


The Filter Cleaning Room, Annex Third Floor

Service platforms are provided with hot and cold water, compressed air, lubricating oil and electricity for the various servicing operations. These services are at various points along the platforms, which accelerates the passage of locomotives through the shop.

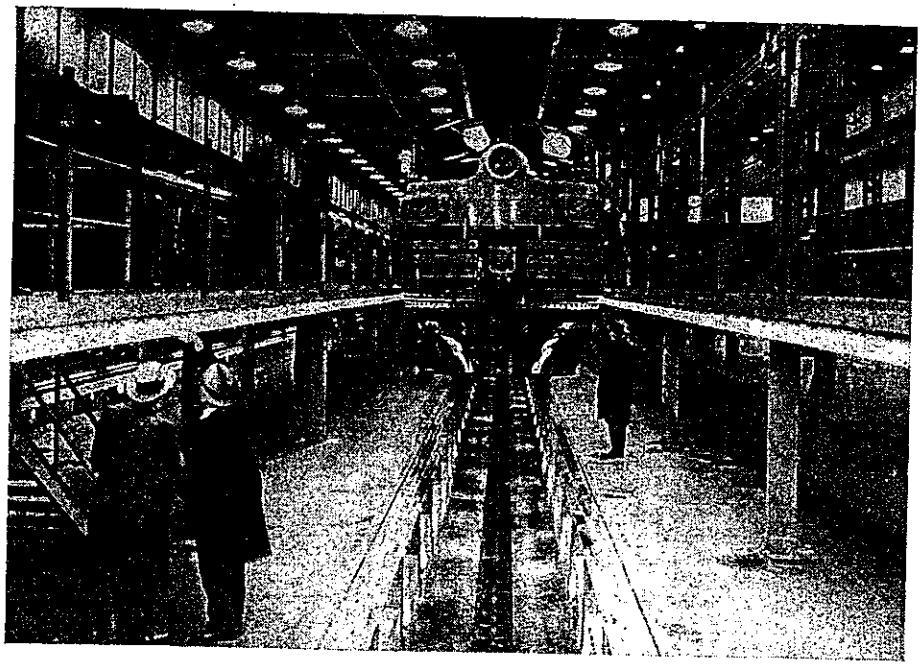
Another feature of the service shop is the exhaust ventilating system. A continuous duct is suspended over each service track for the full length of the building, connected to motor driven exhaust fans in the roof. Both main engine and steam generator exhaust stacks discharge into this duct and gas and smoke is carried away by the fans. The fans are automatically started and stopped as the temperature rises and falls. This ensures a minimum heat loss from the building during winter months, as the very high output of these fans would quickly lower the building temperature if uncontrolled. As far as is known, this shop is the first to be so equipped with this type of automatic ventilation.

The repair section has a considerably higher clearance, it being 38 ft. 6 in. compared with 24 ft. in the servicing section. The repair section has a 30-ton electric travelling crane having a 5-ton auxiliary lift, being used for removing heavy parts such as main engines, generators and steam generators from the locomotives. This permits rapid changing of defective units which are replaced by spare units from stock, the former being repaired in adjoining work shops. There is a small tool room located at the east end of the repair section, for storing of tools and working equipment.



The Ontario Northland Ry. Diesel Servicing and Repair Shop at North Bay

The above view shows the west end and south side of the main shop



A Diesel-Electric Locomotive on Service Track in Shop

On the north side of the repair shop there is a section 18 ft. x 200 ft. which contains shop offices, the electrical department, wash and locker room for the engine crews and first aid room. There are rooms for charging storage batteries and for corn blast cleaning of motors and generators.

At the east end of the building is a 3-storey annex 60 ft. x 70 ft. containing, in the basement, a wash and locker room for the shop staff, the fan room and the lubricating oil room. On the first floor are service shop stores, the parts reconditioning room, the parts and filter cleaning room, and the foreman's office. On the second floor are the lunch room, lecture room and apprentice class room.

The fan room contains a large forced draft fan supplying heated air to service pits, which assists in heating this section of the building, and also provides direct heat through a series of ducts for thawing out under carriage of locomotives during the winter.

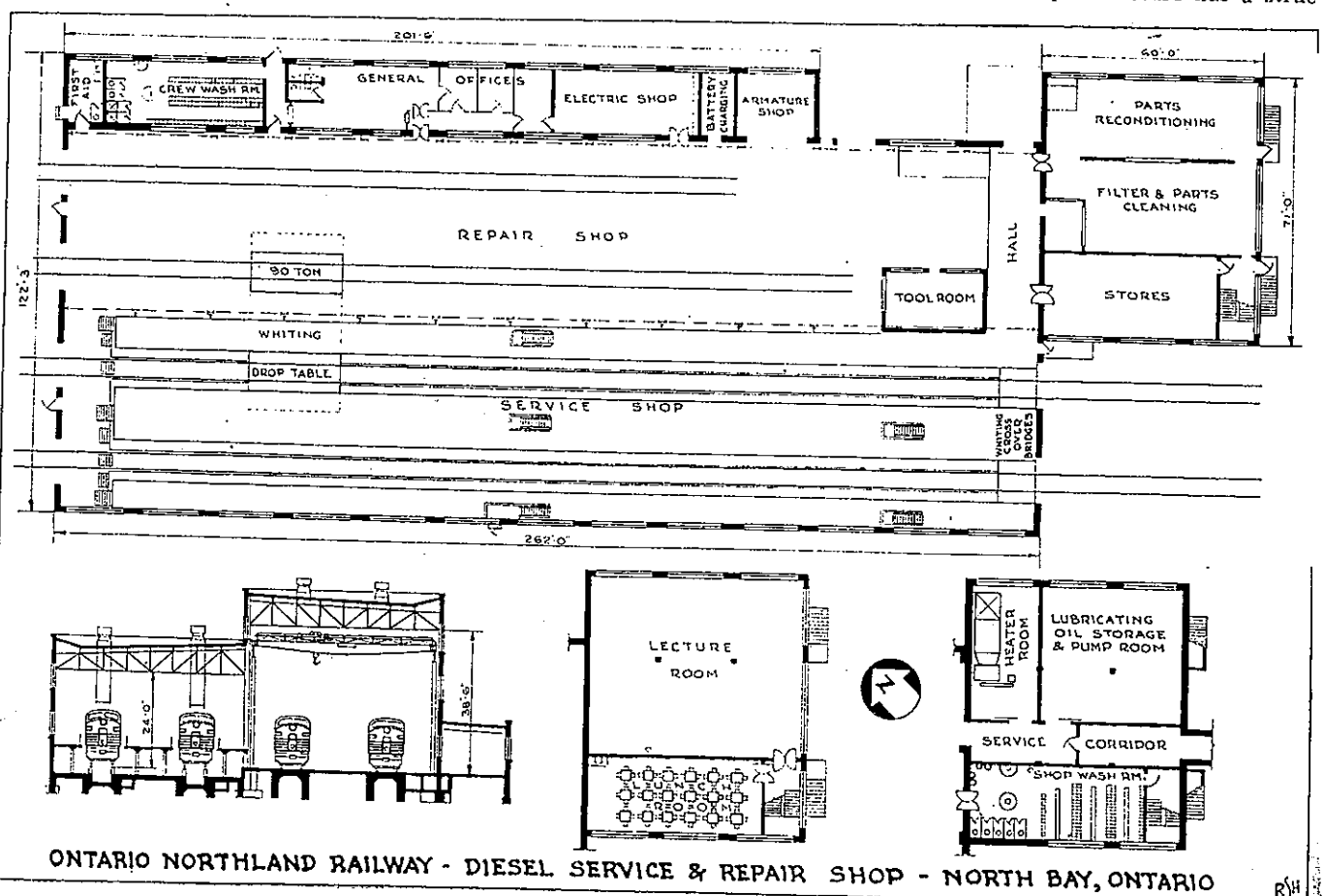
The lubricating oil room contains new and used lubricating oil storage tanks with related pumps and equipment for supplying oil under pressure to various points in the shop, and also for loading and unloading new and used oil.

The parts and filter cleaning room provides facilities for cleaning and re-oiling the re-usable air filters of locomotives and coaches and for cleaning engine parts. The filters are cleaned in a centrifugal type machine and the parts in a tank with agitated basket.

The parts reconditioning room contains complete equipment for the repair and overhaul of various items making up the main engine assembly. Sub-assemblies are broken down into their various components and all parts checked over, replacements being made where necessary, prior to being put together into a completely overhauled unit.

The lecture room on the top floor is used for instruction of shop and operating employees in the proper repair, service and operation of the locomotives, and is complete with sound movie and slide projectors. There is an adjoining space with drafting tables for apprentice instruction.

The building construction consists of a reinforced concrete foundation supported on timber piles driven to rock. The superstructure has a struc-



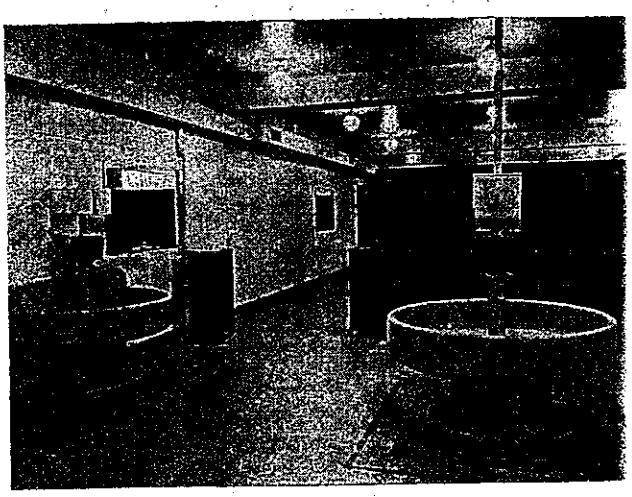
tural steel frame with brick walls and precast concrete insulated roof. Glass panels are used extensively for window areas with ventilating sash incorporated therein.

A service tunnel under the shop tracks connects the steam locomotive shop with the Diesel shop and contains the pipe lines and conduits carrying electric power, steam, cold water, condensate return, compressed air and telephone. The tunnel is 5 ft. high, 6 ft. wide and 145 ft. long.

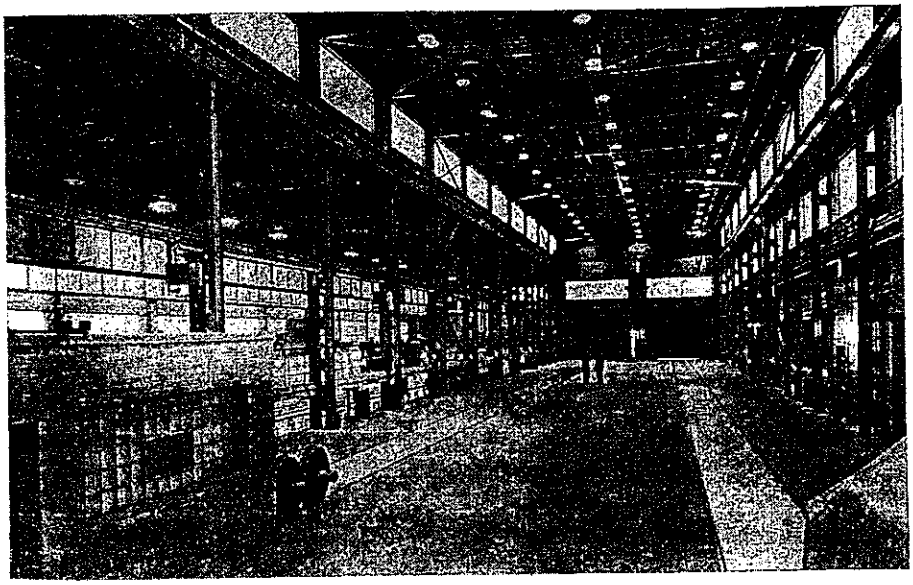
Lighting in both the high and low bays is by mercury vapor lamps with alternate incandescent fixtures for color correction. The lighting intensity is from 40-50 foot candles at the working plane.

Excavation was started Sept. 1, 1951. The building stands on 947 piles and contains 500 tons of structural steel and 3500 cubic yards of concrete.

T. D. Saunders, Chief Engineer of the railway at North Bay, has been directly responsible for the design and construction of these new facilities, and the work was carried out by Hill-Clark-Francis Limited, general contractors, of New Liskeard. Proctor, Redfern & Laughlin, Toronto, were the consulting engineers.



Typical Washroom Facilities



A General View of the Repair Section of the O.N.R. North Bay Diesel Shop, Looking West

Motive Power on the O.N.R.

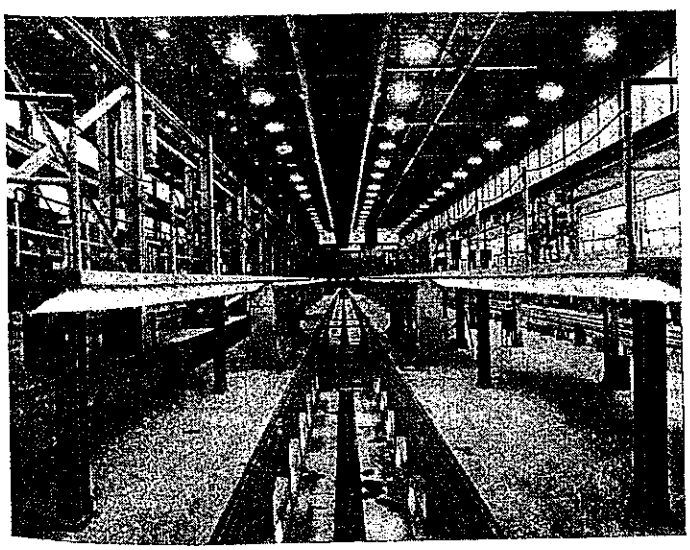
At time of writing, the Ont Northland Ry. has 38 Diesel-elec locomotives in service, viz., four A yard switchers, Nos. 1200-1203; f Alco road switchers, Nos. 1300-1 eight Montreal Locomotive Work General Electric road switchers, N 1304-1311, and 22 General Mo Diesel road "A" units, Nos. 1500-1

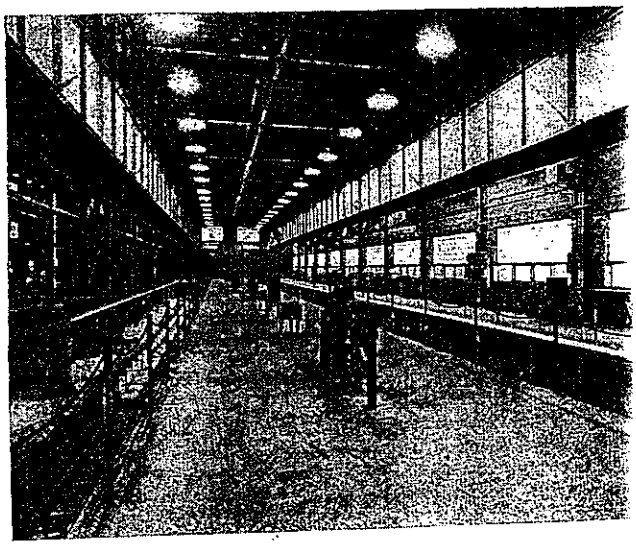
Also in service are the follow steam locomotives, all of Canad Locomotive Co., Ltd., manufact supplementing the Diesel power occasion demands:—Seven Mik type, Nos. 302-05-07-11-15-16-17; Consolidation, No. 400; two Cons dation, Nos. 500-02; three Pacific, 1 601-02-03; three Pacific, Nos. 700 03; two eight-wheel switchers, N 900-01; one Northern, No. 1103.

The management's expectation that Dieselization of the property be completed in 1955.

Grain Traffic at Churchil

Recent advice from the Board Grain Commissioners for Can. Statistics Branch, is that receipt grain at the elevators at Fort Wil and Port Arthur in the 1952-53

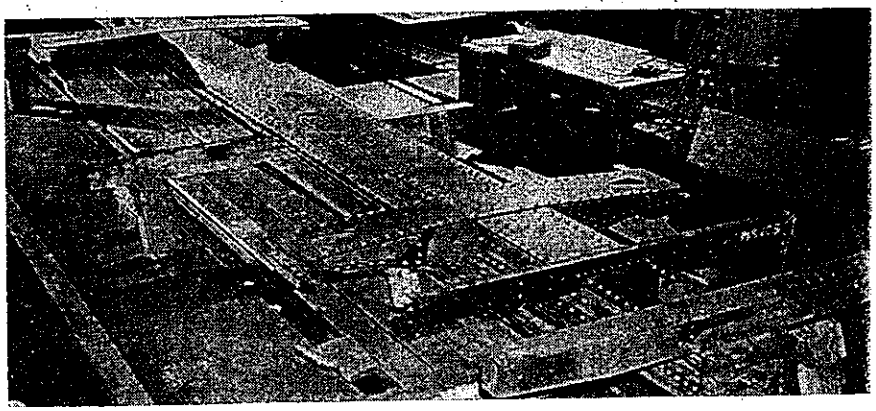




Left, The Lower Floor Level, Service Section of Shop, Looking East. Right, Upper Floor Level, Service Section, Looking East

Cabooses Built By O.N.R.

One of two accompanying illustrations shows underframe members for one of five cabooses built by the Ontario Northland Ry. at its North Bay shops last year. With surplus materials available and during a period of slack employment at the shops, it was considered advisable to undertake the construction of these cabooses, and the effort was considered a success. These units have all-steel bodies and are finished with interior plywood lining and fibreglass insulation. All are equipped with radio telephones for communication with the front end, and they are electric-lighted, with power supplied by Leece-Neville generator. The interiors are attractive in appearance and comfortable and convenient for the crews. The radio telephone equipment may be used for communication with the yard office from distances up to 10 miles. Over greater distances, the nature of the country makes communication difficult and uncertain.



Construction of Underframe for One of the O.N.R. Cabooses

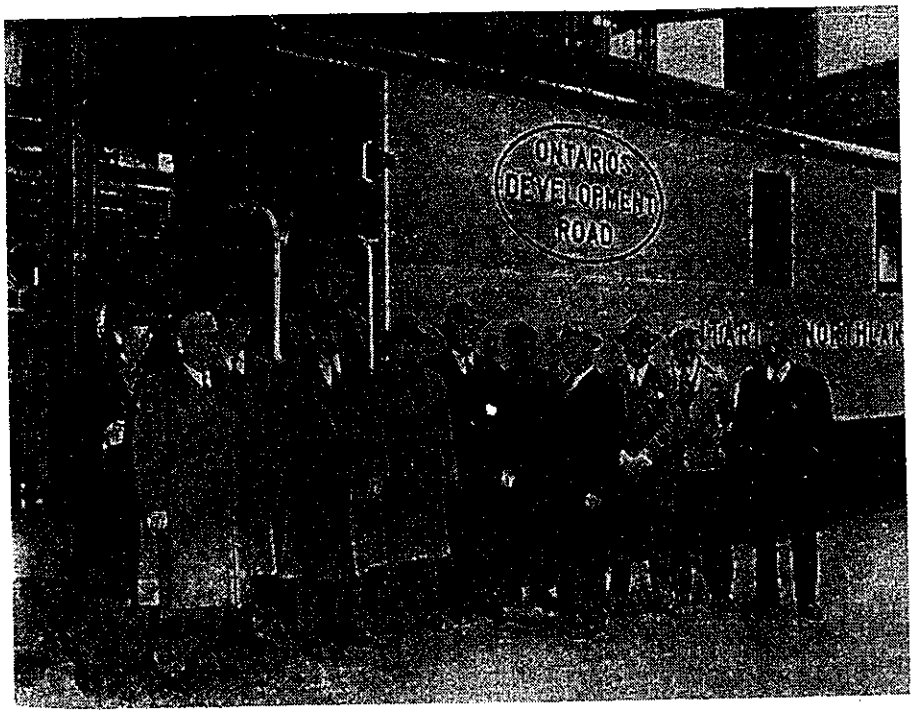
Soo Line and Wisconsin Central

The Soo Line Rd. (Minneapolis, St. Paul and Sault Ste. Marie Rd.), C.P.R. subsidiary, and the Wisconsin Central, which the Soo Line operates as agent for the Wisconsin Central trustee, did considerably better to the end of October last than in that part of 1954. On the Soo Line, gross earnings to the end of October were ahead of those for the 1954 period, while operating expenses were reduced, and net operating revenue was up from $5,205,276 in the first ten months of 1954 to $7,331,600 in the 1955 period. Net railway operating income increased from $2,294,529 in the 1954 period to $2,948,873, and the operating ratio was reduced from 84.2% in the 1954 period to 78.9% in the 1955 period. In October, the net railway operating income was $498,895, up from $293,132 in October, 1954, and the operating ratio was reduced from 78% in the 1954 month to 63.9%.

On the Wisconsin Central Ry. also, gross earnings in the first ten months of 1955 were ahead of those in the 1954 period, while operating expenses were reduced, and net operating revenue was up from $4,419,993 in the first ten months of 1954 to $6,382,955 in the 1955 period. The net railway operating income increased from $1,693,653 in the first ten months of 1954 to $3,354,628. The operating ratio was reduced from 81.8% in the 1954 period to 75%.

In October, the Wisconsin Central had net railway operating income of $494,948, up from $337,067 in Octol 1954, while the operating ratio v reduced from 75.2% in the 1954 mo to 69.5%.

The Soo Line operates 3,224 mile road, and the Wisconsin Central 1. miles.



One of the Five Cabooses Built at the O.N.R. Shops

U.P. Locomotives

(From pg. 3)

the main power plant, which will remotely operated by controls loca in the leading section. Each sect will be carried on two six-wh trucks, giving the complete loco tive 12 axles, all of which will driving axles, with total weight of tons all on the drivers. The auxili power unit in the leading section consist of Diesel engine and gener driven by it. This Diesel engine supply the power necessary to m the locomotive during switching hostling, and the electric power veloped by its connected gener will be utilized for starting up the comotive. This auxiliary Diesel gine will operate continuously wh the main power plant is operating also during standby, switching hostling operations.

The 8,500 h.p. formerly mentio represents the input to the two t tion generator sets at 6,000 ft. el tion and temperature of 90 degrees this corresponding to 7,000 h.p. at rail. The turbine power plant it is rated at 10,700 h.p. at 1,000 elevation and temperature of 80 grees F. Each one of the 12 axles have geared to it a standard GE traction motor, and each locomo will be fitted with one set of si end, single unit control. Air bra will be schedule 24 RL, single equipment with safety control feat and each locomotive will carry three-cylinder, two-stage, intercoo electric motor-driven air compress Tractive effort at continuous ratin motor, for 8,500 h.p. input to the erators, will be 145,000 lb.

Additional information in regar these new locomotives will be sented in the next issue.

The M-73 (above) has replaced the M-32 as an ambulance and ins
car at Cochrane. The M-32 is now being used on highway duty only.

The ONR: New Life, New Looks For Old Coaches

Stainless steel coaches have added a new measure of passenger comfort on the Ontario Northland Railway. The first of the new coaches went into service recently and two more are expected to follow in coming weeks.

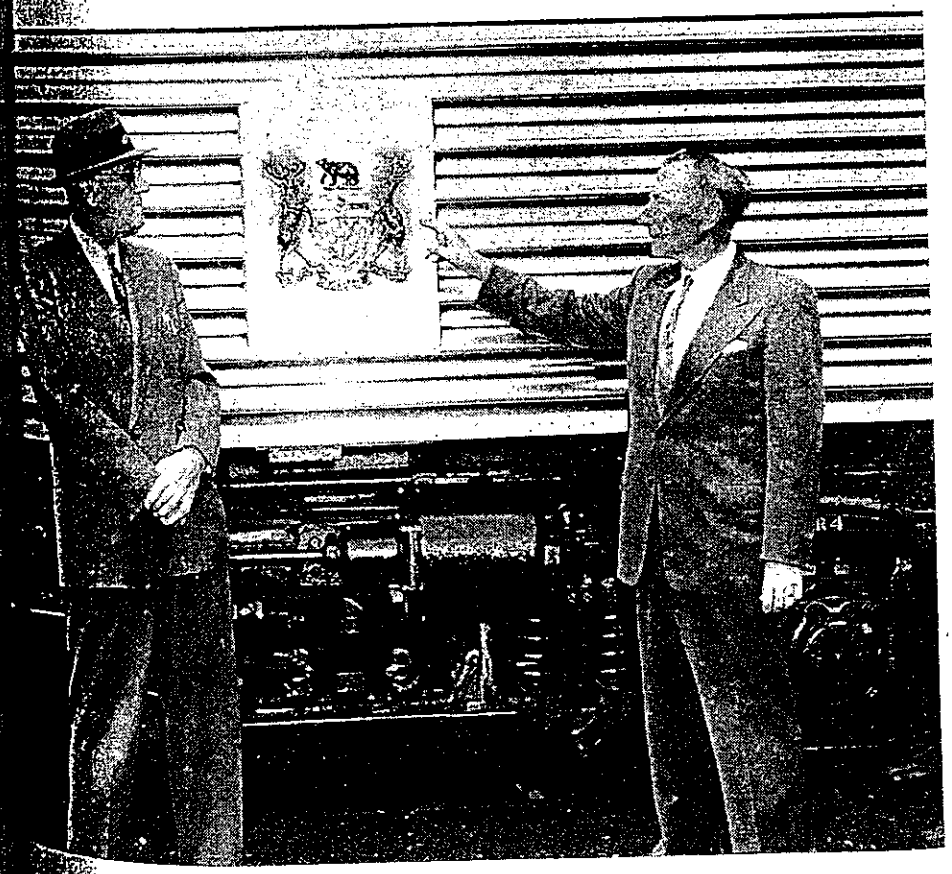
Described as being the last word in good appearance and riding comfort, the new coaches boast coil spring trucks with vertical and lateral shock absorbers. Huge picture windows and fluorescent lighting are an added touch aimed at making passengers feel right at home.

The exterior of the cars is fluted stainless steel with a green window band. The crest of the province of Ontario is displayed beside each entrance.

Originally built for the Bangor and Aroostook Railroad by the Pullman Standard Company in 1949, the coaches were rebuilt in the O.N.R.'s North Bay coach shop. The trucks were completely overhauled and all electrical equipment was rebuilt. Seats were re-upholstered.

The coaches, which will each accommodate 68 passengers, are 85 feet in length, slightly longer than other coaches currently in service. Electrical air conditioning does away with the need for icing. Passengers in the main body of the car are provided with rotating-reclining seats while in the smoking compartments there are ten movable chairs for comfortable informality.

The graceful apearance of the new coaches bears strong testimony to the skill of O.N.R. craftsmen at North Bay.



Inspection

Alvin Jardine and J. W. Millar examine Ontario crest on new-style car.

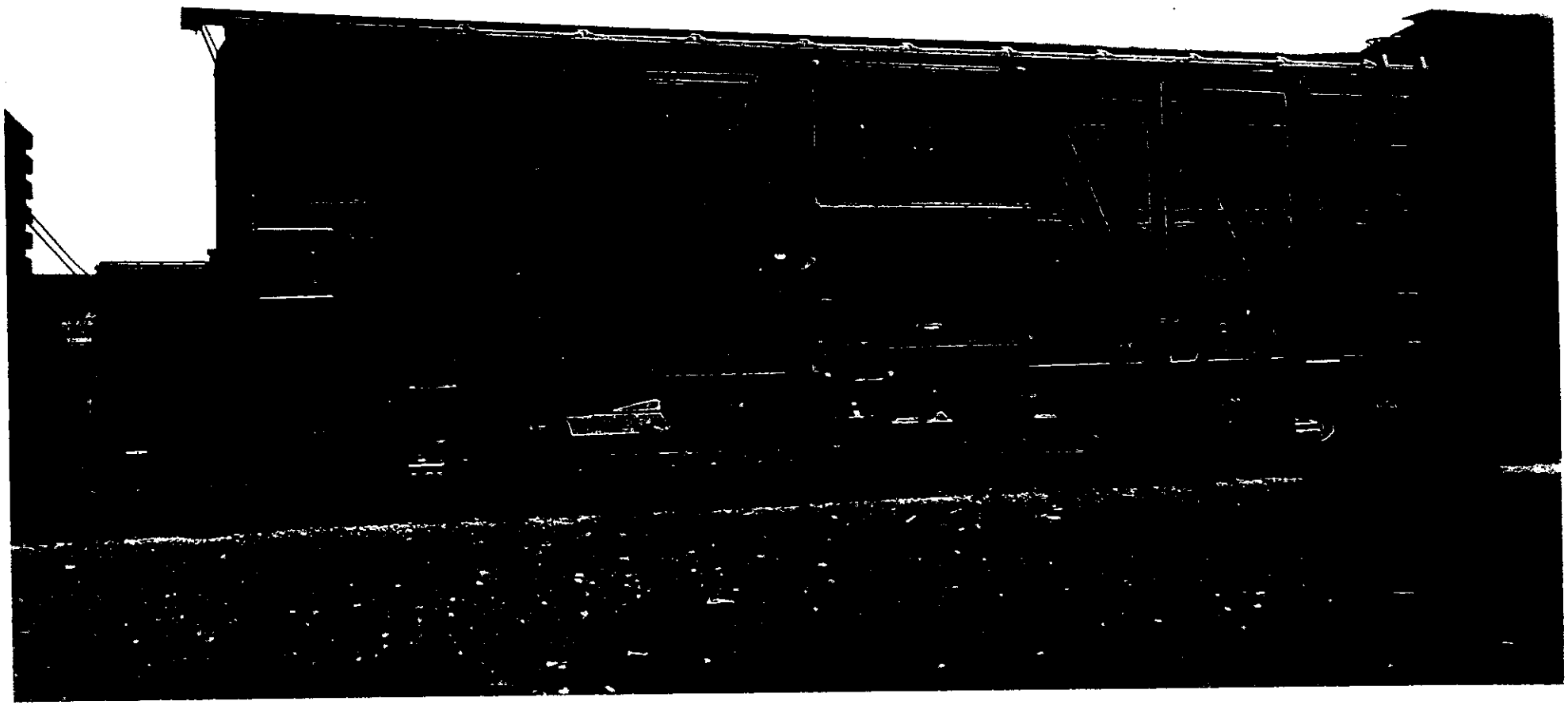
Award Safety Plaque To CPR

In recognition of its "Outstanding Public Safety Program" for the year 1958, the Canadian Pacific Railway has been awarded a golden rail-spike plaque by the National Safety Council of the United States.

It was the sixth consecutive year that CPR had carried off the prize which was initiated six years ago.

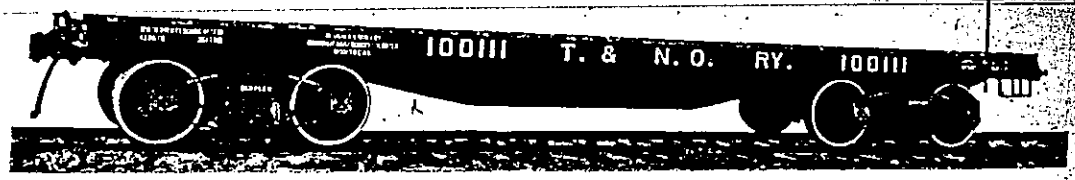
One of the main features of CPR's Safety Program is the extensive coverage of school children. During the past year 283 schools were visited and some 90,000 children were lectured on the dangers of trespassing on railway property. In addition, the railway places its library of safety films at the disposal of organizations interested in accident prevention.


ONTARIO NORTHLAND ONT 100135



ONR 1202

DOMINION CAR & FOUNDRY CO.
LIMITED



STEEL FREIGHT CARS

STEEL UNDERFRAMES

SIMPLEX

Bolsters, Brake Beams and Susemihl
Frictionless Side Bearings

FREIGHT CAR TRUCKS

Works — MONTREAL WEST

P.O. ADDRESS:
Box 2392, Montreal

NEW YORK OFFICE:
42 Broadway